

Minor works REF addendum memo

To	Anna Zycki, Regional Director – North Damien Pfeiffer – Director Development Services (Land Use)
From	Dimitri Perdikaris – Senior Manager Renewables Transportation
Priority	ROUTINE
Date	28/01/2025
Subject	Minor works review of environmental factors addendum memo 1 for Central West Orana Renewable Energy Zone – Port to Renewable Energy Zone Road Upgrade Program Minor works review of environmental factors (MWREF) – Package 1

Proposed modification

Modification to the Central West Orana Renewable Energy Zone – Port to Renewable Energy Zone Road Upgrade Program Minor works review of environmental factors (MWREF) – Package 1.

Background

The Central West Orana Renewable Energy Zone – Port to Renewable Energy Zone Road Upgrade Program – MWREF Package 1 was determined in July 2024 (refer to Attachment C). The MWREF formed the first of five packages assessing minor intersection modifications that would facilitate the transportation of over-sized and/or over-mass components from the Port of Newcastle to the Central West Orana Renewable Energy Zone.

The project works as described in the determined MWREF included:

- Quayside Close and Selwyn Street intersection (I-001)
 - Provision of hardstands to the east of Quayside Close and south of Selwyn Street to accommodate the swept paths of design vehicles
 - Lengthening the existing culvert under Quayside Close on the eastern side by about 11 metres and construction of a concrete upstand on the new culvert headwall including repositioning of downstream scour protection
 - Ground stability testing immediately prior to construction to confirm design methodology of culvert extension
 - Realignment of the existing fence located on the eastern side of Quayside Close, with some sections replaced with new fencing
 - Realignment of the existing open drains on the outside of new hardstand areas, as well as provision of one new stormwater inlet and conversion of the existing stormwater inlet to an inspection pit located south of Selwyn Street
 - Removal of one shrub located on the southern verge of Selwyn Street to accommodate the drain realignment
 - Provision of ‘No Parking’ signs along the eastern verge of Quayside Close, on either side of the new hardstand, and possibly at other locations within the proposal area subject to detailed design
 - Extension of an existing communications cable located south of Selwyn Street about five metres
 - Construction of a new communications cable connection to the ARTC property, south of Selwyn Street.
- Selwyn Street, George Street and Industrial Drive intersection (I-002)
 - Provision of hardstand at the north west corner of the Selwyn Street and George Street intersection and western verge of Industrial Drive to accommodate the swept paths of design vehicles
 - Construction of new mountable concrete kerbing on the north west corner of the Selwyn Street and Georges Street intersection and western side of Industrial Drive
 - Conversion of two stormwater inlets and additional kerb inlets to suit the new mountable kerb on the north west corner of the Selwyn Street and George Street intersection and maintain existing inlet capacity
 - Conversion of three stormwater inlets and additional kerb inlets on the western verge of Industrial Drive and maintain existing inlet capacity
 - Removal and replacement of two trees located on the western verge of Industrial Drive, north of the George Street and Industrial Drive intersection, to accommodate the proposed hardstand
 - Provision of one new ‘No stopping’ sign on the north west corner of the Selwyn Street and George Street intersection, relocation of one ‘No stopping’ sign on the northern verge of George Street, relocation of one ‘No stopping’ sign and one ‘Suburb’ sign on the western side of Industrial Drive to accommodate the proposed hardstand
 - Relocation of an existing light pole on the northern verge of George Street
 - Relocation of an existing traffic control signals (TCS) post on the north east corner of George Street and Industrial Drive intersection
 - To accommodate the new hardstand at the western verge of Industrial Drive, relocation of an existing TCS cable, construction of a new communications pit located to the north of the new hardstand, which connects to the existing

- communications network, and relocation of an existing low pressure gas main
- Construction of a new manhole and communications pillar on the north west corner of the Selwyn Street and George Street intersection.
- Industrial Drive and Pacific Highway intersection (I-003)
 - Replacement of existing kerb and island reconstruction works at the north east corner of the Industrial Drive and Pacific Highway intersection
 - Provision of one, and relocation of another, 'No U Turn' sign on the concrete medians on the Pacific Highway, north of the Industrial Drive and Pacific Highway intersection
 - Relocation of one directional sign from the existing traffic control signal post at the north east corner of the Industrial Drive and Pacific Highway intersection to further north on Pacific Highway
 - Relocation of one existing light pole east of its location at the north east corner of the Industrial Drive and Pacific Highway intersection.
- John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004)
 - Provision of hardstand in the central roundabout median north of Hunter Expressway to accommodate the swept path of the design vehicles
 - Removal of four planted trees located at the northern extent of the central roundabout median above the Hunter Expressway with John Renshaw Drive to accommodate the concrete hardstand
 - Relocation of one 'Cyclist warning' sign at the eastbound exit ramp to the roundabout
 - Relocation of two 'Roundabout warning', 'No entry' and 'Wrong way' signs (back-to-back) about one metre away from their existing location at the eastbound exit ramp to the roundabout, and relocation of one 'Roundabout directional' sign at the central roundabout median.

Purpose

The purpose of this memo is to:

- Describe the proposed modification to MWREF Package 1.
- Document and assess the likely impacts of the proposed modification on the environment.
- Detail any additional safeguards to be implemented or revision to existing safeguards that are required to address impacts associated with the proposed modification.
- Document the recommendation of the Transport Senior Manager Environment and Sustainability (SMES) and the decision by the Transport delegated manager whether or not to determine the modification to the project.

This memo is an addendum to and is to be read in conjunction with the previous project MWREF (refer to Attachment C).

Description of the proposed modification

It is proposed to relocate Telstra services, including manholes, pits and conduits, at the Selwyn Street, George Street and Industrial Drive intersection (I-002). The relocation of these services would primarily occur within the proposal area depicted in the MWREF, with a small portion occurring outside this area. The proposed location of these utility works is shown in Figure 2 and existing infrastructure to be accessed or modified is shown in Figure 5 to Figure 8. A laydown area is also proposed in an area of hardstand shown in Figure 2.

Utility works, additional to what was proposed in the MWREF, would also be required along William Street, Tighes Hill, as a consequence of the relocated Telstra services work described above, at about 450 to 755 metres south of the MWREF proposal area at the Selwyn Street, George Street and Industrial Drive intersection (I-002) as shown in Figure 3 and Figure 4. Under boring is also proposed for a new NBN conduit across George Street at the Selwyn Street, George Street and Industrial Drive intersection (I-002). This new NBN conduit is shown in Figure 2.

An overview of the proposed modifications is shown in Figure 1.

The proposed modification includes the following utility work:

- Telstra services:
 - Accessing the existing manhole (A) about 20 metres south of the proposal area in the MWREF (refer to Figure 5)
 - Installation of a new conduit about 40 metres in length, from the existing manhole (A) to a new P8 pit (B) (1375 x 631 x 900 mm) to be installed
 - Installation of a new conduit about 46 metres in length, from the new P8 pit (B) to the existing pit (C) (refer to Figure 6)
 - Replacement of existing asbestos pit with new P5 pit (D) (710 x 455 x 635 mm), with new conduit to be trenched and backfilled to the existing pit (C)
 - Replacement of existing asbestos pit (refer to Figure 7) with new manhole and pickup of existing network conduits and installation of starter pipes for NBN cabinet and pillar entry (F). Conduits would be trenched and backfilled from the new manhole (F) to the existing pit (C)
 - Removal of existing manhole (E) (refer to Figure 8) once cutover have been completed
 - Removal of all redundant pits once cutovers have been achieved
- NBN services:
 - Installation of a new NBN conduit about 53 metres in length, using the under bore method, across George Street from an existing pit (F) in Figure 2 to traffic island south of George Street where it connects to an existing NBN pit (L) and conduit that runs under Industrial Drive to the intersection with George Street (refer to Figure 2). New cabling about 100 metres of cabling will be installed within the existing conduit (from L to O).
 - Accessing the existing Telstra pits about 450 and 525 metres south of the MWREF proposal area respectively (refer to Figure 3) that will require about 5 metres of trenching, conduit and backfill to join existing pit and conduit with capacity followed by lay of cable between Telstra pits.
 - Installation of a new NBN conduit about 72 metres in length, between Henry Street and Elizabeth Street, which is either to be installed using under bore method and or trench and backfill (refer to Figure 4).

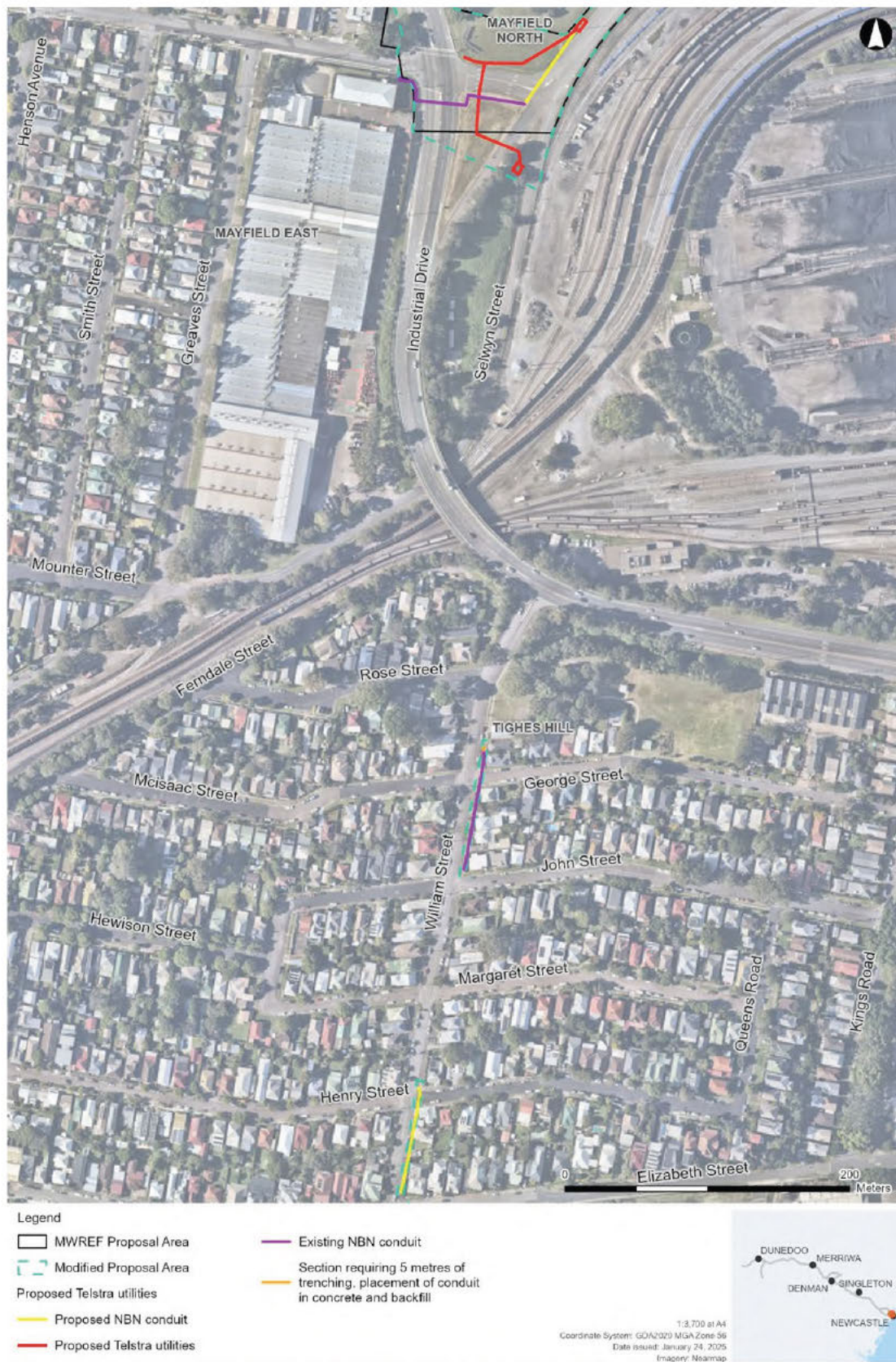


Figure 1: Overview of proposed modification

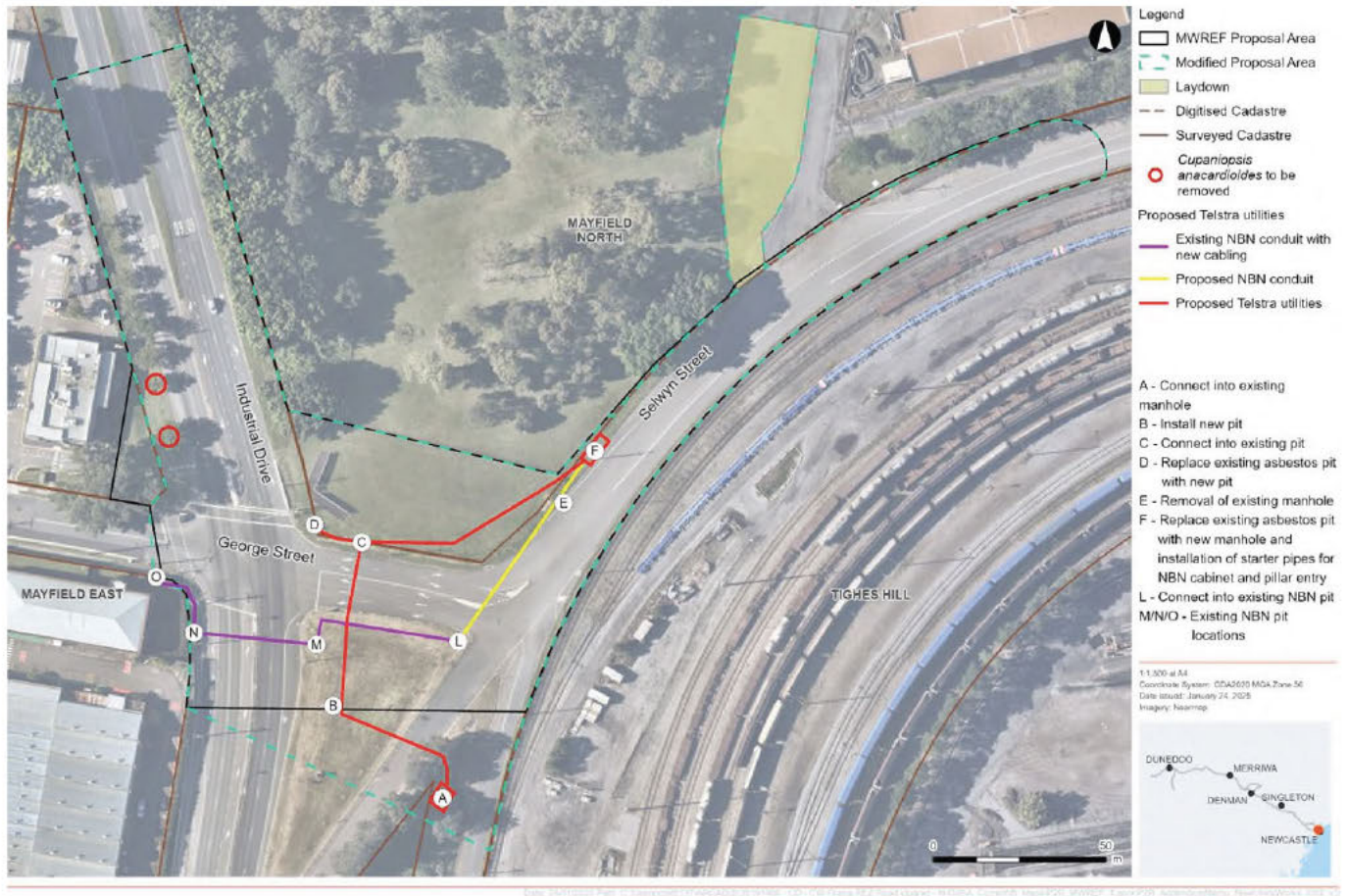


Figure 2: Proposed Telstra and NBN modifications



Figure 3: Proposed NBN modification - George Street to John Street



Figure 4: Proposed NBN modification - Henry Street to Elizabeth Street



Figure 5: Existing manhole (A) to be accessed



Figure 6: Existing pit (C) to be cut into



Figure 7: Existing asbestos pit to be removed (F)



Figure 8: Existing manhole to be removed (E)

Need for the proposed modifications

The proposed modification is required to amend the Telstra service relocation works as detailed in Table 2-2 of MWREF Package 1. The relocation of Telstra services as proposed in the MWREF has since been found not to meet Telstra standards or required capacity for NBN services.

Further design development found that the intersection upgrades proposed for I-002 in the MWREF, particularly the construction of new pavements and lowered finish surface level, would impact the existing NBN conduit that lies beneath George Street. This is due to the shallow positioning of the existing conduit. The design was amended to replace this NBN conduit with a new conduit at a lowered position (using the under bore method) to maintain capacity and meet required standards.

Inspection by NBN found that several Telstra ducts on William Street are already at capacity. The design was amended to include additional work to install a new conduit adjacent to the existing conduit to maintain capacity and meet required standards. The increased footprint associated with these works compared to the MWREF is required due to the following:

- The existing NBN conduit run is not suitable due to the Telstra conduit being at capacity, hence the need for installation of a new NBN conduit. New cable is required to be installed within the new conduit prior to removal of the existing cable to ensure continued coverage.
- Fibre cable replacement must be from node to node rather than at the location of impact, as fibre cannot be cut and rejoined along the duct without significantly affecting performance. In this case, the nodes are 1.5 kilometres apart.

Implementation of the proposed modification would meet the required Telstra standards in regard to maintaining capacity through this location and requirement performance standards of NBN services.

Options considered

The design, as detailed in this memo was provided by Telstra and the Australian Broadband Network, and as such no further options were considered.

Impact assessment

Attachment A addresses the environmental factors specified in section 171 of the Environmental Planning and Assessment Regulation 2021 and matters of national environmental significance under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Soil

The proposed modifications would require some minor earthworks, including installation of conduits, pits and manholes as described in the description of the proposed modifications above. Excavation required for the proposed modifications would occur within and south of the proposal area depicted in the MWREF, with the installation of one pit (B) and replacement of existing pit (F) required immediately south and north of the proposal area in the MWREF respectively. In addition, installation of the NBN conduit below George Street using under bore method, as well as trench and backfill or under bore method at locations south of the Selwyn Street, George Street and Industrial Drive intersection (I-002) would also be required. The running of Telstra conduits outside the assessed area in the MWREF would utilise customer supplied bores, and as such would not require ground disturbance. While the installation of a new electrical cable under Industrial Drive does extend west of the proposal area assessed in the MWREF, the cable would be installed within an existing conduit using existing pits (L, M, N and O) and therefore would not require excavation.

A review of the eSPADE website's online Acid Sulfate Soil risk map was carried as part of the determined MWREF and identified that the west side of the assessed area partially overlaps with Class 2 and Class 4 acid sulfate soils. The proposed Telstra and NBN modifications, excluding new electrical cable, at I-002 do not intersect with this area and as such is not expected to result in

exposure to acid sulfate soils. While the new electrical cabling proposed at I-002 does overlap with this area, no ground disturbance is proposed as the cable would be installed within the existing conduit under Industrial Drive using existing pits. Excavation required for the proposed NBN modifications south of I-002 would be located within areas mapped as Class 4 and Class 5 acid sulfate soils.

A search of the eSPADE website also indicated that the MWREF proposal area for I-002, including the location of the proposed Telstra works is within areas of low overall salinity hazard. Installation of NBN conduits between existing Telstra and NBN pits are located within areas of moderate and very high overall salinity hazard respectively.

The potential impacts associated with contamination at the former BHP steelworks site was undertaken as part of the determined MWREF. It was noted that high risk areas remain within the former BHP steelworks site but unlikely to be in the vicinity of I-002. This is based on previous contamination investigation reports contained within the *Intertrade Contaminated Site Management Plan for Lot 332 of DP 1176879* (HCCDC, 2018) (the Intertrade CSMP). The earthworks that form part of the proposed modification would be located primarily within, and south of the previously assessed area. Notwithstanding, the Intertrade CSMP acknowledges that BHP subgrade could exist under parts of the I-002 works within Lot 332 of DP 1176879 that includes portion of the proposed modification works within this cadastral boundary.

Whilst there are no technical criteria nominated for capping infrastructure in this area of the Intertrade site, as per the Intertrade CSMP, the portion of the proposed modification within Lot 332 of DP 1176879 is still required to be carried out in accordance with the Intertrade CSMP. Thus, the Intertrade CSMP requires a Work Method Statement approved by the Site Auditor and implemented for the duration of works.

Further, a clarification in this Addendum is required in relation to existing safeguards within the determined MWREF. Safeguard E11 and E12 within the determined MWREF refers to a CSMP that is specific to I-001 and does not extend to the Intertrade site. Whilst the objectives and management approach between the two CSMPs are similar, safeguard E11 and E12 is amended as per Table 1 below that includes an additional safeguard to distinguish between the two locations within the former BHP steelworks site.

Table 1: Amended soils safeguards and management measures (changes to existing safeguards shown in red)

Numbering	Impact	Environmental safeguards	Responsibility	Timing
E11	Contamination	All works at I-001, within the former BHP steelworks site, will be carried out in accordance with applicable development requirements from the Contaminated Site Management Plan (Hunter Development Corporation, 2016).	Contractor	Pre-Construction and Construction
E12	Contamination	A Work Management Plan will be developed for I-001 works and approved by the Site Auditor in accordance with section 8.2 of the Contaminated Site Management Plan (Hunter Development Corporation, 2016) prior to any ground disturbance with potential impact to the integrity of the existing capping layer.	Contractor	Pre-construction and Construction
E13	Contamination	All works at I-002 within the Intertrade site will be carried out in accordance with requirements from the Contaminated Site Management Plan for Lot 332 of DP 1176879 (Hunter & Central Coast Development Corporation, 2018).	Contractor	Pre-construction and Construction

Ultimately, soil impacts resulting from the proposed modifications would remain generally consistent with the works detailed in the determined MWREF and no further changes to safeguards are considered necessary.

Waterways and water quality

The proposed modifications are likely to require trenching or under boring at variable depths but to an expected maximum depth of one metre, which is beyond the depth considered in the determined MWREF at this location. Trenching or under boring is required to facilitate the installation of communication infrastructure for the purpose of re-routing Telstra services and installation of new NBN services. Based on reports within the Intertrade CSMP, the groundwater table at this intersection is understood to be relatively shallow and whilst works are expected to remain above groundwater, an additional safeguard is proposed to address this risk, which is to ensure any captured groundwater requiring disposal is managed in accordance with applicable EPA requirements.

Table 2: Amended water quality safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
W6	Contamination	In the event groundwater is encountered during trenching works and disposal is required, then disposal is to be in accordance with applicable EPA requirements.	Contractor	Construction

Noise and vibration

A construction noise assessment was carried out using the Transport for NSW 'Construction Noise Estimator Tool' (Transport noise tool) to assess the potential noise and vibration impacts associated with the determined MWREF. A distance based (scenario) assessment was undertaken at the Selwyn Street, George Street and Industrial Drive intersection (I-002) using noise category R2 and local road works scenario outside standard construction hours. The existing potential noise and vibration impacts at I-002 are included in the determined MWREF (Attachment C).

Potential noise and vibration impacts associated with the proposed Telstra and NBN modifications at I-002 would not exceed those previously assessed in the MWREF, with the previously accepted safeguards considered adequate to manage noise and vibration impacts to surrounding receivers.

An additional distance based (scenario) assessment was undertaken for the proposed NBN modification, with 'utility, property, service adjustment' (standard hours) and R3 noise category area selected as the applicable scenario. The predicted noise levels at each receiver are conservative, as they are based on modelling the noise source at the edge of the amended proposal area at the closest point to the receiver.

The nearest residential receivers to the proposed NBN modification are directly adjoining the amended proposal area, within 25 metres. As per Table 3, the nearest receivers would experience noise classified as highly intrusive.

Noise and vibration impacts as a result of the proposed NBN modifications would result in additional noise and vibration related impacts to residential receivers, however impacts would be short-term, temporary in nature and limited to during standard construction hours. Additionally, the previously accepted safeguards are considered adequate to manage noise and vibration impacts to surrounding receivers.

Table 3: Predicted noise impact during standard construction hours for utility, property, service adjustment (with line of sight) - R3 category

Perception	Noise management level			
	RBL (dB(A))	Predicted noise level (dB(A))	Impact distance (m)	Recommended additional mitigation measure
Moderately intrusive	50	70	50	N
Highly intrusive		75	25	N, PC, RO

N=Notification, PC=Phone calls, RO=Respite offer

Air quality

Due to limited ground disturbance associated with the proposed modifications and similarity with existing methodology assessed in the MWREF, existing safeguards are considered adequate to manage air quality impacts.

Aboriginal cultural heritage

A search of the Aboriginal Heritage Information System (AHIMS) database that was carried out as part of the MWREF on 23 November 2023 did not identify registered sites within 500 metres of this intersection. The MWREF considered the potential for encountering any intact or previously unknown objectives or features of Aboriginal archaeological or cultural heritage significance to be low and Stage 1 of Transport's *Procedure for Aboriginal cultural heritage consultation and investigation* (PACHCI) concluded that construction works were unlikely to have any impact on Aboriginal cultural heritage. An update to the Stage 1 PACHCI assessment was carried out for this addendum by the Transport Aboriginal Cultural Heritage Advisor, as provided in Attachment D, and concluded the proposal is unlikely to have an impact on Aboriginal cultural heritage and may proceed in accordance with this addendum.

An updated search of the AHIMS database on 2 June 2024 did not reveal any recorded Aboriginal heritage items or places within 50 metres of the proposed Telstra and NBN modifications at Selwyn Street, George Street and Industrial Drive intersection (I-002), which is in the previously assessed area in the MWREF. An additional AHIMS search completed on 22 November 2024 did not reveal any recorded Aboriginal heritage items or places within 50 metres of the proposed NBN modification located south of I-002 (Attachment D).

The proposed modification is unlikely to have any impact on Aboriginal cultural heritage and existing safeguards are considered adequate to manage Aboriginal cultural heritage impacts.

Non-Aboriginal heritage

The proposed modification is in proximity to the following heritage items:

- 6 George Street, Mayfield East (Item I286 – Australian Wire Rope Building per Newcastle LEP 2012)
- 99 Selwyn Street, Mayfield North SEPP (Transport and Infrastructure 2021 listing – Quality Control Laboratory)
- 99 Selwyn Street, Mayfield North SEPP (Transport and Infrastructure 2021 listing – BHP Administration Building).

The Australian Wire Rope Building is the nearest item to the proposed modification, located adjacent to the new cable installation proposed under Industrial Drive (refer to Figure 2). However, the cable installation would be carried out within an existing conduit using existing pits (L, M, N and O) and as such would not involve ground disturbance. The nearest excavation activity is for the installation of a pit (B), located approximately 55 metres west of the Australian Wire Rope Building. The proposed modification is unlikely to impact non-Aboriginal heritage items and therefore, existing safeguards are considered adequate to manage non-Aboriginal heritage impacts.

Biodiversity

Construction works associated with the proposed Telstra modification has the potential to result in pruning/removal of a small portion of vegetation to access the existing manhole (A), as shown in Figure 5. This potentially impacted vegetation is located within the road corridor and primarily consists of the weed species *Rincus communis*. Plant Community Type (PCT) 4020 Coastal Creekflat Layered Grass-Sedge Swamp Forest is located south of the existing manhole (A) and would not be impacted by the proposed modification. This PCT is associated with two Threatened Ecological Communities including Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast (Endangered under the BC Act) and Subtropical eucalypt floodplain forest and woodland (Endangered under the EPBC Act).

In accordance with the safeguards presented in the MWREF, any additional tree impacts from that identified in the determined MWREF will be assessed and approved by the project arborist and comply with *AS 4970-2009 – Protection of trees on development sites*.

No other biodiversity impacts are anticipated as a result of the proposed modifications and the existing safeguards are considered adequate to manage biodiversity impacts.

Further, a clarification is required in this addendum in relation to two trees identified for removal at the Selwyn Street, George Street and Industrial Drive intersection (I-002). The determined MWREF originally identified these trees as fig trees (*Ficus sp.*), however they have since been identified as *Cupaniopsis anacardioides* (refer to Figure 2).

Traffic and transport

Construction related vehicle traffic and road occupancy resulting from the proposed Telstra and NBN modifications at Selwyn Street, George Street, and Industrial Drive intersection (I-002) would be temporary and consistent with the existing impacts to vehicles, bicycles and pedestrians, as described in the MWREF. As such, existing safeguards are considered adequate to manage traffic and transport impacts for these works.

Construction activities associated with the proposed NBN modification has the potential to result in traffic and transport related impacts. Excavation works to install the proposed NBN conduits would require temporary closures of the footpaths between the existing Telstra pits as well as where the NBN conduits cross George Street and Henry Street. Excavation, installation and reinstatement works would be staged progressively along the NBN alignment (refer to Figure 3 and Figure 4), with each stage completed at the end of each shift. It is expected to take about four days to complete the proposed NBN modification, weather permitting, with one day per road crossing and footpath section. As a result, impacts to vehicle traffic, pedestrians and property access would be short-term and temporary.

Socio-economic

Access to the existing NBN pits adjacent to the Bridon-Bekaert Ropes Group would be required for the proposed cable installation under Industrial Drive, bringing the proposed works closer to the business than the 40-metre distance identified in the MWREF. However only access to these pits, which are located outside of the business' fence line, would be required within the vicinity of the business as no excavation works are proposed for the cable installation. Access to the business would be maintained throughout construction. The socio-economic impacts resulting from the proposed modifications, which is no closer to the commercial area located 20 metres to the west of the intersection, would be consistent with existing impacts described in the MWREF.

As such, existing safeguards are considered adequate to manage socio-economic impacts.

Landscape character and visual impacts

Landscape and visual impacts associated with utility adjustments were assessed in the MWREF where it was considered not to substantially impact existing character, as works were confined to the existing road reserve. The proposed modifications are consistent with the impacts assessed in the MWREF and as such, existing safeguards are considered appropriate to manage landscape character and visual impacts.

Waste

The proposed modifications would result in minimal additional waste beyond that assessed in the MWREF, including:

- Additional spoil as a result of trenching for conduit placement and installation of pits and manholes
- Green waste as a result of potential vegetation pruning/removal
- Asbestos pits to be replaced

- Redundant electrical infrastructure.

The minor additional waste generated from the proposed modifications would be adequately managed by the existing safeguards included in the MWREF.

Climate change and greenhouse gas emissions

Additional climate change and greenhouse gas emission impacts resulting from the proposed modifications beyond that described in the MWREF is insignificant. The extended footprint is still within an area mapped as having a low flood risk and additional resource requirements are marginal relative to the overall project.

No additional safeguards are required to manage climate change and greenhouse gas emission impacts.

Cumulative impacts

Due to the isolated nature of the works relative to other projects and short duration, the proposed modifications are unlikely to result in cumulative impacts. Therefore, no additional safeguards are required.

Summary of additional or revised safeguards

The proposed modifications at Selwyn Street, George Street, and Industrial Drive intersection (I-002) will require a revision to two existing safeguards and two new safeguards, as presented in Table 4 below. A complete list of safeguards is provided in Attachment B.

Table 4: Summary of safeguards and management measures (changes to existing safeguards shown in red)

Numbering	Impact	Environmental safeguards	Responsibility	Timing
E11	Contamination	All works at I-001, within the former BHP steelworks site, will be carried out in accordance with applicable development requirements from the Contaminated Site Management Plan (Hunter Development Corporation, 2016).	Contractor	Pre-Construction and Construction
E12	Contamination	A Work Management Plan will be developed for I-001 works and by the Site Auditor in accordance with section 8.2 of the Contaminated Site Management Plan (Hunter Development Corporation, 2016) prior to any ground disturbance with potential impact to the integrity of the existing capping layer.	Contractor	Pre-construction and Construction
E13	Contamination	All works at I-002 within the Intertrade site will be carried out in accordance with requirements from the Contaminated Site Management Plan for Lot 332 of DP 1176879 (Hunter & Central Coast Development Corporation, 2018).	Contractor	Pre-construction and Construction
W6	Contamination	In the event groundwater is encountered during trenching works and disposal is required, then disposal is to be in accordance with applicable EPA requirements.	Contractor	Construction

Licences, permits or approvals

All relevant licenses, permits, and notifications needed for the Central West Orana Renewable Energy Zone – Port to Renewable Energy Zone Road Upgrade Program – Package 1 and when they need to be obtained are listed in the determined MWREF. There are no changes to these requirements.

Approval of work plans by the Site Auditor in relation to relevant CSMPs for both I-001 and I-002 intersections has been clarified with the amended safeguards presented above.

Conclusion

All relevant safeguards identified in the Central West Orana Renewable Energy Zone – Port to Renewable Energy Zone Road Upgrade Program – Package 1 and this memo would be applied to this work.

Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) applies to the proposed modification. The proposed modifications have been reviewed in the context of the Central West Orana Renewable Energy Zone – Port to Renewable Energy Zone Road Upgrade Program – Package 1 (July, 2024) and considered against the requirements of sections 5.5 and 5.7 of the EP&A Act.

In considering the proposed modifications, 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 this memo, and associated information. This assessment is considered to be in accordance with the factors specified in section 171 of the *Environmental Planning and Assessment Regulation 2021*.

The Central West Orana Renewable Energy Zone – Port to Renewable Energy Zone Road Upgrade Program – Package 1 including the proposed modification described in this memo will have some environmental impacts which can be ameliorated satisfactorily. Having regard to the safeguards outlined in the MWREF and this memo, it is considered that the expected environmental impacts are unlikely to be significant and an environmental impact statement is not required under Division 5.2 of the EP&A Act.

The assessment has considered the potential impacts of the activity on the biodiversity values listed under the *Biodiversity Conservation Act 2016* and the *Fisheries Management Act 1994*.

The Central West Orana Renewable Energy Zone – Port to Renewable Energy Zone Road Upgrade Program – Package 1 including the proposed modification described in this memo will not significantly affect biodiversity values listed under the *Biodiversity Conservation Act 2016*. Therefore, the concurrence of the Coordinator General of the Environment and Heritage Group of Department of Planning and Environment and a species impact statement or a Biodiversity Development Assessment Report (BDAR) is not required.

In addition to the above, the assessment considered the effect of the activity on:

- Conservation agreements under the *National Parks and Wildlife Act 1974*
- Plans of management under the *National Parks and Wildlife Act 1974*
- Biodiversity stewardship sites under the *Biodiversity Conservation Act 2016*
- Wilderness areas under the *Wilderness Act 1987*.

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 Australian Minister for the Environment on whether assessment and approval is required under the EPBC Act or for application of the EPBC Act strategic assessment for Transport activities assessed under Part 5 of the EPBC Act.

This memo is considered to be of adequate quality and meets all relevant requirements.

The proposed modification has been characterised in the context of the Central West Orana Renewable Energy Zone – Port to Renewable Energy Zone Road Upgrade Program – Package 1 and is considered to be consistent with that project's objectives and key features. While the proposed modification would increase the overall environmental impacts of the determined MWREF, it is substantially the same activity described and assessed in the determined MWREF and does not constitute an entirely new activity.

Certification

This memo provides a true and fair description of the scope and potential impacts of the proposal to modify the Central West Orana Renewable Energy Zone – Port to Renewable Energy Zone Road Upgrade Program – Package 1.

Prepared by:

A handwritten signature in black ink, appearing to read "Chris Power".

Chris Power

Environmental Consultant (Arcadis)

A handwritten signature in black ink, appearing to read "Tracy Lam".

Tracy Lam

Environmental Consultant (Arcadis)

Reviewed by:

A handwritten signature in black ink, appearing to read "Kate Wiggins".

Kate Wiggins

Environmental Lead (Arcadis)

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Dimitri Perdikaris

Senior Manager Renewables Transportation

Recommendation

It is recommended that the proposal to modify the Central West Orana Renewable Energy Zone – Port to Renewable Energy Zone Road Upgrade Program – Package 1 as described in this memo proceed subject to the implementation of all safeguards identified in the Central West Orana Renewable Energy Zone – Port to Renewable Energy Zone Road Upgrade Program – Package 1 and compliance with all other relevant statutory approvals, licences, permits and authorisations. Consideration of the proposed modifications 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. It is established that the activity is not likely to significantly affect the environment. The memo has concluded that there will be no significant impacts on matters of national environmental significance or the environment of Commonwealth land.

Recommended by:

A handwritten signature in black ink, appearing to read "Jonathan Blizzard".

Jonathan Blizzard 10/2/2024

Transport Senior Manager Environment and Sustainability

Decision statement

In accordance with the above recommendation, I certify that I have reviewed and endorsed the contents of this addendum memo, 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.

Determined by:

A handwritten signature in black ink, appearing to read "Anna Zycki".

13 February 2025

Anna Zycki

Regional Director North

A handwritten signature in black ink, appearing to read "Damien Pfeiffer".

Damien Pfeiffer 12/02/2025

Director Development Services (Land Use)

Attachments

Attachment A – Section 171 EP&A Regulation checklists and Matters of National Environmental Significance

Attachment B - Complete list of safeguards

Attachment C - Central West Orana Renewable Energy Zone – Port to Renewable Energy Zone Road Upgrade Program – Package 1

Attachment D – AHIMS search results and PACHCI letter

Please return this paperwork to: Mark Woods

Attachment A: Consideration of State and Commonwealth environmental factors

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

The 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, with this assessment included in Appendix A of the determined MWREF (Attachment C). The proposed modification would not result in impacts additional to those assessed in the determined MWREF. This consideration is required to comply with sections 5.5 and 5.7 of the EP&A Act.

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

Attachment B: Complete list of safeguards

Environmental safeguards for the Central West Orana Renewable Energy Zone – Port to Renewable Energy Zone Road Upgrade Program – Package 1 are listed below. Additional safeguards and revision to existing safeguards, as presented in Table 4 above, have been incorporated into the complete list of safeguards shown here (changes to existing safeguards shown in red). The safeguards will be incorporated into the CEMP and implemented during construction of the proposed modifications, should it proceed. These safeguards will minimise potential adverse impacts arising from the proposed works on the surrounding environment.

Factor	Safeguard
Soil	E1. Erosion and sediment control measures are to be implemented (in accordance with the Landcom/Department of Housing <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. Erosion and sedimentation controls are to 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 are to 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 is to be in accordance with Transport's <i>Stockpile Site Management Guideline</i> (EMS-TG-10). E7. Potential or actual acid sulphate soils are to be managed in accordance with Transport's <i>Guidelines for the Management of Acid Sulphate Materials</i> 2005. E8. Saline soils are to be managed in accordance with <i>NSW Department of Primary Industries (2014) Salinity Training Handbook</i>. E9. An unexpected find procedure for potential or actual contaminated soils will be included in the construction environmental management documentation for sites I-002, I-003 and I-004. E10. Design of the culvert at I-001 will be refined during detailed designment in accordance with Requirement 19.1 – Obligation to Manage Risk of the Contaminated Site Management Plan to minimise the potential for disturbance of the capping layer at the former BHP steelworks site. E11. All works at I-001, within the former BHP steelworks site, will be carried out in accordance with applicable development requirements from the Contaminated Site Management Plan (<i>Hunter Development Corporation, 2016</i>). E12. A Work Management Plan will be developed for I-001 works and approved by the Site Auditor in accordance with section 8.2 of the Contaminated Site Management Plan (Hunter Development

Factor	Safeguard
	Corporation, 2016) prior to any ground disturbance with potential impact to the integrity of the existing capping layer. E13. All works at I-002 within the Intertrade site will be carried out in accordance with requirements from the Contaminated Site Management Plan for Lot 332 of DP 1176879 (Hunter & Central Coast Development Corporation, 2018).
Waterways and water quality	W1. Weather forecasts (probability and amount of rain) to be considered when programming works. W2. An emergency spill kit is to 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. W3. If a spill occurs, Transport's Environmental Incident Procedure 2021 will be followed and the Transport Project Manager notified as soon as practicable. W4. Reinstate water diversion at the culvert extension at I-001 using the existing pipe connections to the drainage channel to avoid risk of contaminated water or soil runoff during construction. W5. The Bureau of Meteorology flood forecasting and warning service is to be monitored for possible flooding to the Hunter River. In the event a flood warning is issued where flooding could occur at the work site(s), then the site(s) would be stabilised to minimise erosion extent and sediment runoff, plant and mobile equipment moved to higher ground where possible, and any remaining equipment on site stabilised to mitigate risk of floating offsite. Measures to remain until flooding has subsided and warnings. W6. In the event groundwater is encountered during trenching works and disposal is required, then disposal is to be in accordance with applicable EPA requirements.
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 business days prior to commencement of any work 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. NV3. Any work with impulsive or tonal noise emissions will be carried out in accordance with the <i>Construction Noise and Vibration Guideline</i> (Roads) (Transport for NSW, 2023) and EPA <i>Interim Construction Noise Guideline</i> (ICNG) (NSW DECC, 2009). NV4. Additional noise mitigation measures are to be implemented where appropriate, as identified in Tables 3-10 to 3-11. NV5. Any vibratory causing plant or equipment used at I-002 must not encroach into their respective safe working distances to the Australia Wire Rope Building and/or McDonald's restaurant. If there is any risk of exceedance, a permanent vibration monitoring system must be installed for the duration of works (via flashing light, audible alarm, or SMS) to alert plant operators when vibration levels are

Factor	Safeguard
	approaching the cosmetic damage threshold. Vibratory causing works must cease prior to reaching the threshold and additional safeguards implemented to prevent cosmetic damage prior to recommencement of works. Safe working distances to be applied are outlined in Table 3-13 or alternatively, site specific distances can be applied provided attended vibration measurements are carried out at the commencement of works and confirm that damage screening criteria won't be exceeded.
Air quality	A1. Vehicles transporting waste or other materials that have a potential to produce odours or dust are to be covered during transportation. A2. Avoiding works that could generate dust onto sensitive receivers during strong winds or unfavourable weather conditions. 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 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 are to 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 is to 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 are to 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 Guidelines 2011 – Guide 1</i> (Pre-clearing process). B2. All construction work will be undertaken in accordance with Transport's <i>Biodiversity Guidelines, Protecting and Managing Biodiversity on RMS Projects, 2011</i>. B3. The location and extent of all works will be clearly demarcated, including exclusion zones, and communicated to all staff and contractors working within the area during site inductions and daily toolbox talks. B4. Vegetation to be retained is to be protected in accordance with <i>AS 4970-2009 – Protection of trees on development sites</i> and may require exclusion fencing of the Tree Protection Zones. B5. Any tree trimming will be no more than 20% of the canopy cover for each tree. B6. Any additional impact to trees from that identified must be assessed and approved by the project arborist and must comply with <i>AS 4970-2009 – Protection of trees on development sites</i>.

Factor	Safeguard
	B7. Tree removal and pruning will be undertaken by a suitably qualified arborist. B8. The two fig trees proposed to be removed west of Industrial Drive will be offset by replanting new trees further to the north on Industrial Drive where feasible, otherwise at an alternative location in consultation with City of Newcastle guided by Council's public tree scheme and in accordance with the City of Newcastle's Street Tree Selection Manual.
Traffic and transport	T1. Current traffic movements and property accesses will be maintained during the works. T2. Where works affect the free flow of traffic, a ROL will be obtained, and a Traffic Control Plan would be prepared in accordance with Transport's <i>Traffic Control at Worksites Manual</i> (2003). T3. 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. T4. Vehicle movement arrangements will be developed to limit impacts on other road users (including pedestrians, vehicles and cyclists) and the environment, with specific regard to other road works in the area, local traffic movement requirements and peak traffic volumes. A Traffic Management Plan shall be prepared by the Contractor and approved by Transport for NSW prior to any changes to road user movements and access. T5. Designated work areas within any road reserve will be delineated prior to the work commencing. This area would be the minimum required for safely undertaking the activity. T6. Pedestrian access around the intersection works zone will be maintained at all times. Where this cannot be achieved a safe diversion for pedestrians should be provided.
Socio-economic	C1. Local residents, businesses and stakeholders will be notified at least five working days prior to works commencing, and would be kept regularly informed of construction activities during the construction process. The notification is to include: • details of the proposal, including temporary compound site • the duration of works and working hours • any changed traffic or access arrangements • how to lodge a complaint or obtain more information • contact name and details. C2. Complaints received will be recorded and attended to promptly in accordance with the <i>Community Complaints and Feedback Management Standard</i> (TfNSW, 2019).
Landscape character and visual amenity	L1. Task lighting for construction works shall be directed away from sensitive receivers.
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).

Factor	Safeguard
	M4. Waste material will not to be left on site once the works have been completed. M5. 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. Disposal of contaminated waste will be completed in accordance with the POEO Act, <i>Protection of the Environment Operations (Waste) Regulation 2014</i>.
Climate change and greenhouse gas emissions	None identified.
Cumulative impacts	None identified.

Attachment C: Determined MWREF

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

Minor works review of environmental
factors – Package 1

June 2024

Acknowledgement of Country

Transport for NSW acknowledges the Mindaribba and Awabakal people, the traditional custodians of the land on which the Port to Renewable Energy Zone Road Upgrade Program (Package 1) is proposed.

We pay our respects to their Elders past and present and celebrate the diversity of Aboriginal people and their ongoing cultures and connections to the lands and waters of NSW.

Many of the transport routes we use today – from rail lines, to roads, to water crossings – follow the traditional Songlines, trade routes and ceremonial paths in Country that our nation's First Peoples followed for tens of thousands of years.

Transport for NSW is committed to honouring Aboriginal peoples' cultural and spiritual connections to the land, waters and seas and their rich contribution to society.



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Approval and authorisation

Approved by	Cameron Peace – Senior Manager Renewables Transportation
Signed	
Date	05/07/24

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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.

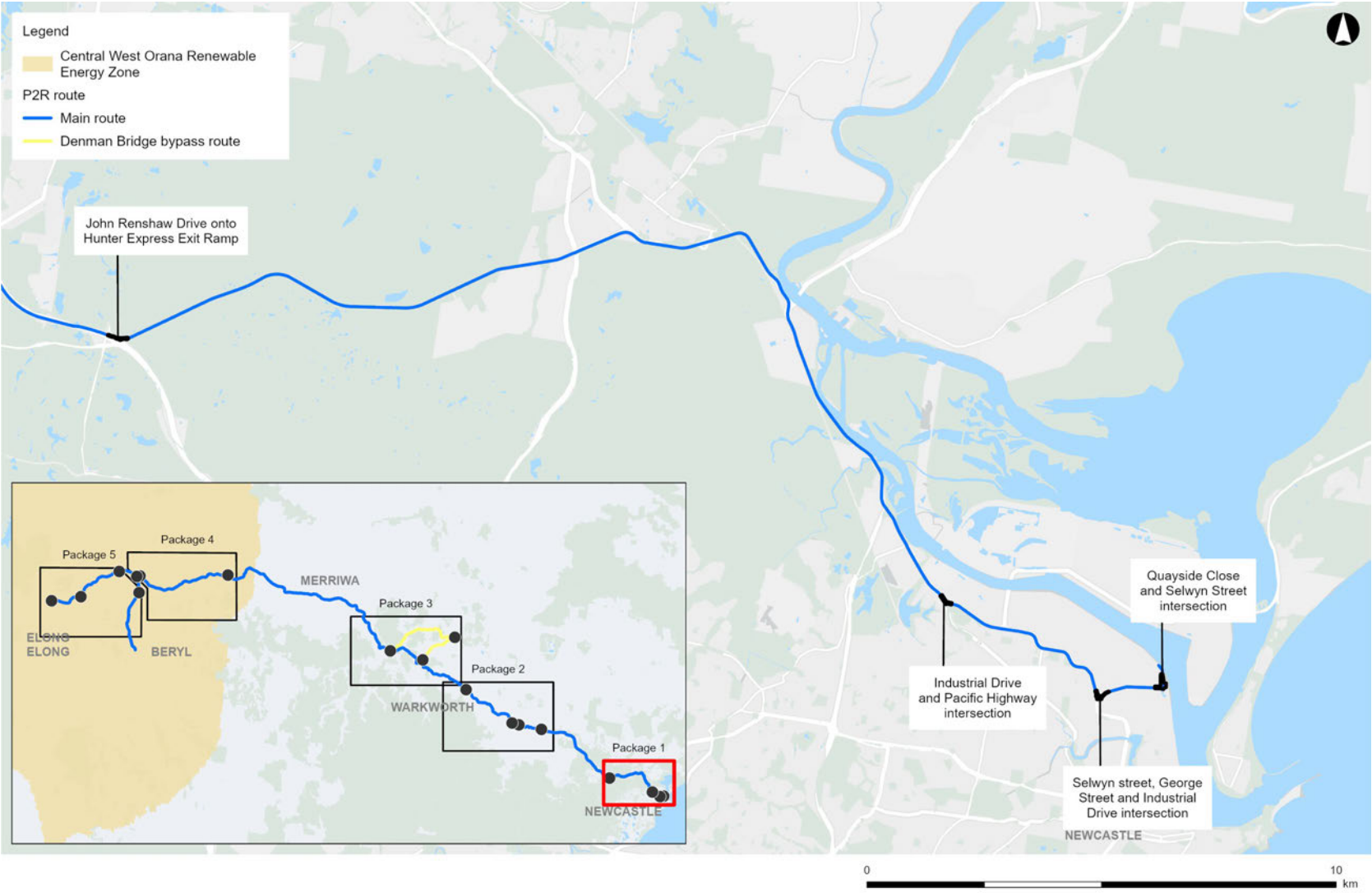
REZs will group new renewable energy generation infrastructure into locations where it can be efficiently stored and transmitted across NSW. Five regions have been identified for the development of REZs; the Central-West Orana, South-West, New England, Hunter-Central Coast and Illawarra regions of NSW. 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 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 (Figure 2-1) to the REZ.

The proposed modifications to 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 first package (Package 1) to be delivered and would assess four intersections in the Newcastle and Cessnock 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.



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Figure 2-1: Proposed program of intersection upgrades

2.2 Description

2.2.1 Proposal location

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 1
Road name and number	Quayside Close, Selwyn Street, Industrial Drive (road number 316), Pacific Highway (road number 464), John Renshaw Drive (road number 588), Hunter Expressway (road number 6011)
Closest crossroad(s)	Quayside Close, Selwyn Street, Industrial Drive, Pacific Highway, John Renshaw Drive, Hunter Expressway
Local government area	Newcastle Local Government Area, Cessnock Local Government Area
Transport for NSW region	North

2.2.2 Proposal description

Transport for NSW (Transport), on behalf of EnergyCo, proposes to carry out minor modifications to four intersections in the Newcastle and Cessnock LGAs (refer to Figure 2-1). The modifications are necessary to facilitate the transportation of over-sized and over-mass (OSOM) components consisting of trailers carrying wind turbine blades and transformers from the Port of Newcastle to the CWO REZ.

Key features of the proposal are described below and shown in Figure 2-2 (Quayside Close and Selwyn Street intersection), Figure 2-3 (Selwyn Street, George Street and Industrial Drive intersection), Figure 2-4 (Industrial Drive and Pacific Highway intersection) and Figure 2-5 (John Renshaw Drive onto Hunter Expressway Exit Ramp). Utility impacts are shown in Figure 2-6 to Figure 2-7.

Quayside Close and Selwyn Street intersection (I-001)

- Provision of asphalt hardstands to the east of Quayside Close and south of Selwyn Street to accommodate the swept paths of the design vehicles
- lengthening the existing culvert under Quayside Close on the eastern side by about 11 metres and construction of a concrete upstand on the new culvert headwall including repositioning of downstream scour protection
- ground stability testing immediately prior to construction to confirm design methodology of culvert extension
- realignment of the existing fence located on the eastern side of Quayside Close, with some sections replaced with new fencing
- realignment of the existing open drains on the outside of new hardstand areas, as well as provision of one new stormwater inlet and conversion of the existing stormwater inlet to an inspection pit located south of Selwyn Street
- removal of one shrub located on the southern verge of Selwyn Street to accommodate the drain realignment
- provision of 'No Parking' signs along the eastern verge of Quayside Close, on either side of the new hardstand, and possibly at other locations with the proposal area subject to detailed design
- extension of an existing communications cable located south of Selwyn Street about five metres
- construction of a new communications cable connection to the ARTC property, south of Selwyn Street.

Selwyn Street, George Street and Industrial Drive intersection (I-002)

- provision of asphalt hardstand at the north west corner of the Selwyn Street and George Street intersection and western verge of Industrial Drive to accommodate the swept paths of the design vehicles
- construction of new mountable concrete kerbing on the north west corner of the Selwyn Street and Georges Street intersection and western side of Industrial Drive
- conversion of two stormwater inlets and additional kerb inlets to suit the new mountable kerb on the north west corner of the Selwyn Street and George Street intersection and maintain existing inlet capacity
- conversion of three stormwater inlets and additional kerb inlets on the western verge of Industrial Drive and maintain existing inlet capacity
- removal and replacement of two trees located on the western verge of Industrial Drive, north of the George Street and Industrial Drive intersection, to accommodate the proposed asphalt hardstand
- provision of one new 'No stopping' sign on the north west corner of the Selwyn Street and George Street intersection, relocation of one 'No stopping' sign on the northern verge of George Street, relocation of one 'No stopping' sign and one 'Suburb' sign on the western side of Industrial Drive to accommodate the proposed hardstand
- relocation of an existing light pole on the northern verge of George street
- relocation of an existing traffic control signals (TCS) post on the north east corner of George Street and Industrial Drive intersection
- To accommodate the new hardstand at the western verge of Industrial drive, relocation of an existing TCS cable, construction of a new communications pit located to the north of the new hardstand, which connects to the existing communications network, and relocation of an existing low pressure gas main
- construction of a new manhole and communications pillar on the north west corner of the Selwyn Street and George Street intersection.

Industrial Drive and Pacific Highway intersection (I-003)

- replacement of existing kerb and island reconstruction works at the north east corner of the Industrial Drive and Pacific Highway intersection
- provision of one, and relocation of another, 'No U Turn' sign on the concrete medians on the Pacific Highway, north of the Industrial Drive and Pacific Highway intersection
- relocation of one directional sign from the existing traffic control signal post at the north east corner of the Industrial Drive and Pacific Highway intersection
- relocation of one existing light pole east of its location at the north east corner of the Industrial Drive and Pacific Highway intersection

John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004)

- provision of concrete hardstand in the central roundabout median north of Hunter Expressway to accommodate the swept path of the design vehicles
- removal of four planted trees located at the northern extent of the central roundabout median above the Hunter Expressway with John Renshaw Drive to accommodate the concrete hardstand
- relocation of one 'Cyclist warning' sign at the eastbound exit ramp to the roundabout
- relocation of two 'Roundabout warning', 'No entry' and 'Wrong way' signs (back-to-back) about one metre away from their existing location at the eastbound exit ramp to the roundabout, and relocation of one 'Roundabout directional' sign at the central roundabout median.

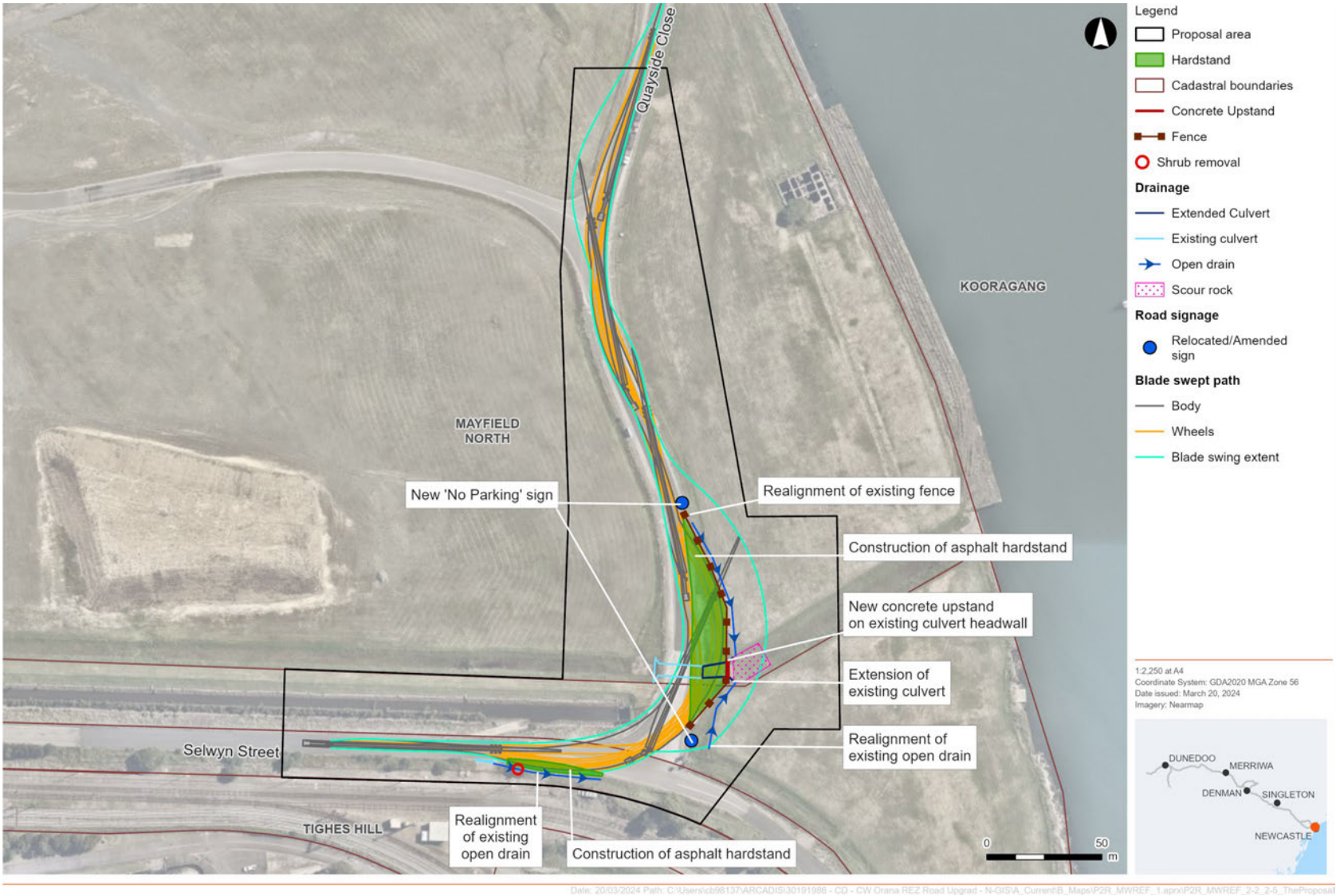


Figure 2-2: The proposal - Quayside Close and Selwyn Street intersection (I-001), Mayfield North

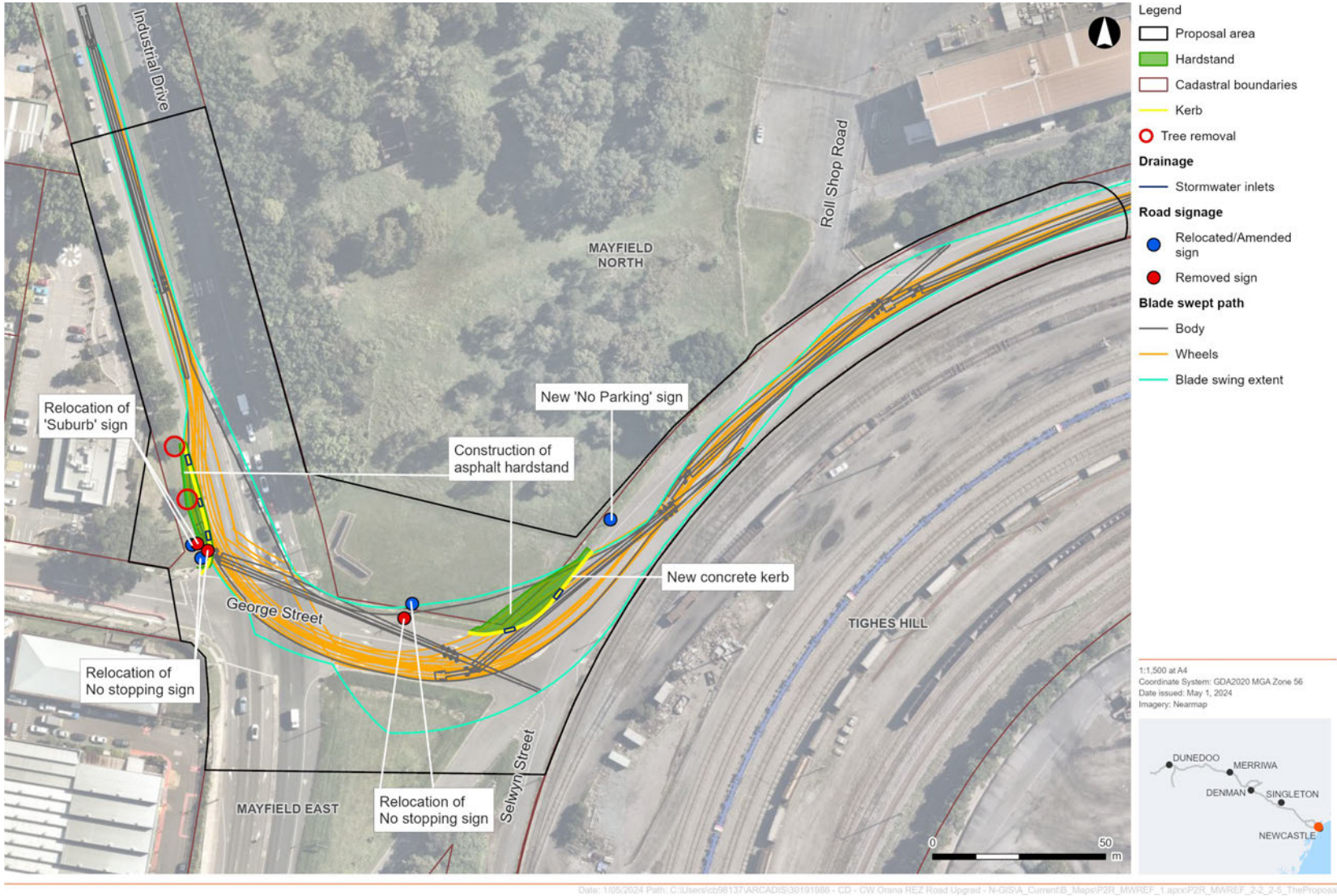


Figure 2-3: The proposal – Selwyn Street, George Street, and Industrial Drive intersection (I-002), Mayfield North

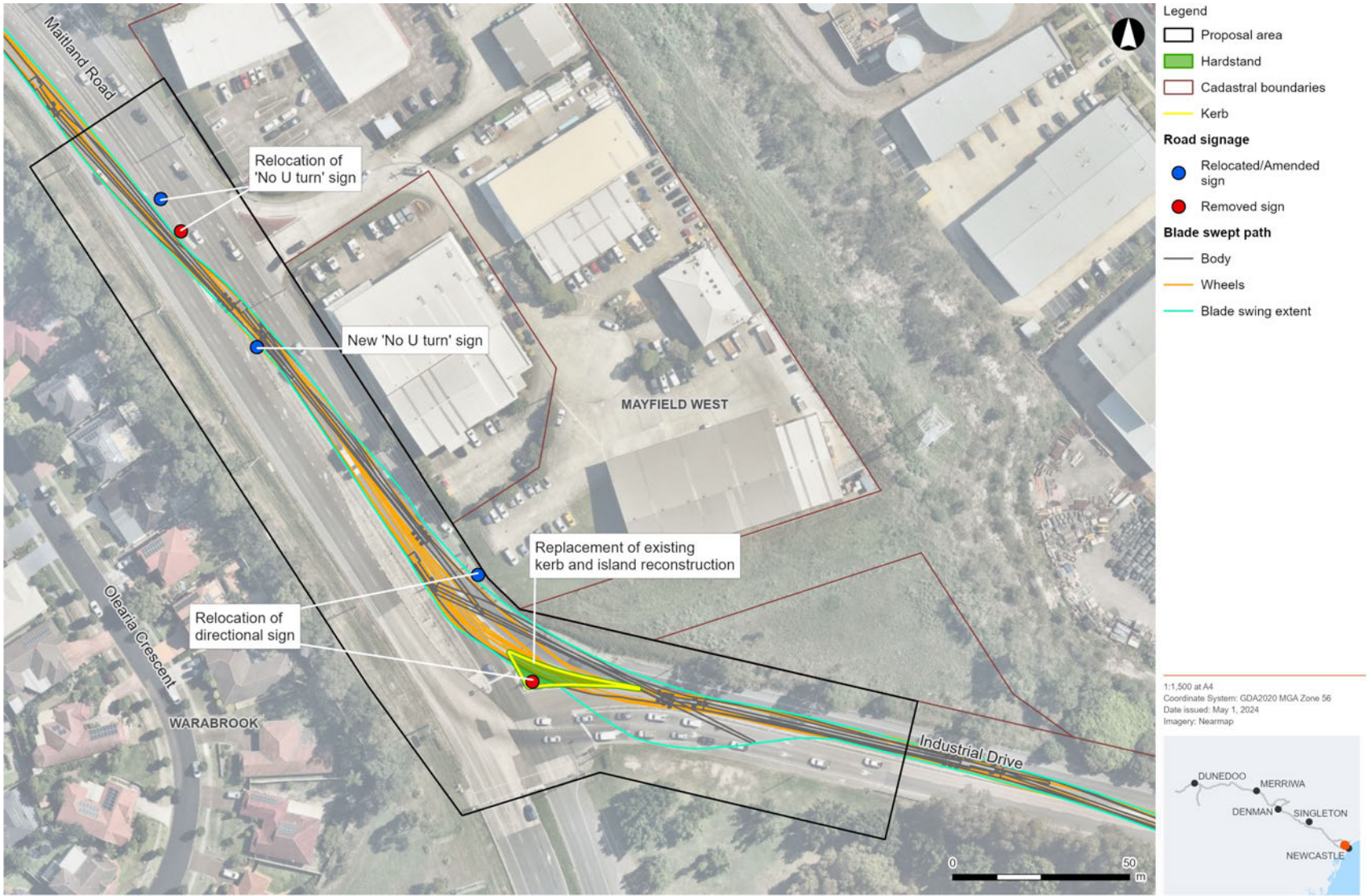


Figure 2-4: The proposal – Industrial Drive and Pacific Highway intersection (I-003), Mayfield West

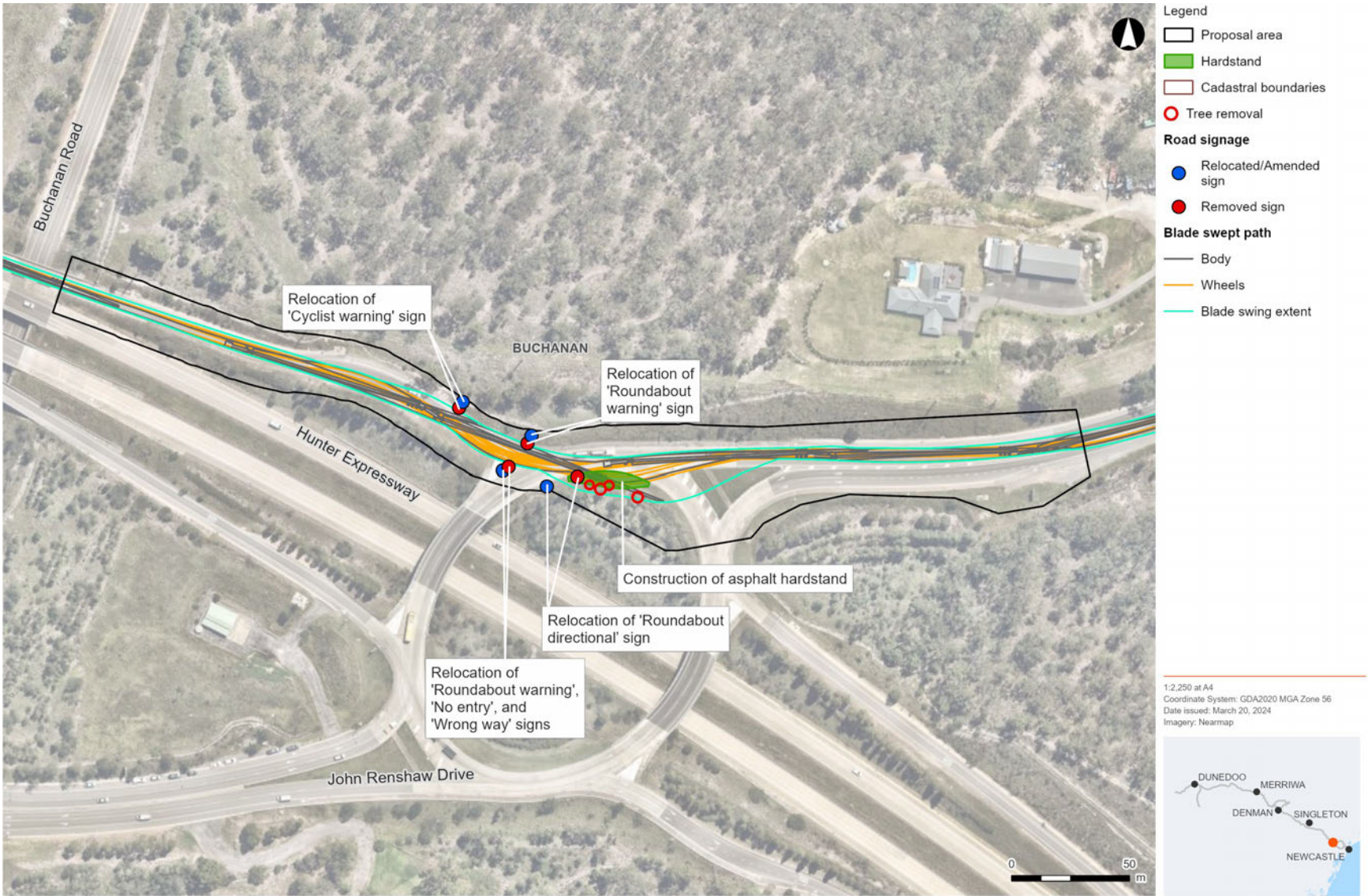


Figure 2-5: The proposal – John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004), Buchanan

Utility adjustments

Several services would be impacted by the proposed work. Impacted utilities within each proposal area, including the proposed actions are detailed in Table 2-2 and shown on Figure 2-6 and Figure 2-7.

Utility relocations would be designed to meet service provider specifications and be certified as required. Any adjustments will be done in consultation with utility providers, wholly within the assessed study area.

Relocation of Ausgrid assets is to be carried out in accordance with their internal environmental approval process and not subject of this MWREF.

Table 2-2: Utility adjustments

Intersection	Location	Owner	Asset	Proposed treatment
Selwyn Street, George Street and Industrial Drive intersection (I-002)	North east corner of Selwyn Street and George Street intersection	Telstra	Manhole and communications pillar	Construction of a new manhole and communications pillar
	Northern verge of George Street	Ausgrid	Light post	Relocated about three metres back from the road verge
	Northern verge of George Street	TfNSW	TCS post	Relocated about three metres back from the road verge
	Western verge of Industrial Drive	Jemena	Low pressure gas main	Relocated deeper under the proposed hardstand
	Western verge of Industrial Drive	Telstra/NBN	Communications cable	New communications cable from existing pit to run back of the new hardstand
	Western verge of Industrial Drive	Telstra	Communications pit	New pit reconnected to existing Telstra network
	Western verge of Industrial Drive	TfNSW	TCS cable	Relocate the TCS cable east of the proposed hardstand
Industrial Drive and Pacific Highway intersection (I-003)	North west corner of intersection	Ausgrid	Light pole	Relocated back from the road verge

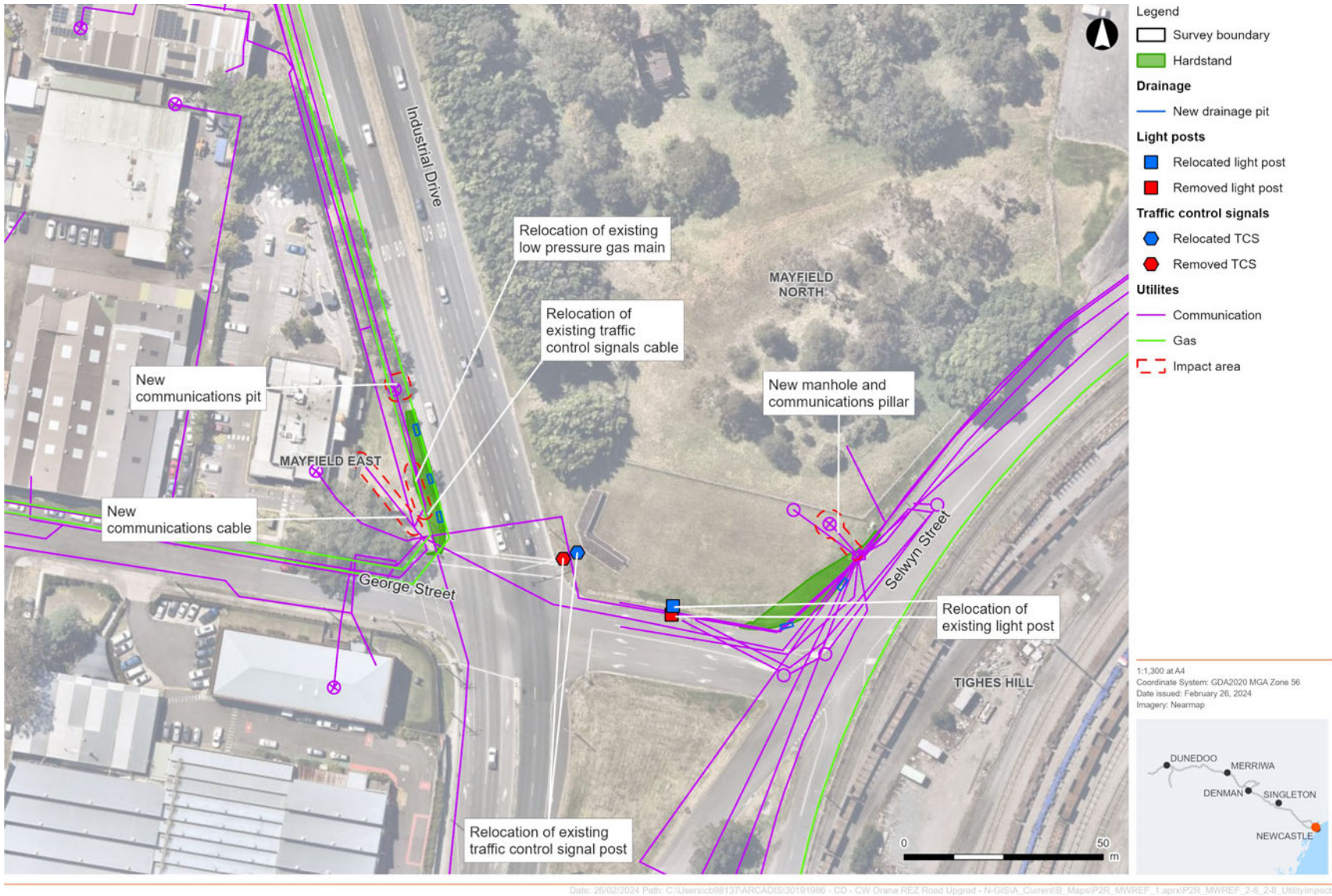


Figure 2-6: Utility impacts - Selwyn Street, George Street and Industrial Drive intersection (I-002)



Figure 2-7: Utility impacts – Industrial Drive and Pacific Highway intersection (I-003)

Ground stability testing at I-001

Ground stability testing would be carried out immediately prior to construction of the culvert extension at I-001 to confirm the appropriateness of the proposed design methodology. Testing would be carried out within the drainage line in the location of the proposed culvert extension foundation and would require the removal of the existing scour protection down to top of the HDPE liner. The HDPE liner sits on top of an impervious capping layer about 500 millimetres thick and encapsulates the below containment cell. Testing would be carried out directly on top of the HDPE liner and may involve one or both of the following:

- Plate load testing – this test can be used to determine the ultimate bearing capacity of soil and settlement of foundation under the loads for clayey and sandy soils. A small steel plate (typically 0.3 or 0.6 metre diameter) would be placed directly on top of the liner and known weight applied gradually using a hydraulic jack. The settlement for each increment of load is recorded and used to determine the ultimate bearing capacity of the soil.
- Borehole testing – this would involve a vertical core to be driven into the ground to a depth of up to 10 metres. The core would be advanced using non-destructive drilling methods (hand augering) in the upper 1.5 metres below ground level, then drilling advancement would continue either using hand augering or mechanical drilling to further depths.

Methodology would seek to avoid disturbance to the capping layer in accordance with safeguard E11 in the first instance. Otherwise, all testing that penetrates and or likely to degrade the existing capping layer (including HDPE liner) at I-001 would be undertaken in accordance with safeguard E12. If liner and or capping layer is impacted, measures to maintain and or reinstate the capping layer would be included in the Work Management Plan, as required by safeguard E12, and carried out prior to or as part of the culvert extension works to maintain capping integrity and containment of contaminated material.

Construction staging

An indicative construction staging is outlined in Table 2-3 with staging confirmed during detailed construction planning with the contractor.

Table 2-3: Indicative construction staging and methodology

Construction stage	Methodology
Enabling works (General)	• traffic redirection, control and management during works • establishment of environmental controls, including exclusion zones (if necessary) and erosion and sediment controls • designation of parking, storage, and laydown areas • tree removal and pruning at Selwyn Street, George Street and Industrial Drive intersection (I-002) and at John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004).
Enabling works (I-001)	• implement methodology outlined in enabling works (General) above • environmental controls: - install water diversion controls within the drainage channel upstream of the culvert that is proposed to be upgraded • carry out geotechnical testing to confirm design approach prior to construction of culvert extension under site supervision: - remove scour protection within testing zone in a manner that doesn't damage the HDPE liner - install any temporary controls required to minimise risk of disturbance to HDPE liner, capping layer and subsequent containment cell - carry out testing and if required, reinstate capping material and repair any damage to HDPE liner in accordance with safeguard E12 - reinstate scour protection.
Intersection works (General)	• relocation of existing signage • utilities protection or adjustments (where required) • install modifications to stormwater pit lids at the Selwyn Street, George Street and Industrial Drive intersection (I-002) • saw cutting and removal of sections of existing asphalt pavement and concrete kerbing (where required)

Construction stage	Methodology
Intersection works (I-001)	- earthworks for hardstand areas (where required) - placement of engineered fill, compaction and seal of hardstand areas (where required) - complete any linemarking adjustments, traffic or wayfinding requirements - installation of security fence.
	- implement methodology outlined in intersection works (General) above - box culvert extension works - demolish existing wing walls and head wall - Remove scour protection - excavate topsoil and portion of existing capping layer - prepare soil foundation around existing culvert for the culvert extension - cast blinding and base slab including apron - install precast crown units including any waterproofing requirements - install wing walls and head wall - backfill site won material (clean capping material only) and ENM - Install scour protection and rehabilitate exposed areas.
Finishing works	- remove temporary construction equipment and any temporary stockpiles - site clean up including removal of environmental controls - remove any traffic controls.

Construction traffic access and management

Construction vehicles would access the proposal area at the Quayside Close and Selwyn Street intersection (I-001) via Industrial Drive at the intersection with George Street and Selwyn Street (I-002).

Access to all other proposal areas, including the Selwyn Street, George Street and Industrial Drive intersection (I-002), Industrial Drive and Pacific Highway intersection (I-003), and the John Renshaw Drive onto Hunter Express Exit Ramp (I-004), would be direct via the main roads.

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
- excavators
- concrete vibrator
- road trucks
- vacuum truck
- dump truck
- concrete truck
- jackhammer
- pneumatic hammer
- concrete saw
- plate compactor
- light vehicles
- asphalt paver
- kerb machine
- power generator
- truck compressor
- vibratory roller
- asphalt truck and sprayer
- 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 Selwyn Street, George Street and Industrial Drive intersection (I-002), Industrial Drive and Pacific Highway intersection (I-003), and John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004) would need to be undertaken outside of standard working hours. These hours would be in accordance with the Road Occupancy Licence (ROL) issued by the relevant authority and be up to five nights a week as follows:

- Saturday 7:00 am to 8:00 am, and 1:00 pm to 6:00 pm
- Sunday to Thursday: 8:00 pm to 5:00 am
- No work on public holidays.

Any work with impulsive or tonal noise emissions will be carried out in accordance with the Construction Noise and Vibration Guideline (Roads) (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 acquisition

The proposal requires embankment widening, culvert extension, hardstand construction and fencing adjustments east of Quayside Close at the Quayside Close and Selwyn intersection (I-001), as well hardstand construction and relocation of stop sign north of George Street at the Selwyn Street, George Street and Industrial Drive intersection (I-002). These changes will encroach within two properties (Lot 42, DP1191982 and Lot 41, DP1191982) east of Quayside Close and one property (Lot 332, DP 1176879) north of George Street to accommodate the swept paths of OSOM vehicles.

Property boundary adjustments and subsequent acquisitions would not be required to accommodate these activities; however, formal agreement will be required from the landholder, Property and Development NSW, for the proposed work within the properties and the temporary use of the land for blade swing during OSOM movements. In addition, EnergyCo will liaise with Port of Newcastle who are the leaseholder of land within Lot 41 and Lot 42, DP1191982.

2.2.3 Proposal objectives and design criteria

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

The design criteria for the proposal:

- 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. Equipment laydown, workforce parking and small-scale worker amenities would be located adjacent to the proposed intersection works within the road reserve or in areas of cleared land. Potential locations of these laydown areas include: • Quayside Close and Selwyn Street intersection (I-001): grassed area on the eastern side of Quayside Close, northeast of the intersection • Selwyn Street, George Street and Industrial Drive (I-002): grassed area located on the northern side of George Street, between Selwyn Street and Industrial Drive • Industrial Drive and Pacific Highway intersection (I-003): grassed area on the southern side of Industrial Drive, located south east of the intersection • John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004): existing cleared area located east of the roundabout in front of the wayfinding sign on John Renshaw Drive.	Yes ☐	No ☒

Ancillary facilities		
The areas above are indicative only and would be confirmed by the construction contractor. All potential laydown areas would be required to meet the criteria outlined below.		
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 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 waterways - AHIMS search carried out - away from sensitive receivers. If compliance with these criteria cannot be demonstrated, further assessment may be required.	Yes ☐	No ☒

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:

- Quayside Close and Selwyn Street intersection (I-001) – six months
- Selwyn Street, George Street and Industrial Drive (I-002) – two months
- Industrial Drive and Pacific Highway intersection (I-003) – three weeks
- John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004) – one month.

2.3 Need and options

2.3.1 Strategic need

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

- Quayside Close and Selwyn Street intersection (I-001)
- Selwyn Street, George Street and Industrial Drive intersection (I-002)
- Industrial Drive and Pacific Highway intersection (I-003)
- John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004).

The proposal would provide additional hardstand, relocate signage and utilities, remove and trim 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:

- Newcastle 2040 Plan (Newcastle City Council, 2022)
- Cessnock Community Strategic Plan 2036 (Cessnock City Council, 2022)
- Port of Newcastle Plan – Port Master Plan 2040 (Port of Newcastle, 2019).

Newcastle 2040 Plan

The Newcastle 2040 Community Strategic Plan (Newcastle City Council, 2022) aims to support Newcastle in becoming a liveable, sustainable and inclusive global city by optimising opportunities and building resilience in the face of future challenges. To support the goal of becoming a 'Liveable Newcastle', the Plan has identified the need to manage and maintain local road networks to connect people and places comfortably across the city. To become a 'Sustainable Newcastle', the Plan has also identified the goal of encouraging clean technology and future energy initiatives and industries to support the move towards net zero emissions.

The proposal supports the objective of becoming a 'Liveable Newcastle' and 'Sustainable Newcastle' by upgrading key intersections along the state road network from the Port of Newcastle to the CWO REZ. These intersection upgrades would support the safe delivery of OSOM components along this route and subsequently support the development of the CWO REZ, a site for developing solar and wind projects.

Cessnock Community Strategic Plan 2036

The Cessnock Community Strategic Plan 2036 (Cessnock City Council, 2022) identifies the community's main priorities and aspirations for the future along with strategies to achieve these goals, including the need to provide better transport links and improving the road network.

The proposal is required from a safety perspective as the existing intersections identified along the state road network have been identified as having space constraints for the delivery of OSOM components. The proposal would provide sufficient space for OSOM vehicles to manoeuvre through the identified intersections, ensuring that the OSOM components are delivered safely from the Port of Newcastle to the CWO REZ. Minor, negative impacts to the community are anticipated as a result of the proposed works, though the impact would be positive in the long-term from a safety standpoint.

Port of Newcastle Plan – Port Master Plan 2040

The Port of Newcastle – Port Master Plan 2040 (Port of Newcastle, 2019) outlines the Port's strategic development opportunities for the next 20 years. The Plan aims for the Port of Newcastle to be able to accommodate, attract and grow a diverse trade base in an efficient, sustainable, profitable and innovative manner.

The proposal supports the Plan's goal to utilise existing road and rail transport assets to improve freight efficiency by upgrading key intersections along the state road network from the Port of Newcastle to the CWO REZ. The proposal would facilitate the safe delivery of OSOM components along this route.

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 Port of Newcastle to CWO REZ would be via the State Highway network, specifically the route shown in Figure 2-1. The study also identified intersections likely to require modification works and provided recommendations for further design development.

The four intersections assessed in this report (Package 1) 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
- **Option 2 'The proposal':** Undertake intersection upgrades as outlined in Section 2.2.2.

Table 2-5: Analysis of options

Objective	Option 1 'Do nothing'	Option 2 'The proposal'
To facilitate safe delivery of over-sized and over-massed components from the Port of Newcastle to the CWO REZ	Option 1 would involve not undertaking any modifications to the intersections. 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 of 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 four intersections while minimising disruption to the general traffic network and broader community. Upgrading of intersections along the existing State Highway network is the most efficient and cost-effective way to meet timeframes for transportation of components for renewable energy projects in CWO. 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.

Design refinements were able to reduce the following impacts from initial concept design:

- Quayside Close and Selwyn Street intersection (I-001) – reduced need for hardstand and property acquisition, avoidance of permanent impacts to existing culvert located on the eastern side of Quayside Close
- Selwyn Street, George Street and Industrial Drive intersection (I-002) – reduced impact to utilities including Telstra, lighting and electrical poles, avoidance of impact to ARTC corridor, reduction in hardstand required
- Industrial Drive and Pacific Highway intersection (I-003) – avoidance of electrical pole and road signage, no additional hardstand required
- John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004) – minimisation of tree removal on road verge.

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. This is provided in Table 2-6.

Table 2-6: Assessment against development criteria

Design criteria	Option 2 'The proposal'
Minimise constructability impacts including to utilities and services	Disruptions and permanent relocation to communication and electrical services are anticipated for the proposal, though impact on the function of these services is temporary and would be reinstated during construction. The proposed drainage works are not anticipated to impact the function of the existing drainage infrastructure. Impacts to road furniture and utilities have been minimised through the design refinement process, including reduced impacts at Selwyn Street, George Street and Industrial Drive (I-002) and Industrial Drive and Pacific Highway intersection (I-003). This included: • Reduced impact to the remediated area at Quayside Close and Selwyn Street intersection (I-001)

Design criteria	Option 2 'The proposal'
	- Reduced impact to open drain at Selwyn Street - Reduced signage relocation distances from their original positions. Meets criterion.
Minimise land use and community impacts	The proposal would be carried out primarily within road reserve and along the existing state network. The proposal would require upgrade of the existing road asset within the Port of Newcastle, as well as extension of hardstand and signage placement on land owned by Property and Development NSW. Property boundary adjustments would not be required to accommodate these activities but formal agreement will be required from the landholder. No road closures would be proposed and access to properties within the vicinity would be maintained throughout construction. Though there is potential for pedestrian movements to be impacted at the Selwyn Street, George Street and Industrial Drive intersection (I-002), signage and detours would be provided to maintain access. Meets criterion.
Minimise property acquisition	Property acquisition would not be required for the proposal. Impacts to the properties has been minimised through the design refinement process. This includes the reduction of additional hardstand at Quayside Close and Selwyn Street intersection (I-001) and Selwyn Street, George Street, Industrial Drive intersection (I-002), and removal of the need for additional hardstand at Industrial Drive and Pacific Highway intersection (I-003). Meets criterion.
Minimise environmental and social impacts	Environmental impacts are expected from the proposal, such as traffic, noise, air quality, tree trimming, and erosion and runoff. With implementation of safeguards listed in Table 4 1, the environmental impacts would be minor. The need for tree removal has been avoided at Quayside Close and Selwyn Street intersection (I-001), and Industrial Drive and Pacific Highway (I-003). Two planted trees are to be removed along the western side of Industrial Drive at the intersection of Industrial Drive and George Street (I-002), as well as the removal of four planted trees within the median of the roundabout at John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004). The two planted trees along the western side of Industrial Drive are to be replanted further to the north within the same tree line or at a location agreed with Newcastle Council. Tree pruning may also be required at Intersection I-004 but will be minimised as much as possible to the extent required to facilitate OSOM vehicle movements. The proposal would result in temporary changes to pedestrian access at the Selwyn Street, George Street and Industrial Drive intersection (I-002). Changes are temporary to the construction phase and minor in nature. Impacts to businesses and residential properties within the vicinity of the proposal are anticipated to be negligible given the short duration and minor nature of work proposed. Social impacts would support the development of renewable energy projects by providing additional space for OSOM vehicles to manoeuvre through the proposed intersections upgrades along the existing State Road Network. 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.

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 (Transport and Infrastructure SEPP) aims to facilitate the effective delivery of infrastructure across the state. This includes roads and road infrastructure facilities, and port, wharf or boating facilities.

Section 2.109 of the Transport and Infrastructure SEPP 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 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.

The following intersections are partly located on land subject to Chapter 5 of the Transport and Infrastructure SEPP:

- Quayside Close and Selwyn Street intersection (I-001)
- Selwyn Street, George Street and Industrial Drive intersection (I-002).

Chapter 5 of the Transport and Infrastructure SEPP provides the planning regime for delivery of infrastructure within the 'Three Ports' land that includes Newcastle Port and the Intertrade Site. Pursuant to section 5.4(3) of Chapter 5, roads and road infrastructure facilities are activities characterised as development permitted without consent.

Table 2-7 outlines the zoning applicable to the proposal under Chapter 5 of the Transport and Infrastructure SEPP.

Table 2-7: Transport and Infrastructure SEPP Chapter 5 zoning applicable to the proposal

EPI zoning	Proposal area location	SEPP land use objectives	Proposal consistency with objectives
SP1 Special Activities	Quayside Close and Selwyn Street intersection (I-001)	• to provide for special land uses that are not provided for in other zones • to provide for sites with special natural characteristics that are not provided for in other zones	The proposal would upgrade key intersections to facilitate the safe delivery of OSOM components from Port of Newcastle to the CWO REZ. The proposal best aligns with the fifth objective to enable to efficient handling and distribution of freight from port areas through the provision of transport infrastructure.
	Selwyn Street, George Street and Industrial Drive intersection (I-002)	• to facilitate development that is in keeping with the special characteristics of the site or its existing or intended special use, and that minimises any adverse impacts on surrounding land	

EPI zoning	Proposal area location	SEPP land use objectives	Proposal consistency with objectives
		- to maximise the use of waterfront areas to accommodate port facilities and industrial, maritime industrial, freight and bulk storage premises that benefit from being located close to port facilities - to enable the efficient movement and operation of commercial shipping and to provide for the efficient handling and distribution of freight from port areas through the provision of transport infrastructure - to provide for port related facilities and development that support the operations of Port Botany, Port Kembla and the Port of Newcastle - to facilitate development that by its nature or scale requires separation from residential areas and other sensitive land uses - to encourage employment opportunities.	This proposal is consistent with the objectives of the SP1 zone. As outlined above, development consent from Council is not required.

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 road without consent. As a result, while development for roads 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 Newcastle and Cessnock LEPs are described below.

Newcastle Local Environmental Plan 2012

The Industrial Drive and Pacific Highway intersection (I-003) are located within the Newcastle LGA, which is subject to the Newcastle Local Environmental Plan 2012 (Newcastle LEP 2012). The proposal area is zoned as SP2 Infrastructure under the Newcastle LEP 2012. Table 2-8 outlines the zoning applicable to land zoned under Newcastle LEP.

Table 2-8: Newcastle LEP 2012 zoning applicable to the proposal

LEP zoning	Proposal area location	LEP objectives	Proposal consistency with objectives
SP2 Infrastructure	Industrial Drive and Pacific Highway intersection (I-003)	- 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 proposes to upgrade the Industrial Drive and Pacific Highway intersection (I-003). This is consistent with the objectives of SP2 Infrastructure.

Cessnock Local Environmental Plan 2011

The John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004) is located in the Cessnock LGA, which is subject to the Cessnock Local Environmental Plan 2011 (Cessnock LEP 2011). The proposal area is zoned as SP2 Infrastructure under the Cessnock LEP. Table 2-9 outlines the zoning applicable to land zoned under Cessnock LGA.

Table 2-9: Cessnock LEP 2011 zoning applicable to the proposal

LEP zoning	Proposal area location	LEP objectives	Proposal consistency with objectives
SP2 Infrastructure	John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004)	- 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 proposes to upgrade the John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004). This is consistent with the objectives of SP2 Infrastructure.

The application of Newcastle LEP, Cessnock LEP, and other relevant legislation and environmental planning instruments is considered in Table 2-10.

Table 2-10: 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 for NSW are given the ability to carry out activities such as construction and upgrades on roads in NSW. Section 138 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 for NSW to acquire land for the purposes of road work, in line with the Land Acquisition (Just Terms Compensation) Act 1991.	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 Selwyn Street, George Street and Industrial Drive (I-002), Industrial Drive and Pacific Highway intersection (I-003), and the John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004). Newcastle City Council is the relevant road authority for the proposed works at Quayside Close and Selwyn Street intersection (I-001).
<i>Contaminated Land Management Act 1997 (CLM Act)</i>	The objective of the CLM Act is to identify, remediate, monitor and report on and that the NSW Environment Protection Authority (EPA) has determined to be significantly contaminated.	No Quayside Close and Selwyn Street intersection (I-001) is within the Port of Newcastle operational area and within the footprint of the former BHP Steelworks closure site. This site was previously declared by the NSW Environment Protection Authority (NSW EPA) to contain significant contamination under the provisions of the CLM Act. A final notice has since been issued by the NSW EPA ending this declaration and the land is now subject to ongoing management by the Port of Newcastle site. Refer to Section 3.1 below for detail.
<i>Protection of the Environment Operations Act 1997 (POEO Act)</i>	Under this Act, activities specified in 'scheduled activities' under Schedule 1 of the POEO Act require consent from the Environmental Protection Authority (EPA).	No The Proposal does not involve a 'scheduled activity' under Schedule 1 of the POEO Act. Accordingly, an Environment Protection Licence (EPL) 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 causing material harm 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 proposal requires all wastes, including contaminated wastes to be identified and classified with the NSW EPA's Waste Classification Guidelines, with appropriate records and disposal dockets retained for audit purposes. Disposal of waste will be completed in accordance with the POEO Act, <i>Protection of the Environment Operations (Waste) Regulation 2014</i>.

Legislation	Overview	Approval required?
<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 proposal 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 Procedure for Aboriginal Cultural Heritage Consultation and Investigation (PACHCI) (Transport for NSW, 2011) was followed. A Stage 1 PACHCI assessment was carried out for the proposal by a Transport Aboriginal Cultural Heritage Advisor and is provided in Appendix C. 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 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.	No The proposal is unlikely to impact any heritage items (refer to Section 3.6 (Non-Aboriginal heritage)). There is one local heritage item, Australia Wire Rope Building, directly adjacent to the Selwyn Street, George Street and Industrial Drive intersection (I-002). The proposal is not anticipated to impact the heritage-listed item due to the distance from excavation (about 25 metres south of the hardstand proposed on the western verge of Industrial Drive), limited scope of work, and minimal vibration intensive activities.
Environmental planning instruments		
<i>Newcastle Local Environmental Plan 2012</i> <i>Cessnock Local Environmental Plan 2011</i>	The relevant land zones and objectives apply to the proposal: • SP2 – Infrastructure.	No Road development by public authorities does not require development consent (refer to Section 2.4.1).

2.5 Community engagement and agency consultation

2.5.1 SEPP (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 2-11 and Table 2-12 below.

Consultation with Newcastle City Council would be required for this proposal due to Selwyn Street being a local road and for the tree removal proposed along western side of Industrial Drive at Selwyn Street, George Street and Industrial Drive (I-002). Tree impacts are further detailed in Section 3.7 (Biodiversity).

Table 2-11: 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? Drainage works proposed include: - Quayside Close and Selwyn Street intersection (I-001): lengthening an existing culvert and realigning an existing open drain located on the eastern side of Quayside Close, and realigning an existing open drain south of Selwyn Street. The proposal also includes the replacement of a culvert under the driveway to the ARTC property, provision of one new stormwater inlet, and conversion of an existing stormwater inlet to an inspection pit, all located south of Selwyn Street. - Selwyn Street, George Street and Industrial Drive intersection (I-002): conversion of two stormwater inlets on the north west corner of the Selwyn Street and George Street intersection, and three new stormwater inlets on the western verge of Industrial Drive. No drainage works are proposed at Industrial Drive and Pacific Highway intersection (I-003) and John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004). This work would not substantially impact the existing stormwater management services provided by Newcastle City Council or Cessnock City Council.	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 intersection upgrades proposed 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.	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?	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? No connection to a council owned water supply system is required by the proposal. Water utilised for construction would be sourced from mains supply and transported to the proposal areas when required.	Yes ☐	No ☒
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 proposal is not in proximity to a public place under council management or control. All construction works would be carried out primarily within the road reserve or existing cleared areas. Where appropriate, ancillary activities including car parking, equipment laydown and small-scale worker amenities would be located adjacent to, or within, the road reserve. This is unlikely to cause more than a minor or inconsequential disruption to pedestrian or vehicular flow.	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?	Yes ☐	No ☒

Is consultation with Council required under sections 2.10 – 2.12 and 2.14 of the SEPP (Transport and Infrastructure)?		
The proposed works generally involve the widening of pavement and or make allowances for OSOM vehicle movements from Port of Newcastle to CWO REZ. Whilst majority of work is being carried out adjacent to existing pavement, it is expected that there will be impact to roadways regulated by council. Specifically, those works proposed along Selwyn Street at Quayside Close and Selwyn Street intersection (I-001), as well as those works proposed at Selwyn Street and George Street for the Selwyn Street, George Street and Industrial Drive intersection (I-002) proposal. Whilst impact to roadway regulated by council is expected to be of a minor and inconsequential nature, Newcastle City Council are being consulted on the proposal given the removal of trees along Industrial Drive and proposed utility upgrade works at Selwyn Street, George Street and Industrial Drive intersection (I-002). There is a shared user path being impacted at Industrial Drive and Pacific Highway intersection (I-003) due to relocation of a light pole on the same footpath and placement of a wayfinding sign, however, impact is temporary and consistent with existing arrangement.		
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 items within the proposal areas. The nearest local heritage-listed item is the Australia Wire Rope Building, which is located directly adjacent to the Selwyn Street, George Street and Industrial Drive intersection (I-002). The heritage assessment carried out in Section 3.6 (Non-Aboriginal heritage) has indicated 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?	Yes ☐	No ☒
Are the works located on flood liable land? If so, will the works change flooding patterns to more than a minor extent? Note: Flood liable land means land that is susceptible to flooding by the probable maximum flood event, identified in accordance with the principles set out in the Floodplain Development Manual: the management of flood liable land (nsw.gov.au). The assessment carried out in Section 3.2 (Waterways and water quality) has indicated that the proposal areas are outside of the 1 per cent annual exceedance probability (AEP) flood level. The proposed works would not impact future flooding events. It should be noted however, that the Quayside Close and Selwyn Street intersection (I-001) is mapped as having residual flood risk, flood events greater than 1% AEP and Hunter River, located about 160 metres to its east, is mapped as having a high risk of flooding. The scope of work is limited to asphalt hardstand construction, utility and signage relocations, minor tree removal and pruning, and minor drainage works. Therefore, the proposal is unlikely to alter floodplain storage at each of the locations due to the minor work proposed. Given that the works would not change flooding patterns, no consultation is required with Newcastle City Council or Cessnock City Council regarding works on flood liable land in accordance with the Transport and Infrastructure SEPP.	Yes ☐	No ☒

Table 2-12: 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) If so, do the works comprise more than minor alterations or additions to, or the demolition of, a building, emergency works or routine maintenance? Note: Flood liable land means land that is susceptible to flooding by the probable maximum flood event, identified in accordance with the principles set out in the Floodplain Development Manual: the management of flood liable land (nsw.gov.au). The assessment carried out in Section 3.2 (Waterways and water quality) has indicated that the proposal areas are outside of the 1 in 100-year flooding events, though the Quayside Close and	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)?		
Selwyn Street intersection (I-001) is located on land mapped as having residual flood risk and the Hunter River to its east at about 160 metres is mapped as having a high risk of flooding. However, the proposed work does not comprise more than minor alterations to the existing road reserve. Given that the proposal would not alter floodplain storage or change flooding patterns, no consultation is required with other public authorities regarding works on flood liable land per the Transport and Infrastructure SEPP.		
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)	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 ☒
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 2-13: Notification of 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? Ancillary activities would be limited to temporary workforce parking and laydown areas on the road verge or in areas of cleared land adjacent to each intersection.	Yes ☐	No ☒

2.5.2 Other agency and community engagement

Port of Newcastle

The Port of Newcastle have been consulted on the proposal, particularly those works located at Quayside Close and Selwyn Street intersection (I-001) and Selwyn Street, George Street and Industrial Drive intersection (I-002) with the most recent meeting held on 2 February 2024. Port of Newcastle have been cooperating with provision of access for preliminary investigation works and will continue to be consulted on throughout development of the proposal.

Newcastle and Cessnock City Council

Newcastle City Council have been consulted on the proposal with the most recent meeting held on 1 February 2024 where the concept design, including proposed utility adjustments, were presented. There was also discussion on the two trees marked for removal at I-002, where an additional safeguard, namely B8, has been included. The four trees to be removed at I-004 are within State road reserve and were planted as part of the Hunter Expressway project. While consultation with Cessnock City Council is not required, discussion will be held with Council during broader consultation for the Port to REZ project.

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. However, prior to the commencement of works, Transport would communicate road closures 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.

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 environment 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) (EPBC Act) 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 eSPADE website’s (Office of Environment and Heritage, 2023) online Acid Sulfate Soil risk map was carried out on 1 November 2023. With the exception of the Selwyn Street, George Street and Industrial Drive intersection (I-002) and Industrial Drive and Pacific Highway intersection (I-003), the search indicates that the proposal areas are not located within areas of acid sulfate soils occurrence. The Industrial Drive and Pacific Highway intersection (I-003) is located within a mapped area of Class 5 acid sulfate soils. Areas classified as Class 5 are located within 500 metres of adjacent Class 1,2,3 or 4 land, though acid sulfate soils are not typically found in areas classified as Class 5. The proposal footprint at the Selwyn Street, George Street and Industrial Drive intersection (I-002) overlaps with Class 2 and Class 4 acid sulfate soils (refer to Figure 3-1). Although the scope of work is primarily limited to the road reserve, there is a possibility for the proposal to impact acid sulfate soils during utility adjustments, tree removal and asphalt hardstand placement at the western verge of Industrial Drive. Potential or actual acid sulfate soils would be managed in accordance with Transport’s <i>Guidelines for the Management of Acid Sulphate Materials 2005</i>. A search of the eSPADE website (Office of Environment and Heritage, 2023), conducted on the 19 January 2024 identified that the Quayside Close and Selwyn Street intersection (I-001) and Selwyn Street, George Street, and Industrial Drive intersection (I-002) are located within areas of low overall salinity hazard. The search shows that the Industrial Drive and Pacific Highway intersection (I-003) and John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004) are located in areas of very high overall salinity hazard. These areas are identified in Figure 3-2. Soil salinity management will be carried out in accordance with the NSW Department of Primary Industries (2014) Salinity Training Handbook.	Yes ☒	No ☐

Description of existing environmental and potential impacts

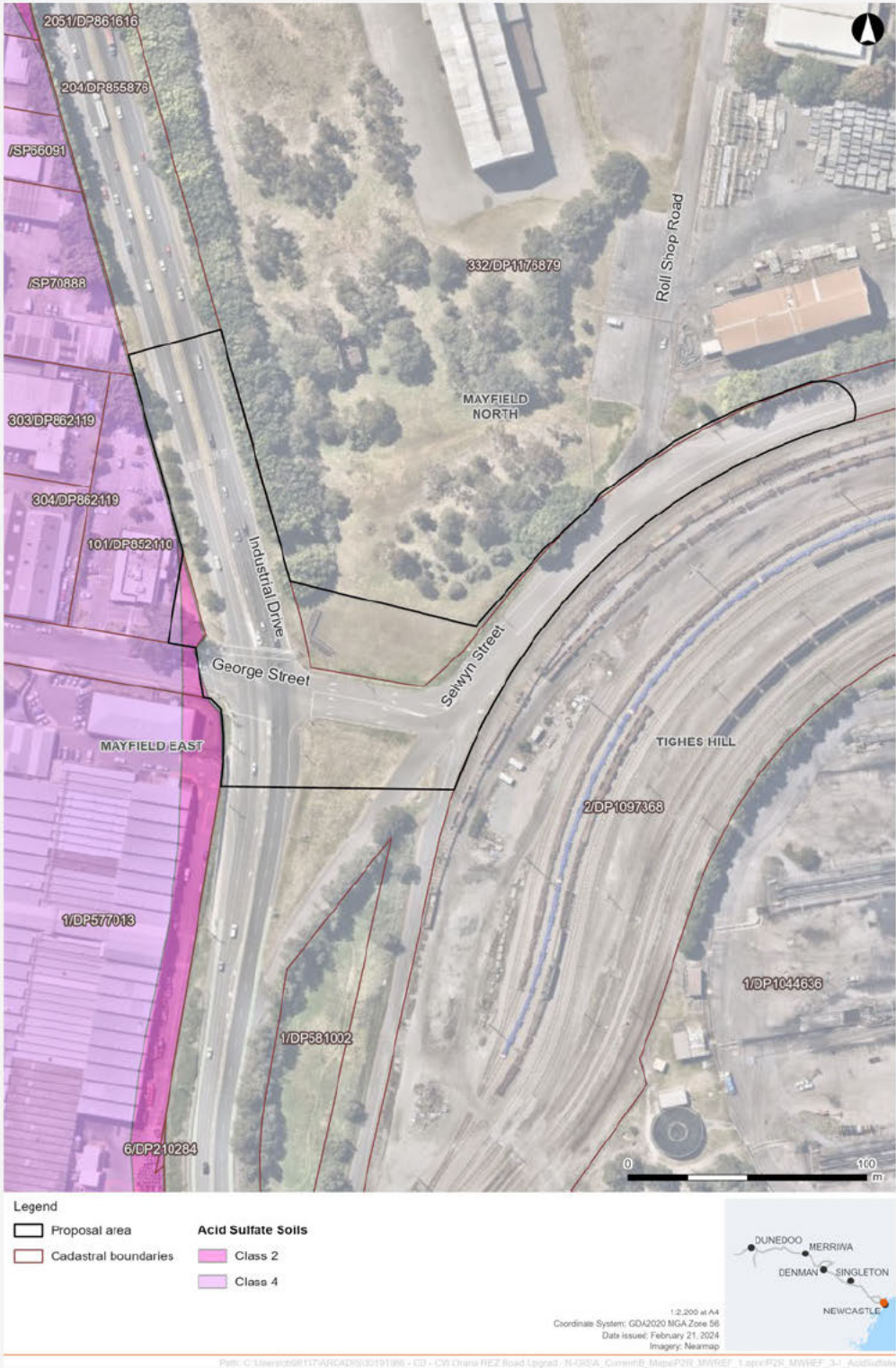


Figure 3-1: Acid sulfate soils - Selwyn Street, George Street and Industrial Drive intersection (I-002)

Minor works review of environmental factors

Description of existing environmental and potential impacts



Figure 3-2: Saline soils

Does the proposal involve the disturbance of large areas (e.g., >2ha) for earthworks?

Yes ☐

No ☒

The proposal would require excavation of about 0.21 hectares of soils across the four intersections to accommodate the asphalt pavement widening, concrete median construction, utility adjustments and drainage works.

Does the site have constraints for erosion and sedimentation controls such as steep gradients or narrow corridors?

Yes ☐

No ☒

Description of existing environmental and potential impacts		
The proposed intersection works would be carried out on a generally flat topography within the existing road corridor and would pose low to negligible erosion and sediment risks or constraints. The site elevation ranges between about: - Six and eight metres Australian Height Datum (AHD) at the Quayside Close and Selwyn Street intersection (I-001) - Six and eight metres AHD at the Selwyn Street, George Street and Industrial Drive intersection (I-002) 26 to 30 metres AHD at the Industrial Drive and Pacific Highway intersection (I-003) 26 to 44 metres AHD at the John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004). The small extent of exposed soils expected at each of the four intersections indicates that implementing appropriate erosion and sediment controls would be adequate to manage any potential risks.		
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). The nearest sensitive receiving environment within the vicinity of the proposal is the Hunter River, located about 160 metres east of the Quayside Close and Selwyn Street intersection (I-001) across a flat floodplain. Hunter River flows into the ocean about 3.5 kilometres south east of this intersection. The nearest sensitive receiving environments within the vicinity of Selwyn Street, George Street and Industrial Drive intersection (I-002) is also Hunter River, located about 1.4 kilometres east, and Throsby Creek, located about 800 metres south of the intersection across a flat floodplain. Warabrook Wetlands Reserve is located about 250 metres west of the Industrial Drive and Pacific Highway intersection (I-003) across a sloped floodplain (gentle downhill slope west of the intersection). The nearest sensitive receiving environment within the vicinity of John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004) is Surveyors Creek, located about 380 metres south of the intersection. The land from the intersection to Surveyors Creek slopes downhill. The existing stormwater drainage network within the Newcastle LGA convey surface water runoff into creeks, estuaries, wetlands, the Hunter River and local beaches. Surface water runoff at John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004) enters cross drainage infrastructure of the Hunter Expressway and discharges to Surveyors Creek via a permanent sediment water basin north of the creek and adjacent to the westbound carriageway. Changes to the existing stormwater drainage system has the potential to introduce soil erosion, potentially impacting downstream water quality, via the stormwater network or onsite runoff. The sensitive environment likely to receive the greatest amount of discharge from works is the Hunter River, which is the closest waterway to drainage works proposed at the Quayside Close and Selwyn Street intersection (I-001). Construction of the intersection widening works would include the additional hardstand at all four intersections. The increased pavement areas would be minor in the context of the overall hydrology and given short-lived nature of ground disturbance needed to construct the widening works, the works are unlikely to have any substantial impact on surface water flows or water quality within the catchments.	Yes ☒	No ☐
Is there any evidence within or nearby the likely footprint of potential contamination? A search of the NSW Environment Protection Authority (EPA) Contaminated Land Register (NSW EPA, 2023a) was carried out on 2 November 2023 for contaminated sites regulated by the EPA under the <i>Contaminated Land Management Act 1997</i> or the <i>Environmentally Hazardous Chemicals Act 1985</i>. Based on the search result, 167 records within the Newcastle City LGA and 14 records within the	Yes ☒	No ☐

Description of existing environmental and potential impacts

Cessnock City LGA were found. Records found within 500 metres of the proposal areas is outlined in Table 3-2.

Table 3-2: NSW EPA contaminated list of notified sites within 500 metres of the proposal

Site	Address	Contamination activity/type	Location in relation to site	Management class
BHP Closure site and bed sediments of the Hunter River	Bound by Hunter River, Selwyn Street & Industrial DRIVE, Mayfield North	Former BHP steelworks site	The Quayside Close and Selwyn Street (I-001), and Selwyn Street, George Street and Industrial Drive (I-002) intersection is partly located within this site	A notice by the NSW EPA under the CLM Act has been issued declassifying this site as significantly contaminated subject to a Contamination Site Management Plan. conditions.

There is potential for contamination at the former BHP steelworks site, which two of the intersections (I-001 and I-002) that form part of the proposal are either fully or partly located within. However, remediation of the former BHP steelworks site has been satisfactorily carried out, as shown on Figure 3-3 and confirmed in a maintenance order issued by the EPA (EPA, 2020). High risk areas remain within the former BHP steelworks site, however, are not in the vicinity of the proposed works, as shown on Figure 3-4. A capping layer of about 0.5 metres of virgin excavated natural material (VENM) was placed over the land currently occupied by the Port of Newcastle and a high-density polyethylene (HDPE) liner at drainage lines, as well as the Intertrade site (Lot 332, DP 1176879) located to the west. The remediated area is understood to extend to the north side of Selwyn Street over the extent of the Port of Newcastle land and hardstand area of the Intertrade site to isolate and prevent the spread of known contamination. Pavement and other ground cover was laid down on top of this capping layer to varying depths.

The existing box culvert under Quayside Close is underlain by a base slab about 350 millimetres thick on top of the existing capping layer. Excavation works are proposed to extend this box culvert for a distance of about 11 metres. The box culvert has internal dimensions of about 5.2 metres wide and 0.9 metres high.

Existing information of geotechnical conditions in proximity to the culvert indicates there is a fairly uniform layer of mixed granular materials to a depth of 2 to 2.5 metres below the capping layer. The next 0.5 to 1.0 metres shows the presence of estuarine sand underlain by clay. The mixed granular material is composed of byproducts of historical steelworks activities, so there is a risk for remnant contamination present within this material.

Methodology for design of the culvert will also continue to be refined during detailed design with a view to avoid or minimise disturbance to the existing capping layer and any potentially contaminated materials below the capping layer, in accordance with Requirement 19.1 – Obligation to Manage Risk of the CSMP (*Hunter Development Corporation, 2016*).

For the extension of asphalt hardstand on the eastern side of Quayside Close, excavation would be required to the proposed pavement depth or top of the capping layer with disturbance to the capping layer avoided as much as possible. Depth of the ground cover in vegetated areas is noted to be a nominal 100 millimetres on top of the capping layer, however, depth is uncertain at this location due to the variability in depth of transition with existing pavement, the open drain and culvert. Due to this localised variability in the depth of cover over the capping layer, there remains potential for encroachment into the capping layer and subsequent soils below this layer during the works. As per detail on culvert above, this would be confirmed prior to excavation commencing and the depth of

Any excavation works at I-001, including ground stability testing, would be undertaken in accordance with mitigation measure E11. In the event of ground disturbance resulting in potential impact to the existing capping layer, a Work Management Plan would be developed and approved by the Site Auditor in accordance with safeguard E12.

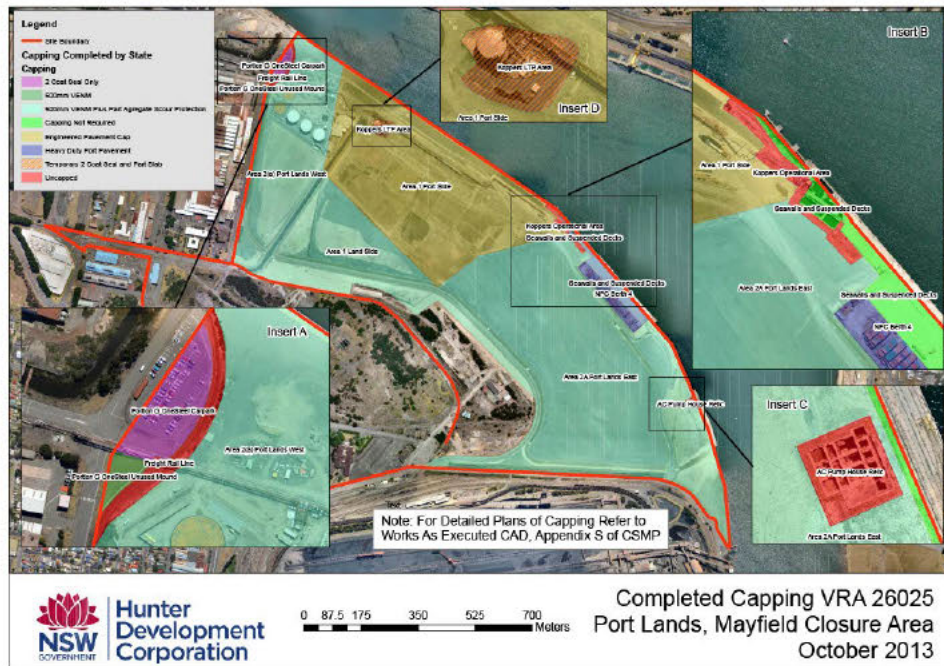


Figure 3-3: Completed capping layer (Figure 14 of Contaminated Land Management Plan (HDC, 2013))

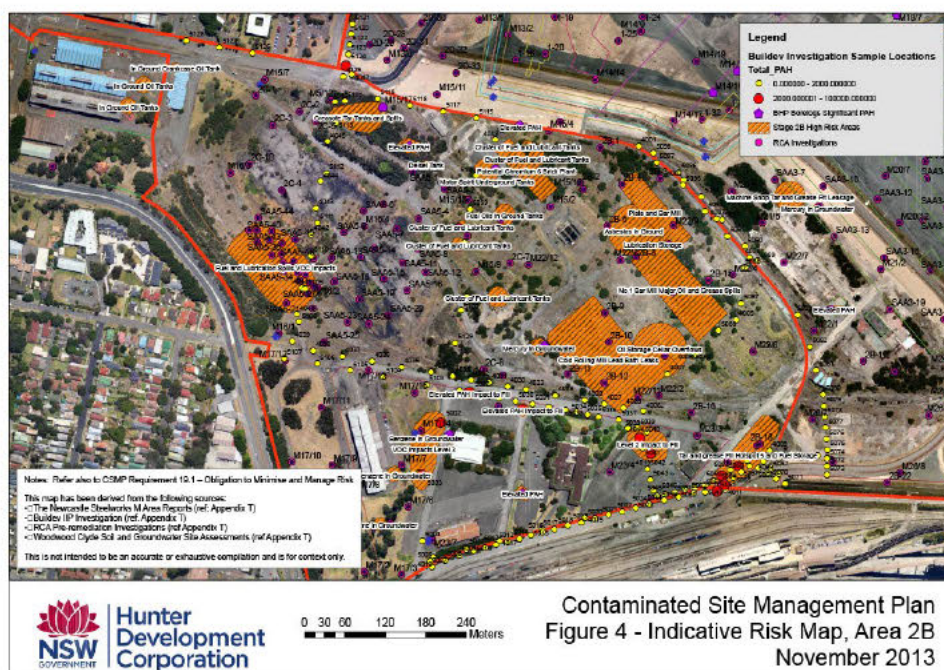


Figure 3-4: Indicative Risk Map (Figure 4 of Contaminated Land Management Plan (HDC, 2013))

Is the likely proposal footprint in or nearby highly sloping landform?

Yes ☐

No ☒

Description of existing environmental and potential impacts

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

Yes ☐

No ☒

The proposal would require excavation of about 0.21 hectares of soils across the four intersections to accommodate the pavement widening, utility adjustments and drainage works. Safeguards are provided below which would be used to manage potential erosion and sediment impacts (E1) near the proposal works area.

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:

- eSPADE (Office of Environment and Heritage, 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 3-3: Soils safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
E1	Soils	Erosion and sediment control measures are to be implemented (in accordance with the Landcom/Department of Housing <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	Erosion and sedimentation controls are to 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 are to 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 is to be in accordance with Transport's <i>Stockpile Site Management Guideline</i> (EMS-TG-10).	Contractor	Pre-construction and Construction
E7	Soils	Potential or actual acid sulfate soils are to be managed in accordance with Transport's <i>Guidelines for the Management of Acid Sulphate Materials</i> 2005.	Contractor	Construction

Numbering	Impact	Environmental safeguards	Responsibility	Timing
E8	Soils	Saline soils are to be managed in accordance with <i>NSW Department of Primary Industries (2014) Salinity Training Handbook</i>	Contractor	Construction
E9	Contamination	An unexpected find procedure for potential or actual contaminated soils will be included in the construction environmental management documentation for sites I-002, I-003 and I-004.	Contractor	Construction
E10	Contamination	Design of the culvert at I-001 will be refined during detailed design in accordance with <i>Requirement 19.1 – Obligation to Manage Risk</i> of the Contaminated Site Management Plan to minimise the potential for disturbance of the capping layer at the former BHP steelworks site. Priority will also be given to reuse of any excavated material onsite.	Contractor	Pre-Construction
E11	Contamination	All works at the former BHP steelworks site will be carried out in accordance with applicable development requirements from the Contaminated Site Management Plan (<i>Hunter Development Corporation, 2016</i>).	Contractor	Pre-Construction and Construction
E12	Contamination	A Work Management Plan will be developed and approved by the Site Auditor in accordance with section 8.2 of the Contaminated Site Management Plan (<i>Hunter Development Corporation, 2016</i>) prior to any ground disturbance with potential impact to the integrity of the existing capping layer.	Contractor	Pre-construction and Construction

3.2 Waterways and water quality

Table 3-4: Waterways and water quality

Description of existing environmental and potential impacts																			
Is the proposal located within, adjacent to or near a waterway? The proposal is located in the Hunter River Catchment and is within the vicinity of several water bodies. These water bodies and their location from the proposal areas are summarised in Table 3-5 and shown in Figure 3-5 to Figure 3-8. Table 3-5: 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>Quayside Close and Selwyn Street intersection (I-001)</td><td>Hunter River</td><td>160 metres east</td></tr> <tr> <td>Selwyn Street, George Street and Industrial Drive intersection (I-002)</td><td>Throsby Creek (Tributary of Hunter River)</td><td>800 metres south</td></tr> <tr> <td rowspan="2">Industrial Drive and Pacific Highway intersection (I-003)</td><td>Warabrook Wetlands Reserve</td><td>250 metres west</td></tr> <tr> <td>Hunter Estuary Wetlands (Wetland of international importance)</td><td>One kilometre north</td></tr> <tr> <td>John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004)</td><td>Surveyors Creek</td><td>380 metres south (downslope from intersection)</td></tr> </table> The nearest sensitive receiving environment within the vicinity of the proposal is the Hunter River, located about 160 metres east of the Quayside Close and Selwyn Street intersection (I-001). Hunter River flows into the ocean about 3.5 kilometres south-east of this intersection. As outlined in Section 3.1 (Soil), the proposed scope of works would primarily remain within the road reserve. Except for the culvert extension, open drain realignment, and provision of stormwater inlets at the Quayside Close and Selwyn Road intersection (I-001), and construction of a new stormwater inlets at the Selwyn Street and George Street intersection (I-002), no other drainage works are proposed. Drainage work at the Quayside Close and Selwyn Road intersection (I-001), which is located within the Hunter River floodplain, has the potential to impact downstream water quality of Hunter River via the stormwater network or onsite runoff. The area between this intersection and Hunter River is generally flat. To minimise these potential impacts, erosion and sediment measures outlined in Section 3.1 (Soil) would be implemented during construction. There also exists a system of pipes connecting to an adjacent drainage channel which was installed for water diversion during previous development works on the site. It also has a secondary function to carry overflow during heavy rain events than may inundate the existing culvert. If possible, this water diversion would be re-instated during construction of the culvert extension. Performance of culverts and other drainage infrastructure would be impacted temporarily during these works. However, the function of drainage infrastructure would be restored after construction is finalised. Given the minor works proposed at the intersections, the proposal would not impact nearby water bodies except for Hunter River, which may be minimally impacted due to its proximity to drainage work proposed at Quayside Close and Selwyn Road intersection (I-001).			Proposal area	Name of water body	Location from the proposal (approximate)	Quayside Close and Selwyn Street intersection (I-001)	Hunter River	160 metres east	Selwyn Street, George Street and Industrial Drive intersection (I-002)	Throsby Creek (Tributary of Hunter River)	800 metres south	Industrial Drive and Pacific Highway intersection (I-003)	Warabrook Wetlands Reserve	250 metres west	Hunter Estuary Wetlands (Wetland of international importance)	One kilometre north	John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004)	Surveyors Creek	380 metres south (downslope from intersection)
Proposal area	Name of water body	Location from the proposal (approximate)																	
Quayside Close and Selwyn Street intersection (I-001)	Hunter River	160 metres east																	
Selwyn Street, George Street and Industrial Drive intersection (I-002)	Throsby Creek (Tributary of Hunter River)	800 metres south																	
Industrial Drive and Pacific Highway intersection (I-003)	Warabrook Wetlands Reserve	250 metres west																	
	Hunter Estuary Wetlands (Wetland of international importance)	One kilometre north																	
John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004)	Surveyors Creek	380 metres south (downslope from intersection)																	
Yes ☒ No ☐																			

Description of existing environmental and potential impacts



Figure 3-5: Waterbodies in the vicinity of the proposal - Quayside Close and Selwyn Street intersection (I-001)

Description of existing environmental and potential impacts



Figure 3-6: Waterbodies in the vicinity of the proposal - Selwyn Street, George Street and Industrial Drive intersection (I-002)

Description of existing environmental and potential impacts



Figure 3-7: Waterbodies in the vicinity of the proposal - Industrial Drive and Maitland Road intersection (I-003)

Description of existing environmental and potential impacts

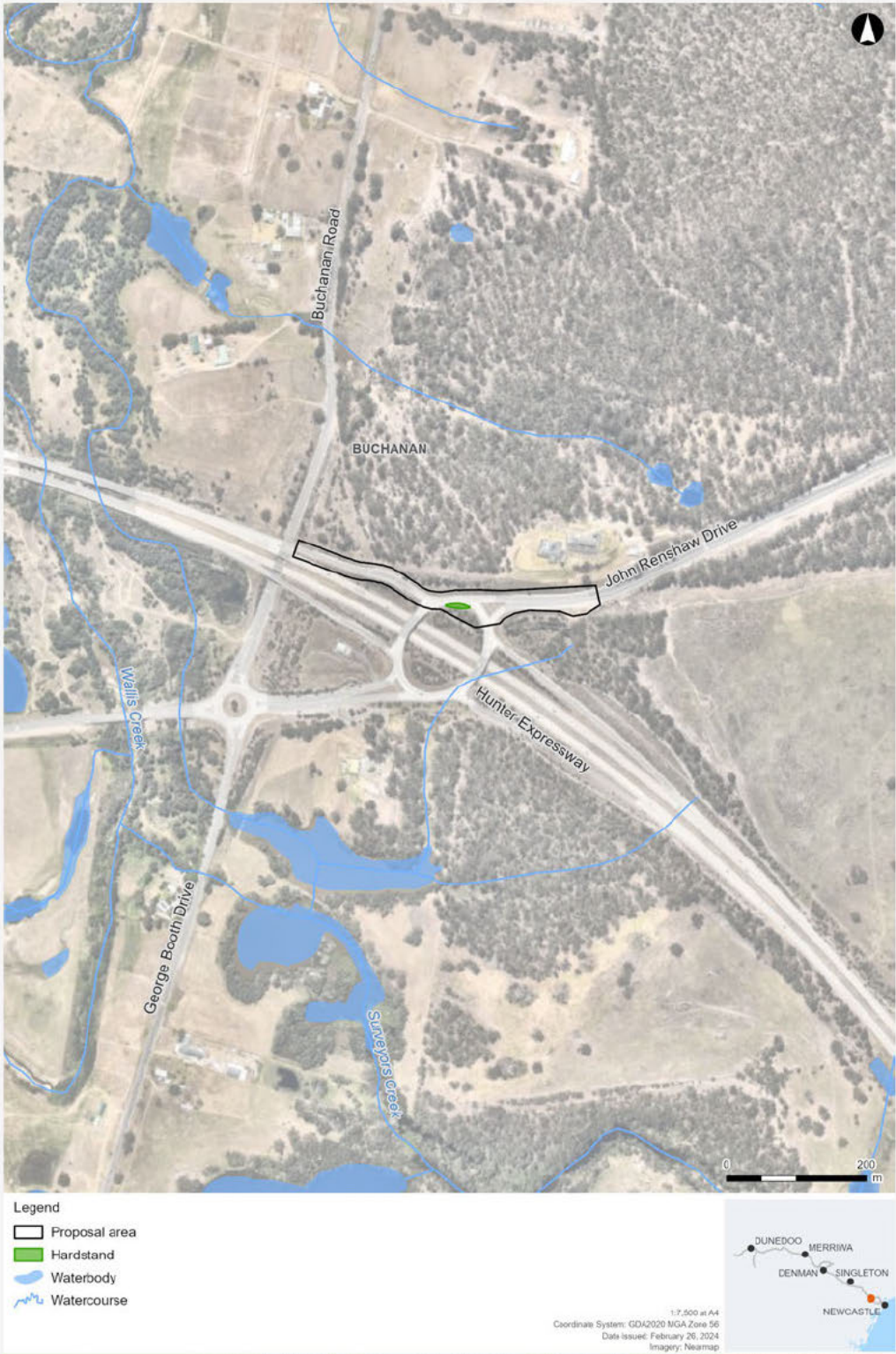


Figure 3-8: Waterbodies in the vicinity of the proposal - John Renshaw Drive and Hunter Expressway Exit Ramp (I-004)

Is the location known to flood or be prone to water logging?

Yes ☐ No ☒

A search of the City of Newcastle Council flooding maps (City of Newcastle Council, 2024) show that the Quayside Close and Selwyn Street intersection (I-001) is located in the Hunter River floodplain and mapped as very low risk. This area is located outside of the 1 per cent annual exceedance probability (AEP) flood level, where larger less frequent floods could occur. It should be noted however, that Hunter River, which is located about 160 metres from this intersection, is mapped as having a high risk of flooding.

Description of existing environmental and potential impacts		
No assessment has been undertaken to determine the flood immunity of the existing culvert at the Quayside Close and Selwyn Street intersection (I-001), however it is understood that any overflow is captured in an adjacent drainage canal through a system of connecting pipes, where it then also flows out to the Hunter River. The proposed extension of this culvert would be designed to maintain the existing hydraulic performance. The existing culvert is also not subject to tidal inundation. The Selwyn Street, George Street and Industrial Drive intersection (I-002) is also in an area mapped as very low risk of flooding, and the Industrial Drive and Pacific Highway intersection (I-003) is not located within a flood prone area. A search of the Cessnock City Council flooding maps (Cessnock City Council, n.d.) indicate that the John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004) is also not located within a flood prone area. Weather forecasts would be monitored prior to and throughout the works.		
Is the proposal located within a regulated catchment covered by chapter 6 of State Environmental Planning Policy (Biodiversity and Conservation) 2021 (SEPP (Biodiversity and Conservation))? The proposal is located within the Hunter River Catchment, which is not included as a regulated catchment in the SEPP (Biodiversity and Conservation).	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 3-6: Water quality safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
W1	Water quality	Weather forecasts (probability and amount of rain) will be considered when programming works.	Contractor	Construction
W2	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
W3	Water quality	If a spill occurs, Transport's Environmental Incident Procedure 2021 will be followed and the Transport Project Manager notified as soon as practicable.	Contractor	Construction
W4	Water quality	Reinstate water diversion at the culvert extension at I-001 using the existing pipe connections to the drainage channel to avoid risk of contaminated water or soil runoff during construction.	Contractor	Pre-Construction and Construction
W5	Flooding	The Bureau of Meteorology flood forecasting and warning service is to be monitored for possible flooding to the Hunter River. In the event a flood warning is issued where flooding could occur at the work site(s), then the site(s) would be stabilised to minimise erosion extent and sediment runoff, plant and mobile equipment moved to higher ground where possible, and any remaining equipment on site stabilised to mitigate risk of floating offsite. Measures to remain until flooding has subsided and warnings cancelled.	Contractor	Construction

3.3 Noise and vibration

Table 3-7: 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 Figure 3-9 to Figure 3-11. The proposal is surrounded by the following sensitive receivers that may be impacted during construction. These are detailed below. - Quayside Close and Selwyn Street intersection (I-001): The surrounding land is zoned as special activities (SP1). The proposal is surrounded by land used for industrial purposes and as such, no sensitive receivers are present within the vicinity (refer to Figure 3-9). The nearest residential property is located about one kilometre south of the intersection. - Selwyn Street, George Street and Industrial Drive intersection (I-002): The surrounding land is zoned as special activities (SP1) and general industrial (E4). The nearest residential property is located about 120 metres west of the intersection (refer to Figure 3-9). - Industrial Drive and Pacific Highway intersection (I-003): The surrounding land is zoned as classified road (SP2), general industrial (E4), public recreation (RE1), and low density residential (R2). The nearest residential properties are located about 50 metres west of the intersection (refer to Figure 3-10). - John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004): The surrounding land is zoned as classified road (SP2) and rural landscape (RU2). The nearest residential property is located about 100 metres northeast of the intersection (refer to Figure 3-11). No other sensitive receivers such as churches or hospitals are anticipated to be affected by the proposal.	Yes ☒	No ☐

Description of existing environmental and potential impacts



Figure 3-9: Noise sensitive receivers in proximity to the Quayside Close and Selwyn Street intersection (I-001) and Selwyn Street, George Street and Industrial Drive intersection (I-002)

Minor works review of environmental factors

Legend

- Proposal area
- Railway
- Watercourse

Sensitive receivers

- Commercial
- Industrial
- Recreation
- Residential

Map showing the proposed rail corridor from Dunedoo to Newcastle, with sensitive receivers (Commercial, Industrial, Recreation, Residential) and watercourses. The map includes a legend and a scale bar.

Coordinates: 17.761444
 Coordinate System: GDA2020 MGA Zone 56
 Date issued: January 19, 2024
 Imagery: Neamap

Project: 220400000137/ARCADIS/00181066 - CD - CW Central RRT Road Upgrade - N/AS/DA - Current/B - Maps/PRI - MWREP - Expro/PRI - MWREP - 1.1 - 3.5 - Access/SensitiveReceivers

Description of existing environmental and potential impacts



Figure 3-11: Noise sensitive receivers in proximity to the John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004)

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

Yes

☐

No

☒

Description of existing environmental and potential impacts

Work proposed at Quayside Close and Selwyn Street intersection (I-001), and the works on Selwyn Street as part of the Selwyn Street, George Street and Industrial Drive intersection (I-002) would be prioritised during standard working hours.

To minimise traffic impacts on Industrial Drive as part of the Selwyn Street, George Street and Industrial Drive (I-002), at the Industrial Drive and Pacific Highway intersection (I-003), and John Renshaw Drive onto Hunter Expressway Ramp (I-004), construction works would be carried out during out-of-hours construction time periods (evening and night) as identified in Table 3-8. Where required, these hours would be in line with the window of time permitted under road occupancy licences (ROLs). This is also to provide safe work conditions, as work would be required next to live traffic.

Construction activities at all four intersections would be carried out with barriers or traffic diversions, with no road closures or substantial detours proposed.

Table 3-8: Out-of-hours construction time periods

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

Is any explosive blasting required for the proposal?

Yes
☐ No
☒

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

Yes
☒ No
☐

The Transport for NSW '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 paving/asphalting work and local road works. The results of the assessment are shown in [Appendix B](#).

A noise area category has been selected to represent each proposal area based on the sensitive receivers within the vicinity (identified above). The noise area categories selected for each of the proposal areas are detailed below.

- The R3 category has been selected for the Quayside Close and Selwyn Street intersection (I-001), Selwyn Street, George Street and Industrial Drive intersection (I-002), and Industrial Drive and Pacific Highway intersection (I-003). This category is representative of an area where the background noise environment is influenced by road traffic and commercial activities. There is no line of sight to the proposal areas from the nearest sensitive receivers.
- The R2 category has been selected for the John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004). The R2 category is most representative of an area with isolated residences adjacent to a large road. There is no line of sight to the proposal area from the nearest sensitive receiver.

Construction noise assessment

A distance based (scenario) assessment was selected for all intersections, with either 'local road works' or 'pavement/asphalting' selected as the applicable construction scenarios for the intersections:

- Quayside Close and Selwyn Street intersection (I-001): Local road works (standard hours)
- Selwyn Street, George Street and Industrial Drive intersection (I-002): Local road works (out of hours)
- Industrial Drive and Pacific Highway intersection (I-003): Pavement / asphalting (out of hours)
- John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004): Pavement / asphalting (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.

Description of existing environmental and potential impacts

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 local road works, as well as pavement and asphaltting, are provided in Table 3-9 for each assessment time period and noise area category. Developed settlements (urban and suburban) and no line of sight have been assumed in estimating construction noise impacts.

Table 3-9: Noise affected distances for residential receivers

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 (Pavement / asphaltting)	Without line of sight	115	180	280	425	10
R3 (Local Road works)	Without line of sight	140	215	330	500	25
R3 (Pavement / asphaltting)	Without line of sight	70	115	180	280	10

Based on Table 3-9, the following impacts are expected for receivers without line of sight to the proposed work:

- R2 category:
 - during pavement / asphaltting activities in the night period, those within 740 metres of the proposal area have the potential to experience levels above the RBL. Receivers within 25 metres may be highly noise affected.
- R3 category:
 - during local road works activities in standard hours, those within 140 metres of the proposal area have the potential to experience levels above the RBL. Receivers within 25 metres may be highly noise affected.
 - during pavement / asphaltting activities in the night period, those within 280 metres of the proposal area have the potential to experience levels above the RBL. Receivers within 10 metres may be highly noise affected.

Quayside Close and Selwyn Street intersection (I-001)

The nearest noise sensitive residential receiver to the Quayside Close and Selwyn Street intersection (I-001) is located about one kilometre south of the intersection and beyond the noise affected distance of 140 metres. As such, work at this location is unlikely to result in noise level emissions above RBL and therefore, no additional mitigation measures are recommended.

Selwyn Street, George Street and Industrial Drive intersection (I-002)

Works at this location, particularly on Selwyn Street, would be prioritised during construction hours. However, due to the proximity to live traffic and limited space for constructing traffic barriers for worker safety, it is likely that work along Industrial Drive will be carried out under an ROL. Therefore, the noise assessment is based on local road works (outside of hours), developed settlements (urban and suburban) and without line of sight. Table 3-10 provides the recommended additional mitigation measures for each perception category relating to this noise assessment and Figure 3-12 shows the impact distances for each perception level for this intersection.

The nearest noise sensitive residential receiver to the Selwyn Street, George Street and Industrial Drive intersection is located about 120 metres west of the intersection and within the distance range where potential noise levels above the RBL would be experienced for night time works. Based on Table 3-10, noise

Description of existing environmental and potential impacts

levels for the nearest residential receiver is anticipated to be ‘moderately intrusive’ due to being less than 140 metres from the proposed works (construction noise levels above RBL between 20 to 30 db(A)).

As a result, mitigation measures are required, in line with *Construction Noise and Vibration Guideline (Transport for NSW, 2023)* for those residential receivers within the 500 metre range where potential noise levels are above the RBL would be experienced. The applicable mitigation measures are summarised in Table 3-15.

Table 3-10: Predicted noise impact outside standard construction hours for local road works (without line of sight) – R3 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	40	45	500	N
Clearly audible		50	330	N, R2, DR
Moderately intrusive		60	140	N, PC, SN, R2, DR

N=Notification, SN=Specific notifications, PC=Phone calls, R2=Respite period 2, DR=Duration respite

Description of existing environmental and potential impacts

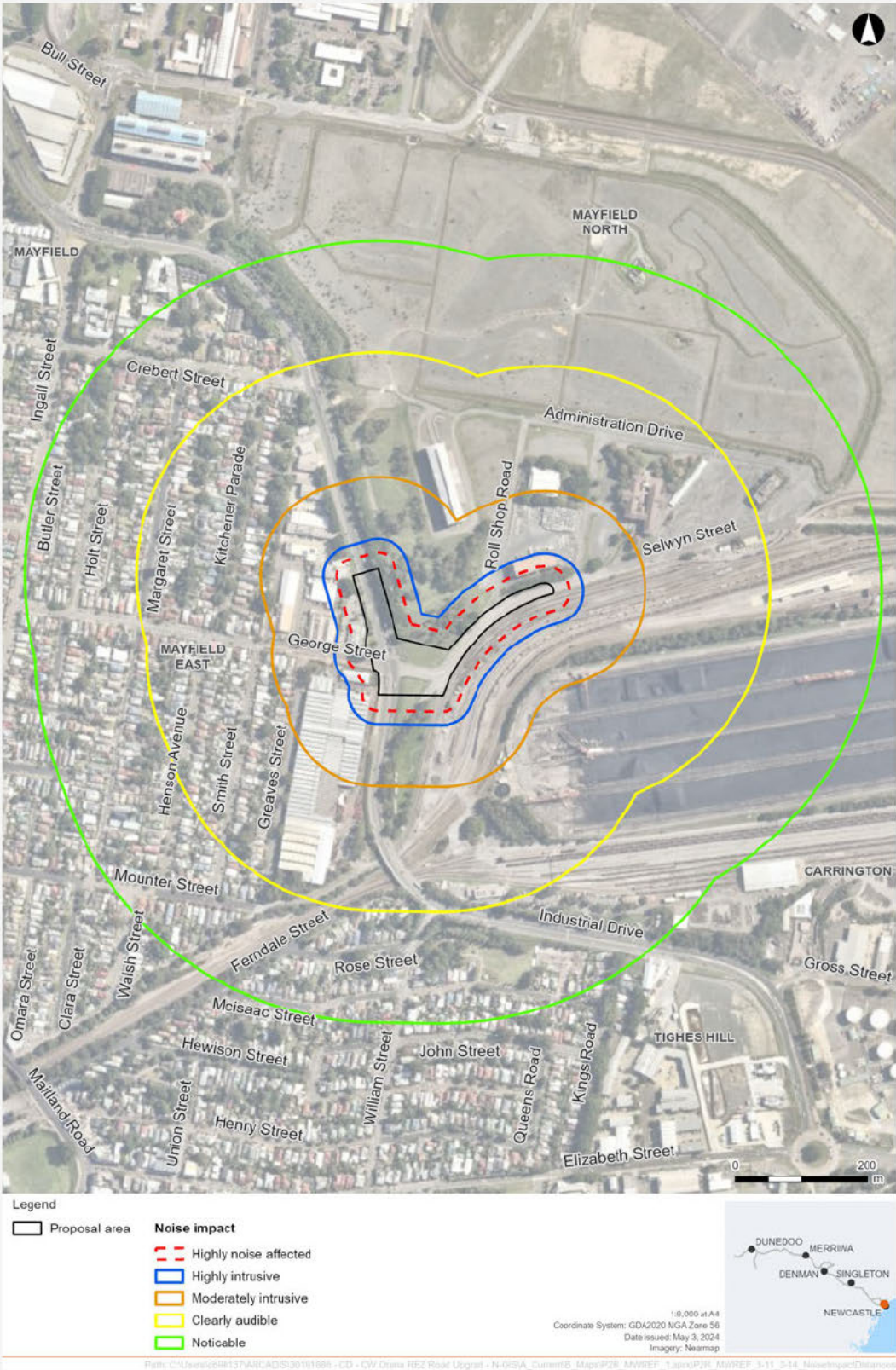


Figure 3-12: Noise impact distances during the night-time period (without line of sight) – Selwyn Street, George Street and Industrial Drive intersection (I-002)

Industrial Drive and Pacific Highway intersection (I-003)

The noise assessment carried out for this proposal area is based on pavement / asphaltting (out of hours), developed settlements (urban and suburban) and without line of sight. Table 3-11 provides the recommended additional mitigation measures for each perception category relating to this noise assessment and Figure 3-13 shows the impact distances for each perception level for this intersection.

Description of existing environmental and potential impacts

The nearest potentially affected residential receiver to the Industrial Drive and Pacific Highway intersection (I-003) is located about 50 metres west of the intersection and has no line of sight to the proposal area. Based on Table 3-11, noise levels for the nearest residential receiver(s) is anticipated to be ‘moderately intrusive’ due to being less than 70 metres from the proposed works (construction noise levels above RBL between 20 to 30 (dBA)).

Therefore, additional mitigation measures are required, in line with *Construction Noise and Vibration Guideline (Transport for NSW, 2023)* for those residential receivers within the 280 metre range where potential noise levels are above the RBL would be experienced. The applicable mitigation measures are summarised in Table 3-15.

Table 3-11: Predicted noise impact outside standard construction hours for pavement / asphalting (without line of sight) – R3 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	40	45	280	N
Clearly audible		50	180	N, R2, DR
Moderately intrusive		60	70	N, PC, SN, R2, DR

N=Notification, SN=Specific notifications, PC=Phone calls, R2=Respite period 2, DR=Duration respite

Description of existing environmental and potential impacts

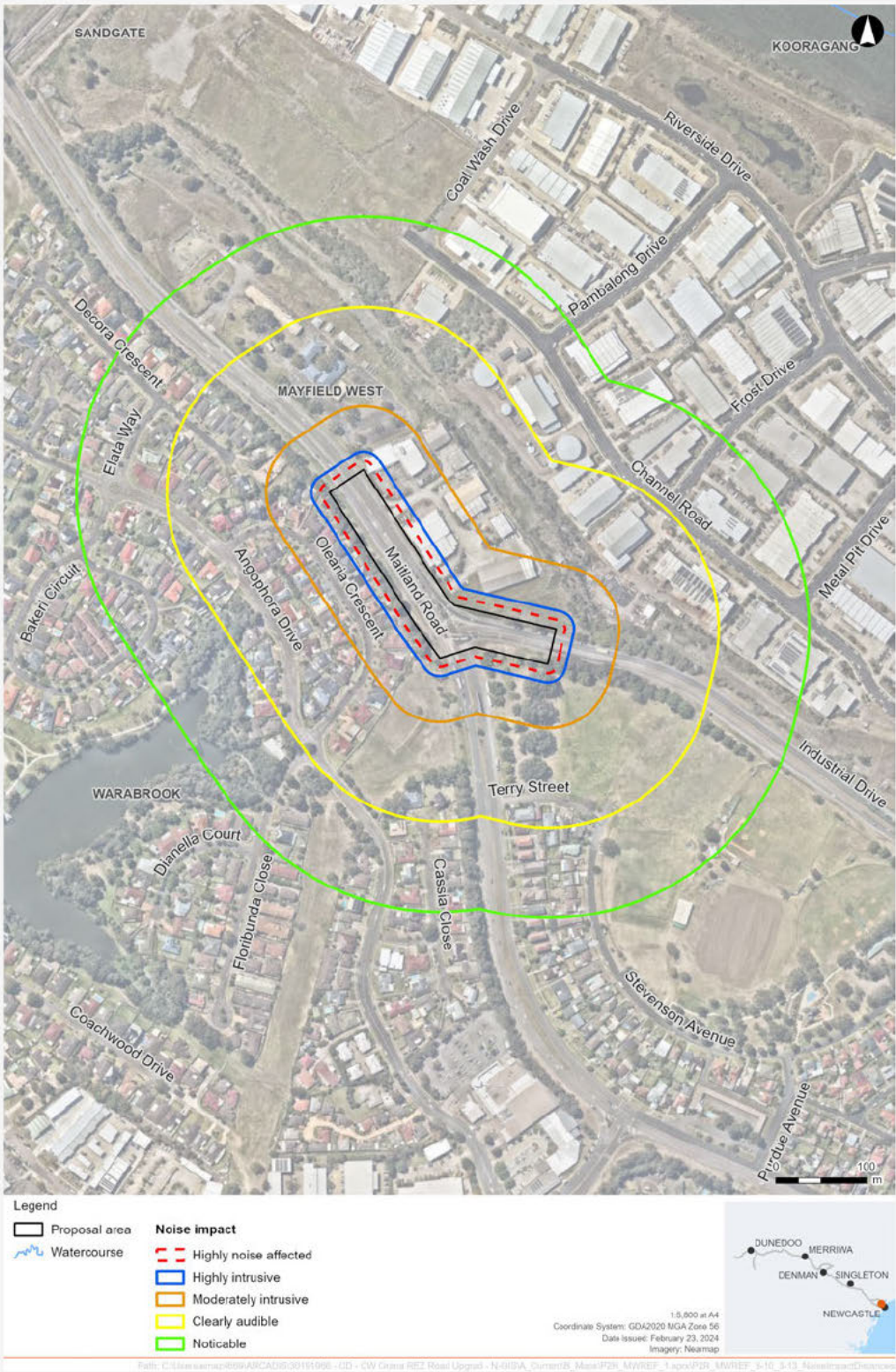


Figure 3-13: Noise impact distances during the night-time period (without line of sight) – Industrial Drive and Pacific Highway intersection (I-003)

John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004)

The noise assessment carried out for this proposal area is based on the predicted construction noise impacts outside of construction hours for pavement / asphaltting activities and in developed settlements (urban and suburban) with no line of sight. Table 3-12 provides the recommended additional mitigation measures for each perception category for residential receivers with no line of sight to the proposal area and Figure 3-14 illustrates the impact distances for this intersection.

Description of existing environmental and potential impacts

The nearest residential receiver to the John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004) is located about 100 metres northeast of the intersection and the receiver is not within line of sight of the proposal area. This residential receiver is located within the 740-metre range where potential noise levels above the RBL would be experienced. Noise impacts from this receiver is anticipated to be ‘moderately intrusive’ (construction noise levels between 20 to 30 dbA).

As a result, mitigation measures are required, in line with *Construction Noise and Vibration Guideline* (Transport for NSW, 2023) for those residential receivers within the 425 metre range where potential noise levels above the RBL would be experienced. The applicable mitigation measures are summarised in Table 3-15.

Table 3-12: Predicted noise impact outside standard construction hours for pavement / asphalting (without line of sight) – 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	425	N
Clearly audible		45	280	N, R2, DR
Moderately intrusive		55	115	N, PC, SN, R2, DR

N=Notification, SN=Specific notification, PC=Phone calls, R2=Respite period 2, DR=Duration respite

Description of existing environmental and potential impacts

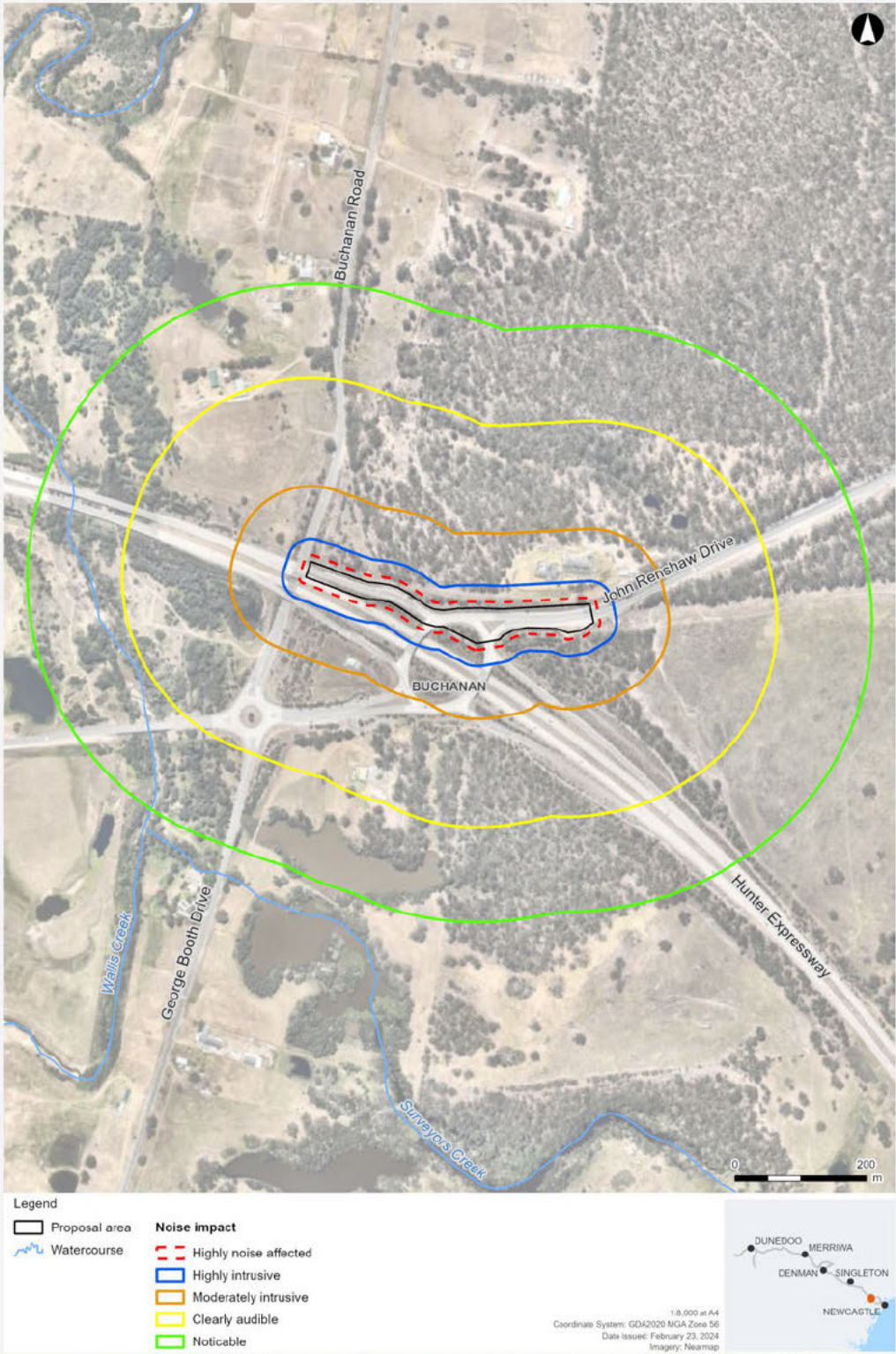


Figure 3-14: Noise impact distances during the night-time period (without line of sight) – John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004)

Non-residential Receivers

The noise affected distances for non-residential receivers all assume direct line of sight to the proposal areas and the construction noise impacts on non-residential receivers would only apply when the premises are in use.

There are no non-residential receivers surrounding the John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004) and as such, this has not been assessed.

Description of existing environmental and potential impacts

Non-residential receivers within the vicinity of other proposal areas are operational during the day-time period except for a McDonalds restaurant, located near the Selwyn Street, George Street and Industrial Drive (I-002) intersection. However, works in proximity to this restaurant is being prioritised during standard hours. As such, noise impacts are being assessed based on standard construction hours and have applied the R3 category, as outlined in Table 3-13.

Table 3-13: Noise affected distances for non-residential receivers

Scenario	Noise Management Level $L_{Aeq(15\text{ min})}$ (dBA)		
	Industrial Premise	Offices, retail outlets	Place of Worship
	75	70	55
Noise affected distance (metres)			
Local road works	45	85	330
Pavement / asphaltting	20	35	180

The nearest non-residential noise sensitive receiver to the Quayside Close and Selwyn Street intersection (I-001) is located about 90 metres south of the intersection and outside the noise affected distance of 45 metres for local road works, as outlined in Table 3-13. As such, additional mitigation measures are not recommended for non-residential receivers in proximity to works at this intersection. Figure 3-15 shows the impact distance of this intersection.

The nearest non-residential noise sensitive receiver to Selwyn Street, George Street and Industrial Drive (I-002) intersection is a McDonalds restaurant located approximately 13 metres to the west of the proposed hardstand and utility adjustment works along the western side of Industrial Drive. The applicable noise management level for this receiver is 70dB(A) and within the noise affected distance of 35 metres, as outlined in Table 3-13. Additional mitigation measures triggered include notifications, phone calls and respite offers. Figure 3-16 shows the impact distance of this intersection.

The nearest non-residential noise sensitive receiver(s) to the Industrial Drive and Pacific Highway (I-003) intersection is located around 15 metres west of proposed signage works in the median of Pacific Highway and around 30 metres north of the traffic island works. However, as the proposed works at this intersection is needed to be undertaken outside of hours under an ROL, impact to this receiver(s) is not predicted as their operating hours are limited to standard hours based on an online search dated 12 February 2024. Therefore, additional mitigation measures are not recommended for non-residential receivers in proximity to works at this intersection.

Description of existing environmental and potential impacts



Figure 3-15: Noise impact distances during the day-time period – Quayside Close and Selwyn Street intersection (I-001)

Description of existing environmental and potential impacts

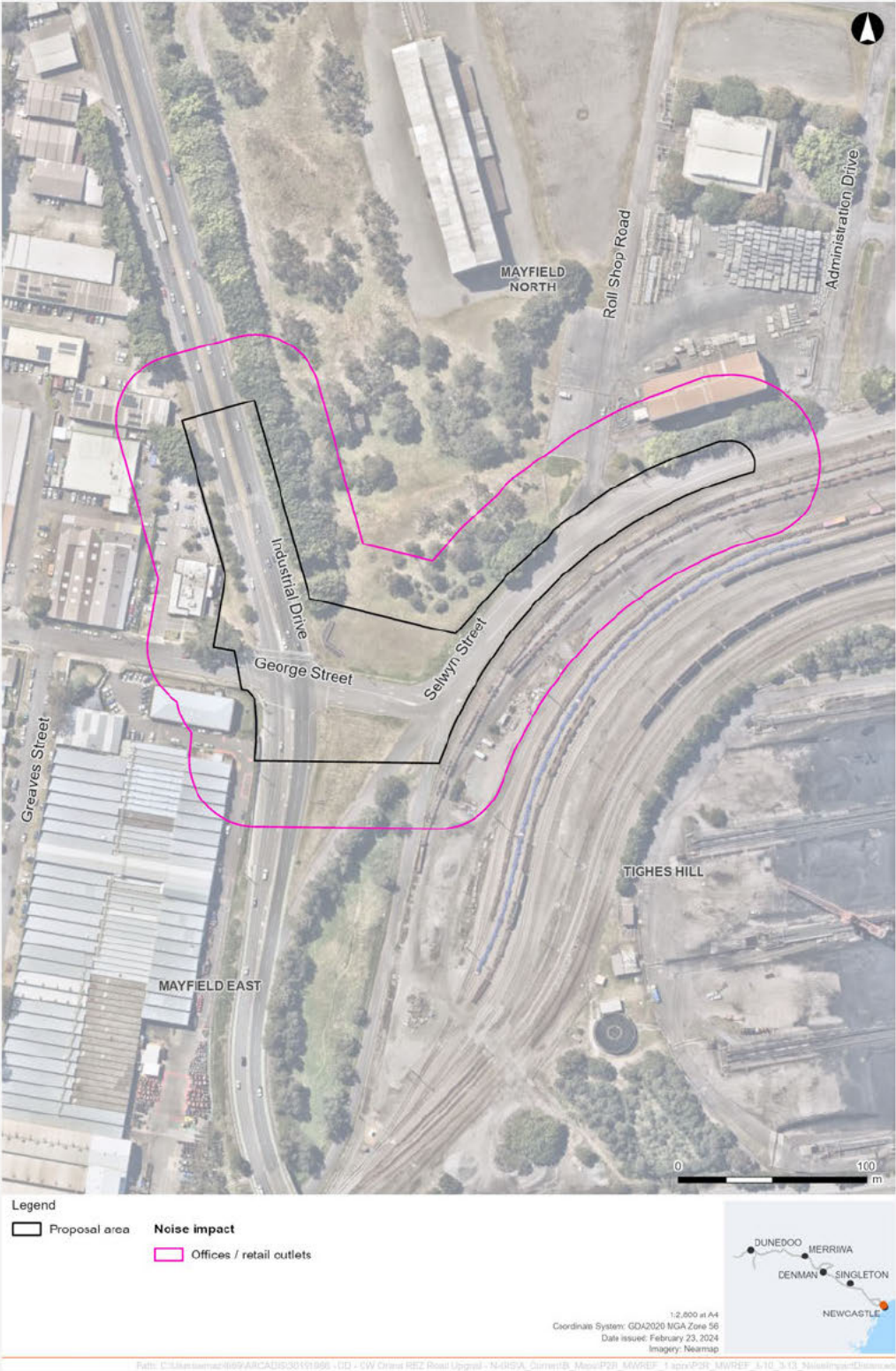


Figure 3-16: Noise impact distances during the day-time period – Selwyn Street, George Street and Industrial Drive intersection (I-002)

Construction vibration assessment

Construction vibration impacts have been considered based on the minimum working distances for equipment causing vibration. These distances provided in the Transport for NSW ‘Construction Noise Estimator Tool’ (Transport noise tool) are given in Table 3-14.

Table 3-14: Minimum working distances for construction vibration

Plant	Minimum working distance (metres)
-------	-----------------------------------

Description of existing environmental and potential impacts

	Appropriate size	Structural damage (light-framed 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.

The additional hardstand proposed along Industrial Drive (I-002) falls within the minimum working distances for the local heritage-listed building, Australia Wire Rope Building, and one standard structure (McDonald's on north west corner of Industrial Drive and George Street). The work will involve earthworks and laying of asphalt pavement which may require the use of equipment such as vibratory rollers and excavators. Due to possible exceedance at the nearby structures resulting from a worst-case assessment, all vibratory causing plant and equipment used at this location will be operated in accordance with safeguard NV5 to ensure possible ground vibration impacts remain below relevant threshold levels at the nearby structures.

Other proposal areas do not have structures within the above minimum working distance and not anticipated to be susceptible to structural damage.

Environmental safeguards outlined in Table 3-15 would be in place to mitigate any potential vibration impacts.

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 scope of work primarily involves asphalt paving and laydown at each intersection, and the relocation of utilities and signage. Traffic movement and volumes on the affected roads and in turn, the noise environment for sensitive receivers, would remain unaffected by the operation of the proposal.

Yes
☐

No
☒

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

The proposal would not result in operational vibration impacts as the scope of work is limited to the construction phase.

Yes
☐

No
☒

Safeguards

Table 3-15: 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
NV2	Noise and vibration	All sensitive receivers (e.g. local residents) likely to be affected will be notified at least five working days prior	Contractor	Pre-construction

Numbering	Impact	Environmental safeguards	Responsibility	Timing
		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.		Construction
NV3	Noise and vibration	Any work with impulsive or tonal noise emissions will be carried out in accordance with the Construction Noise and Vibration Guideline (Roads) (Transport for NSW, 2023) and EPA Interim Construction Noise Guideline (ICNG) (NSW DECC, 2009).	Contractor	Construction
NV4	Noise and vibration	Additional noise mitigation measures are to be implemented where appropriate, as identified in Tables 3-10 to 3-11.	Contractor	Pre-construction Construction
NV5	Noise and vibration	Any vibratory causing plant or equipment used at I-002 must not encroach into their respective safe working distances to the Australia Wire Rope Building and/or McDonald's restaurant. If there is any risk of exceedance, a permanent vibration monitoring system must be installed for the duration of works (via flashing light, audible alarm, or SMS) to alert plant operators when vibration levels are approaching the cosmetic damage threshold. Vibratory causing works must cease prior to reaching the threshold and additional safeguards implemented to prevent cosmetic damage prior to recommencement of works. Safe working distances to be applied are outlined in Table 3-13 or alternatively, site specific distances can be applied provided attended vibration measurements are carried out at the commencement of works and confirm that damage screening criteria won't be exceeded.	Contractor	Construction

3.4 Air quality

Table 3-16: Air quality

Description of existing environmental and potential impacts		
Is the proposal likely to result in large areas (>2ha) of exposed soils? The proposal would require excavation of about 0.21 hectares of soils across the four intersections to accommodate the asphalt pavement widening, utility adjustments and drainage works. Safeguards are provided below in Table 3-17 which would be used to manage potential erosion and sediment impacts near the proposal areas.	Yes ☐	No ☒
Are there any dust-sensitive receivers located within the vicinity of the proposal during the construction period? The following dust-sensitive receivers are located near the proposal areas: The Quayside Close and Selwyn Street intersection (I-001): The proposal area is located within an industrial area, adjacent to cleared land to the north and the Morandoo Freight Yard to the south. Port Waratah Coal Services is located about 150 metres south west to the intersection, where coal is received, stockpiled, blended, and loaded onto vessels for export from Port	Yes ☒	No ☐

Description of existing environmental and potential impacts

Waratah. The staff working at the freight yard, coal services, and port would be primarily working outdoors, subject to dust emissions that are primarily generated from those port activities. Considering the existing industrial activities in the area, the proposal is unlikely to contribute to the airborne dust currently generated by these industrial operations. The nearest residential receiver to Quayside Close and Selwyn Street intersection (I-001) is located about one kilometre south.

- Selwyn Street, George Street and Industrial Drive intersection (I-002): The nearest receivers are businesses adjacent to the east of the intersection, including McDonald's, Newcastle Auto Allies, and Real Life Fitness. Also located within the vicinity of this intersection are residential properties (about 190 metres west) and a recreational area (about 380 metres south east).
- Industrial Drive and Pacific Highway intersection (I-003): The nearest sensitive receivers to the Industrial Drive and Pacific Highway intersection include businesses located about 15 metres west of the intersection, and residential properties located about 50 metres west of the intersection.
- John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004): The proposal site is located within a rural area, with the nearest residential property located about 130 metres northeast of the intersection.

The primary dust-generating activities during construction include excavation and asphaltting at the Quayside Close and Selwyn Street intersection (I-001) and Selwyn Street, George Street and Industrial Drive intersection (I-002), and the median reconstruction at the Industrial Drive and Pacific Highway intersection (I-003). Tree removal and pruning at Selwyn Street, George Street and Industrial Drive intersection (I-002) and John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004), and construction vehicle movements would also contribute to dust generation.

Though there is potential for construction-related dust impacts, these would be minor due to the limited scope of works and restriction of excavation to one metre and on dry days where wind speeds are elevated. Potential dust emissions would be managed through the implementation of environmental management measures outlined in Table 3-17.

Is there likely to be an emission to air during construction?

Emissions from plant and equipment would be generated during construction. This is not expected to be discernible from the existing vehicle emissions on the roads.

Yes ☒

No ☐

Safeguards

Table 3-17: 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	Avoiding works that could generate dust onto sensitive receivers during strong winds or unfavourable weather conditions.	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

Numbering	Impact	Environmental safeguards	Responsibility	Timing
A6	Air quality	Work activities will be reprogrammed if the management measures are not adequately restricting dust generation.	Contractor	Construction

3.5 Aboriginal cultural heritage

Table 3-18: 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 proposal is located on existing developed land used as a roadway, and works would primarily be limited to the existing road corridor. Minor excavation works would be required to construct the hardstand at the proposal areas. These areas have 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 C). These searches identified no registered Aboriginal sites within a 500-metre radius of the following proposal areas: - Quayside Close and Selwyn Street intersection (I-001) - Selwyn Street, George Street and Industrial Drive intersection (I-002) - Industrial Drive and Pacific Highway intersection (I-003) The AHIMS search identified seven Aboriginal heritage items within a 500-metre radius of the John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004), with the nearest item (38-4-1328) located about 270 metres northwest of the intersection. The mapping indicates that none of these items are likely to be present within the proposal area. No previously recorded Aboriginal heritage items would be impacted during construction.	Yes ☒	No ☐
Is there potential for the proposal to impact on any items of Aboriginal cultural heritage? None of the items identified in the AHIMS searches carried out on 23 November 2023 would be impacted by the proposal. As the works are proposed in locations disturbed during road construction, the potential for encountering any intact and previously unknown objects or features of Aboriginal archaeological or cultural heritage significance is low. Stage 1 of the PACHCI concluded that construction works at the proposal areas would be unlikely to have any impact on Aboriginal cultural heritage. In the unlikely event that Aboriginal heritage items are uncovered during construction, steps in Transport's <i>Standard Management Procedure: Unexpected Heritage Items</i> would be followed.	Yes ☐	No ☒
Would the proposal involve the removal of mature native trees? No mature native trees would be removed, though the proposal would require the removal of one shrub south of the Quayside Close and Selwyn Street intersection (I-001) to accommodate the drainage realignment, and two trees planted by council as part of the road corridor about 15 metres north of the Selwyn Street, George Street and Industrial Drive intersection (I-002) to accommodate the proposed asphalt hardstand. The removal of four planted trees planted as part of the Hunter Expressway landscaping works is proposed at the John Renshaw Drive onto Hunter Express Exit Ramp (I-004) to accommodate the construction of asphalt hardstand at the central roundabout median. Tree trimming may also be required for vegetation within the vicinity; however, none of the trees impacted by the proposal are mature native trees. Further assessment of potential impacts to these trees is provided in Section 3.5 (Biodiversity).	Yes ☐	No ☒

Description of existing environmental and potential impacts		
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) assessment was carried out on 18 March 2024. 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 Heritage NSW's <i>Due diligence Code of Practice for the Protection of Aboriginal objects in NSW</i> 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. The Stage 1 PACHCI assessment is provided in Appendix C.	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 the proposal areas are not located within a Native Title Claim area.		

Safeguards

Table 3-19: 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 3-20: 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 <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) - Maritime heritage database - Australian Heritage Places Inventory - Newcastle LEP 2012 - Cessnock LEP 2011 - State Environmental Planning Policy (Transport and Infrastructure) 2021. The above searches were completed on 2 November 2023 and are attached in Appendix D.	Yes ☒	No ☐

Description of existing environmental and potential impacts

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?

Yes
☒

No ☐

A review of the Newcastle LEP 2012, Cessnock LEP 2011 and State Environmental Planning Policy (Transport and Infrastructure) 2021 indicate that there are four non-Aboriginal heritage items within the vicinity of the proposal. These sites are summarised in Table 3-21.

Table 3-21: Non-Aboriginal heritage items within the vicinity of the proposal area

Item	Heritage significance	Description	Address	Listing	Location (approximate)
Australia Wire Rope Building	Local	A heritage building currently used by Bridon-Bekaert Ropes Group	6 George Street, Mayfield East	Newcastle LEP listing I286	Located about 25 metres south west of the Selwyn Street, George Street and Industrial Drive intersection (I-002)
Quality Control Laboratory	Local	A heritage building formerly used as quality control laboratory	99 Selwyn Street, Mayfield North	State Environmental Planning Policy (Transport and Infrastructure) 2021 listing	Located about 130 metres north of the Selwyn Street, George Street and Industrial Drive intersection (I-002)
BHP Administration Building	Local	A heritage building formerly used as administration building for BHP	99 Selwyn Street, Mayfield North	State Environmental Planning Policy (Transport and Infrastructure) 2021 listing	Located about 150 metres north east of the Selwyn Street, George Street and Industrial Drive intersection (I-002)
Former migrant camp	Local	Former migrant camp	609 Maitland Road, Mayfield West	Newcastle LEP listing I291	Located about 195 metres northwest of the Industrial Drive and Pacific Highway intersection (I-003)

The nearest item of heritage value is the Australia Wire Rope Building, which is located directly adjacent to the Selwyn Street, George Street and Industrial Drive intersection (I-002) (refer to Figure 3-17). Excavation and construction of asphalt hardstand is proposed at this intersection, about 25 metres north of the Australia Wire Rope Building on the western verge of Industrial Drive and may require equipment such as vibratory rollers and excavators. Based on a conservative assessment using a vibratory roller (>18 tonnes), works would fall within the minimum working distance of 68 metres for heritage structures and therefore, any vibratory causing works at this intersection must be carried out in accordance safeguard NV5 to ensure the heritage-listed structure is not impacted by the works.

The BHP Administration Building and Quality Control Building, located 130 metres north and 150 northeast of the Selwyn Street, George Street and Industrial Drive intersection (I-002) (refer to Figure 3-17) respectively are both located outside the 68 metre working distance for heritage structure when operating a vibratory roller. As such, the proposed work is unlikely to impact these heritage listings.

The nearest item of heritage value to the Industrial Drive and Pacific Highway (I-003) intersection is approximately 195 metres northwest of the proposed works, as shown in Figure 3-11. This heritage item is outside the 68 metre working distance for heritage structures when operating a vibratory roller and therefore, proposed works are unlikely to impact it.

Further assessment on potential vibration impacts is provided in Section 3.3 (Noise and vibration).

Description of existing environmental and potential impacts



Figure 3-17: Location of the non-Aboriginal heritage item “Australia Wire Rope Building”, “BHP Administration Building” and “Quality Control Laboratory”

Minor works review of environmental factors

Description of existing environmental and potential impacts



Figure 3-18: Location of the non-Aboriginal heritage item “Former migrant camp”

Is the proposal likely to impact trees that form part of a heritage listing or have other heritage value?
Nominated trees for removal as described in Section 3.5 do not form part of a heritage listing or have other heritage value.
Further assessment of potential impacts to trees is provided in Section 3.5 (Biodiversity).

Yes ☐ No ☒

Is the proposal likely to occur in or near features that indicate potential archaeological remains?

Yes ☐ No ☒

Description of existing environmental and potential impacts		
The proposal is located within an urban area. Due to the developed nature of the locality, risk of discovery of heritage items during any excavation works are considered low.		

Safeguards

Table 3-22: 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 3-23: 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. A search of the above databases was carried out on 3 November 2023 and 6 December 2023 and are attached in Appendix E. Field surveys were carried out by an ecologist on 21 November 2023.	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. A review of threatened species databases records within 10 kilometres of the proposal areas using NSW OEH BioNet Wildlife search identified threatened fauna species as occurring or having potential to occur within the proposal areas (refer to Appendix E). Habitat preferences and distribution was reviewed for these species and the following assessments were made for each proposal area: • Quayside Close and Selwyn Street intersection (I-001): 455 potential threatened fauna species present under the BC Act and 61 threatened fauna species present under the EPBC Act • Selwyn Street, George Street and Industrial Drive intersection (I-002): 455 potential threatened fauna species present under the BC Act and 61 threatened fauna species present under the EPBC Act • Industrial Drive and Pacific Highway intersection (I-003): 465 potential threatened fauna species present under the BC Act and 59 threatened fauna species present under the EPBC Act • John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004): 360 potential threatened fauna species present under the BC Act and 21 threatened fauna species present under the EPBC Act. The nearest recorded sightings of fauna species (within a one-kilometre radius) to the proposal areas are summarised in Table 3-24.	Yes ☒	No ☐

Table 3-24: Recorded sightings of species listed under the BC Act or EPBC Act within the vicinity of the proposal

Scientific and common name	Status *	Type of listing (BC Act or EPBC Act)	Approximate distance from works	Potential impacts
Swift Parrot (<i>Lathamus discolor</i>)	E (BC Act) and CE (EPBC Act)	BC Act and EPBC Act	800 metres from the Quayside Close and Selwyn Street intersection (I-001)	None anticipated
Grey-headed Flying-fox (<i>Pteropus poliocephalus</i>)	V	BC Act and EPBC Act	630 metres south of the Quayside Close and Selwyn Street intersection (I-001) 350 metres south west of the Selwyn Street, George Street and Industrial Drive intersection (I-002) 40 metres west of the Industrial Drive and Pacific Highway intersection (I-003)	None anticipated
Black-necked Stork (<i>Ephippiorhynchus asiaticus</i>)	E	BC Act	400 metres northwest of the John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004)	None anticipated

*V= vulnerable, E = endangered, CE = critically endangered, VEC = vulnerable ecological community EEC = endangered ecological community, CEEC = critically endangered ecological community M = Migratory
The EPBC PMST identified the following Matters of National Environmental Significance within a one-kilometre radius of the proposal areas, as shown in Table 3-25.

Table 3-25: Matters of National Environmental Significance

Intersection	Wetlands of international importance (Ramsar)	Threatened ecological community	Threatened species	Migratory species
Quayside Close and Selwyn Street intersection (I-001)	None	5	75	54
Selwyn Street, George Street and Industrial Drive intersection (I-002)	None	4	75	46
Industrial Drive and Pacific Highway intersection (I-003)	1 (Hunter Estuary Wetlands about 1km north of the proposal area)	4	76	63

Description of existing environmental and potential impacts						
John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004)	None	6	51	17		
Hunter Estuary Wetlands, a wetland of international importance (Ramsar), is located about one kilometre north of the Industrial Drive and Pacific Highway intersection (I-003)). This wetland would not be impacted upon due to the distance and the nature of the works, therefore the risk of impact to this area is considered very low. The TECs and listed migratory species within a one-kilometre radius of the proposal areas are also unlikely to be affected. This is due to the highly constrained proposal boundary, limited duration and extent of works, and the restriction of most activities to the road reserve. In the unlikely event that unexpected threatened fauna or flora species are discovered during construction, works would be stopped, and the Transport's <i>Unexpected Threatened Species Find Procedure</i> would be followed. 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 E.						
Does the proposal involve pruning, trimming or removal of any tree/s? Native vegetation has been mapped under the NSW State Vegetation Type Map (DPE, 2023) and shows the plant community types (PCTs) surrounding the proposal areas. Ground truthing was undertaken during ecology surveys to confirm the presence of PCTs as shown in Figure 3-19, Figure 3-20 and Figure 3-22). No PCTs are mapped within the vicinity of the Quayside Close and Selwyn Street intersection (I-001) and Industrial Drive and Pacific Highway intersection (I-003). <u>Quayside Close and Selwyn Street intersection (I-001)</u> No trees are proposed to be removed at the Quayside Close and Selwyn Street intersection (I-001). The proposal would require the removal of one shrub located on the southern verge of Selwyn Street to reconstruct the open drain realignment proposed (refer to Figure 3-19). This shrub is not mapped as PCT.					Yes ☒	No ☐

Description of existing environmental and potential impacts

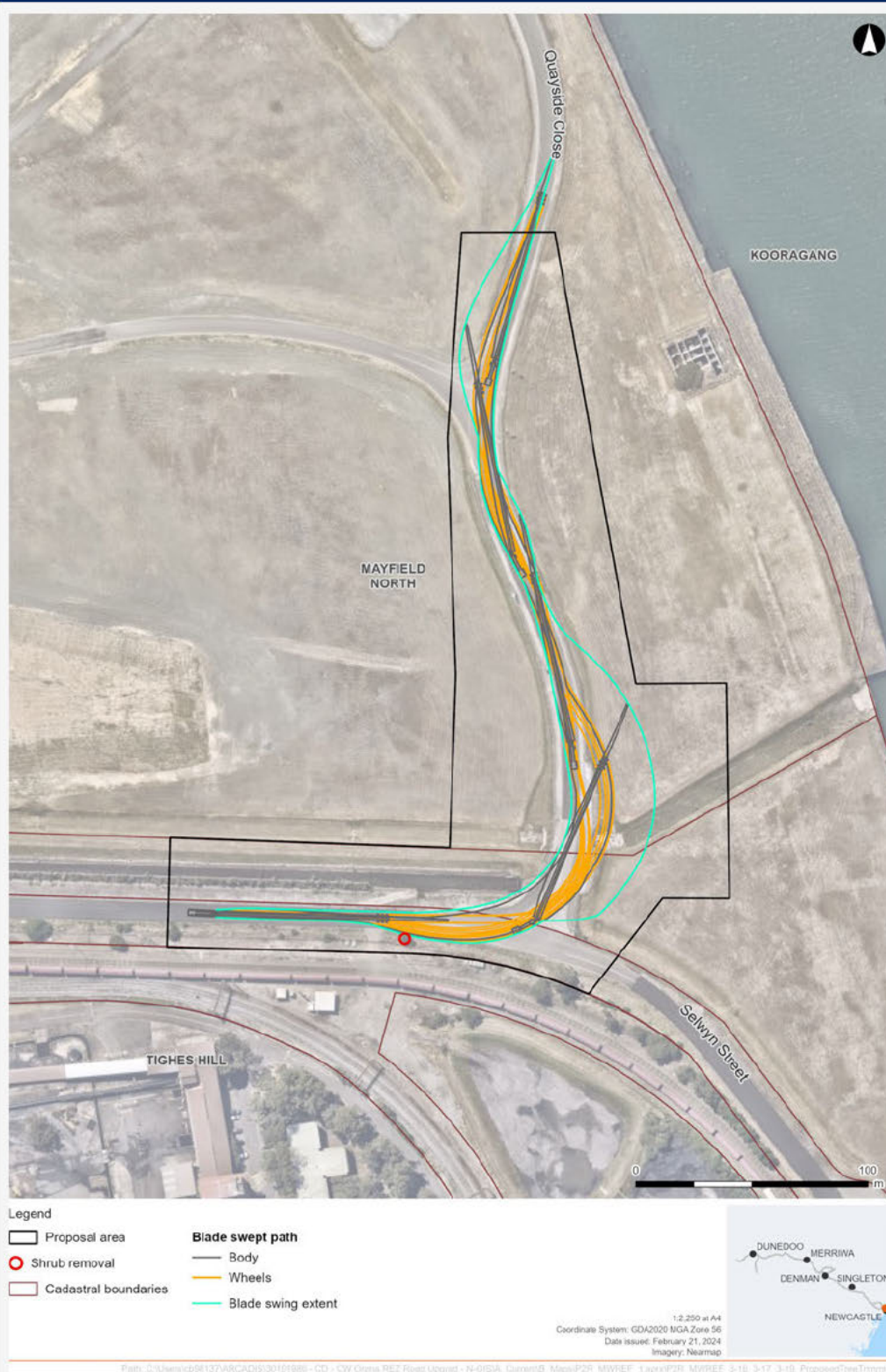


Figure 3-19: Proposed shrub removal – Quayside Close and Selwyn Street intersection (I-001)

Selwyn Street, George Street and Industrial Drive intersection (I-002)

The removal of two council planted fig trees (*Ficus* sp.) located within the vicinity of the Selwyn Street, George Street and Industrial Drive intersection (I-002) is required to accommodate the swept path of OSOM vehicles. The trees are located on the western side of Industrial Drive, north of the George Street and Industrial Drive intersection (refer to Figure 3-20 and Figure 3-21), and were planted as part of streetscape landscaping. As shown in Figure 3-20, PCT 4020 Coastal Creekflat Layered Grass-Sedge Swamp Forest is mapped within the vicinity of the proposal and encroaches in the study area at Selwyn Street, however, is not proposed to be impacted by the works. PCT 4020 is associated with two TECs including

Description of existing environmental and potential impacts

Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast (Endangered under the BC Act) and Subtropical eucalypt floodplain forest and woodland (Endangered under the EPBC Act). The two fig trees proposed for removal are located outside the mapped PCT footprint and as such, no PCTs would be impacted by the proposal.



Description of existing environmental and potential impacts



Figure 3-21: Tree removal required on Industrial Drive (Google Earth, 2023)

John Renshaw Drive onto Hunter Express Exit Ramp (I-004)

To accommodate the construction of asphalt hardstand, tree removal is proposed for four trees located at the central roundabout median at the John Renshaw Drive onto Hunter Express Exit Ramp (I-004) (refer to Figure 3-22 and Figure 3-23). Tree pruning may also be required for vegetation adjoining these trees, though this would be limited to only the necessary extent required to accommodate the swept path of OSOM vehicles.

This native vegetation is comprised of *Kunzea* sp., *Acacia* sp., *Eucalyptus* sp., *Leptospermum* sp., however, is not part of an existing PCT due to being planted. Due to the location in the centre of the interchange, these were planted by the Hunter Expressway contractor and not of ecological significance. Ecologists have identified vegetation at the central roundabout median as a potential refuge for birds or arboreal mammals moving between larger patches of vegetation on either side of the highway.

As shown in Figure 3-20, PCT 3446 Lower North Foothills Ironbark-Box-Gum Grassy Forest is mapped to the north and east of the proposal, however, is not proposed to be impacted by the works. As such, no PCTs would be impacted by the proposal.

Description of existing environmental and potential impacts



Figure 3-22: Proposed tree removal — John Renshaw Drive onto Hunter Express Exit Ramp (I-004)

Description of existing environmental and potential impacts



Figure 3-23: Vegetation within the roundabout at the John Renshaw Drive onto Hunter Express Exit Ramp (Google Earth, 2023)

As identified in Section 3.5 (Aboriginal cultural heritage) and 3.6 (Non-Aboriginal heritage), trees impacted affected by the proposal are not heritage-listed.

Removal of the trees are required to facilitate swept path of OSOM movements during operation, and not required to facilitate construction of the hardstand areas or relocation of impacted signage. The works are exempt from providing biodiversity offsets under the *TfNSW No Net Loss Guidelines* (2023) and/or the *TfNSW Tree and Hollow Replacement Guideline* (2023), as the trees requiring removal are within the disturbed zone of the existing road (extends to the outside of the table drain).

Trees to be removed at the Selwyn Street, George Street and Industrial Drive intersection (I-002) would be replaced with new trees at a location agreed with City of Newcastle Council. Preferred location is within the same tree line, further to the north to maintain the existing tree line and minimise visual impact of the tree removal. However, in the event this location is not supported by City of Newcastle, location of the replanted trees would be guided by Council's public tree scheme and in accordance with the City of Newcastle's Street Tree Selection Manual, as per mitigation measure B8.

All other proposal areas would not be subject to tree removal, though small shrubs and grasses would potentially be removed to accommodate the swept path of OSOM vehicles. This is detailed below.

Is the proposal likely to impact nationally listed threatened species, ecological communities or migratory species?

As detailed in Table 3-25, the PMST findings indicated the potential for threatened species and migratory bird species to occur within the vicinity of the proposal area. Table 3-24 identifies recorded sightings for threatened species, of which none were recorded within the proposal areas. Therefore, impacts to threatened species and migratory species are not expected to occur.

Additionally, no threatened ecological communities identified using the PMST were identified within the proposal areas during ecology site visits.

Yes
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No
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Would the proposal require the removal of any other vegetation?

Exotic and native grasses and some small shrubs would require removal at the following intersections:

- Quayside Close and Selwyn Street intersection (I-001): Small shrub located on the southern side of the proposal area on Selwyn Street
- John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004): Native/exotic grasses located on the central roundabout median.

Yes
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No
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Description of existing environmental and potential impacts		
Native vegetation is present north of a cleared grassed area behind a security fence located to the north of George Street, between Selwyn Street and Industrial Drive (refer to Figure 3-20). Vegetation in this area is identified as PCT 4020: Coastal Creekflat Layered Grass-Sedge Swamp Forest (Forested Wetlands). The grassed area south of the security fence is proposed to be used for equipment laydown, workforce parking and small-scale worker amenities (refer to Section 2.2.4). The proposed work would not encroach upon the PCT and is protected from the works by the existing security fence. There are no PCTs mapped within the vicinity of Quayside Close and Selwyn Street intersection (I-001) and Industrial Drive and Pacific Highway intersection (I-003). No impacts to vegetation are proposed at Industrial Drive and Pacific Highway intersection (I-003).		
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'. The nearest littoral rainforest is located about 5.5 kilometres south of the Selwyn Street, George Street and Industrial Drive intersection (I-002) within the Glenrock State Conservation area. The nearest coastal wetland is located about one kilometre south east of the Selwyn Street, George Street and Industrial Drive intersection (I-002), and about one kilometre northwest of the Industrial Drive and Pacific Highway intersection (I-003). The proposal would not impact these wetlands given the minor works proposed and the distance between the proposal areas and coastal wetlands.	Yes ☒	No ☐
Would the proposal provide any additional barriers to the movement of wildlife? Fencing would be realigned east of Quayside Close to accommodate the additional hardstand construction. However, no additional fencing is proposed. No other works proposed would provide additional barriers to wildlife movement.	Yes ☐	No ☒
Would the proposal disturb any natural waterways or aquatic habitat? As outlined in Section 3.1 (Soils) and Section 3.2 (Waterways and water quality), there is the potential for drainage works at the Quayside Close and Selwyn Road intersection (I-001) to impact the downstream water quality of Hunter River via the stormwater network. Drainage works proposed here include the construction of a concrete upstand, culvert extension and open drainage realignment. With the implementation of erosion and sediment management measures (refer to Section 3.1), these impacts would be minimised and there would be minimal impact to the Hunter River. The increased pavement areas at the four intersections would be minor in the context of the overall hydrology and as such, would be unlikely to have any substantial impact on surface water flows within the catchments. Further, the small extent and temporary and short-lived nature of any ground disturbance likely at each site means that there is minimal risk of any substantial changes in water quality in the receiving waters due to the proposal. No other waterways or aquatic habitats are expected to be impacted due to the minor scope of works proposed.	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 eastern side of Quayside Close shows no indication of being habitat for microbats (refer to Appendix E).	Yes ☒	No ☐

Safeguards

Table 3-26: 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 Transport's <i>Unexpected Threatened Species Find Procedure</i> in Transport's <i>Biodiversity Guidelines 2011 – Guide 1</i> (Pre-clearing process).	Contractor	Construction
B2	Biodiversity	All construction work will be undertaken in accordance with Transport's <i>Biodiversity Guidelines, Protecting and Managing Biodiversity on RMS Projects, 2011</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 is to be protected in accordance with AS 4970-2009 – <i>Protection of trees on development sites</i> , and may require exclusion fencing of the Tree Protection Zones.	Contractor	Preconstruction and construction
B5	Trees	Any tree trimming 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 must be assessed and approved by the project arborist and must comply with AS 4970-2009 – <i>Protection of trees on development sites</i> .	Contractor	Preconstruction and construction
B7	Trees	Tree removal and pruning will be undertaken by a suitably qualified arborist.	Contractor	Pre-construction
B8	Trees	The two fig trees proposed to be removed west of Industrial Drive will be replaced by replanting new trees further to the north on Industrial Drive where feasible, otherwise at an alternative location in consultation with City of Newcastle guided by Council's public tree scheme and in accordance with the City of Newcastle's Street Tree Selection Manual.	Contractor	Pre-construction

3.8 Traffic and transport

Table 3-27: 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?	Yes ☒	No ☐
Construction activities proposed at the Industrial Drive and Pacific Highway intersection (I-003) and John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004) would be carried out during out of hours to minimise impacts to traffic. These out of hours work would be in line with the window of time permitted under road occupancy licenses (ROLs), where required. There is the potential for short-term disruptions to traffic through light and heavy vehicle movements, detours, traffic control and reduced speed limits.		
Due to the minor works proposed and the existing traffic conditions at the Quayside Close and Selwyn Street intersection (I-001) and Selwyn Street, George Street and Industrial Road intersection (I-002), works at these intersections would be prioritised during standard daytime hours unless stipulated by an ROL requirement for these two intersections.		

Description of existing environmental and potential impacts																						
There is the potential for temporary delays to occur for motorists accessing businesses and residential properties west of the Selwyn Street, George Street and Industrial Drive intersection (I-002) during construction. However, access would be maintained throughout construction with signage provided to divert motorists away from construction activities. Though unlikely, in a worse-case scenario, temporary detours and lane closures would be proposed to ensure the safety of motorists. This would be temporary to the construction phase only. Construction activities have the potential to cause temporary disruptions to the signalised pedestrian crossing on the northern leg of the Industrial Drive and George Street intersection. Disruptions would be limited to the construction phase and alternative access routes would be provided and clearly signposted to ensure pedestrian safety. Pedestrian access to the grassed area between Selwyn Street and Industrial Drive, located on the northern side of George Street, would be limited during construction. This grassed area would be used for construction parking and equipment storage. Once construction is completed, full access to this area would be restored.																						
Is the proposal likely to result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during operation? The proposal would have minimal impact on existing road infrastructure. The most substantial work proposed includes the placement of asphalt hardstand at three intersections and a median adjustment at one. Accordingly, operational traffic flow would not be impacted by the proposal.	Yes ☐	No ☒																				
Is the proposal likely to affect any other transport modes or transport infrastructure (e.g., bus stops, bus routes) in the surrounding area? Or result in detours or disruptions to traffic flow (vehicular, cycle and pedestrian) or access during operation? Several existing bus routes travel through the proposal areas, as summarised in Table 3-28. Existing bus stops would not be impacted by the proposal. During construction, it is unlikely the proposal would cause delays to these services and otherwise would be detoured around construction works. Operation of the proposal would not result in detours or disruptions to traffic flow. Table 3-28: Bus routes travelling through the proposal areas <table><tr><th>Bus route number</th><th>Proposed Intersection</th><th>Bus stop closest to the intersection</th><th>Potential impacts</th></tr><tr><td>24</td><td>Selwyn Street, George Street and Industrial Road intersection (I-002)</td><td>Two bus stops (Bus stop ID 2304165 and 2304172), located on George Street about 200 metres west of the intersection</td><td>None identified</td></tr><tr><td>47 and 140</td><td>Industrial Drive and Pacific Highway intersection (I-003)</td><td>Two bus stops (Bus Stop ID 230471 and 2304277), located on Pacific Highway about 280 metres south of the intersection</td><td>None identified</td></tr><tr><td>140</td><td>Industrial Drive and Pacific Highway intersection (I-003)</td><td>One bus stop (Bus stop ID 230440), located on Pacific Highway about 280 metres west of the intersection</td><td>None identified</td></tr><tr><td>160</td><td>John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004)</td><td>Bus Stop ID 2323207, located about 1.6 kilometres west of the intersection</td><td>None identified</td></tr></table>	Bus route number	Proposed Intersection	Bus stop closest to the intersection	Potential impacts	24	Selwyn Street, George Street and Industrial Road intersection (I-002)	Two bus stops (Bus stop ID 2304165 and 2304172), located on George Street about 200 metres west of the intersection	None identified	47 and 140	Industrial Drive and Pacific Highway intersection (I-003)	Two bus stops (Bus Stop ID 230471 and 2304277), located on Pacific Highway about 280 metres south of the intersection	None identified	140	Industrial Drive and Pacific Highway intersection (I-003)	One bus stop (Bus stop ID 230440), located on Pacific Highway about 280 metres west of the intersection	None identified	160	John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004)	Bus Stop ID 2323207, located about 1.6 kilometres west of the intersection	None identified	Yes ☐	No ☒
Bus route number	Proposed Intersection	Bus stop closest to the intersection	Potential impacts																			
24	Selwyn Street, George Street and Industrial Road intersection (I-002)	Two bus stops (Bus stop ID 2304165 and 2304172), located on George Street about 200 metres west of the intersection	None identified																			
47 and 140	Industrial Drive and Pacific Highway intersection (I-003)	Two bus stops (Bus Stop ID 230471 and 2304277), located on Pacific Highway about 280 metres south of the intersection	None identified																			
140	Industrial Drive and Pacific Highway intersection (I-003)	One bus stop (Bus stop ID 230440), located on Pacific Highway about 280 metres west of the intersection	None identified																			
160	John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004)	Bus Stop ID 2323207, located about 1.6 kilometres west of the intersection	None identified																			

Safeguards

Table 3-29: Traffic and transport safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
T1	Traffic and transport	Current traffic movements and property accesses will be maintained during the works.	Contractor	Pre-construction Construction
T2	Traffic and transport	Where works affect the free flow of traffic, a ROL will be obtained, and a Traffic Control Plan would be prepared in accordance with Transport's <i>Traffic Control at Worksites Manual (2003)</i> .	Contractor	Pre-construction
T3	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
T4	Traffic and transport	Vehicle movement arrangements will be developed to limit impacts on other road users (including pedestrians, vehicles and cyclists) and the environment, with specific regard to other road works in the area, local traffic movement requirements and peak traffic volumes. A Traffic Management Plan shall be prepared by the Contractor and approved by Transport for NSW prior to any changes to road user movements and access.	Contractor	Pre-construction Construction
T5	Traffic and transport	Designated work areas within any road reserve will be delineated prior to the work commencing. This area would be the minimum required for safely undertaking the activity.	Contractor	Pre-construction
T6	Traffic and transport	Pedestrian access around the intersection works zone will be maintained at all times. Where this cannot be achieved a safe diversion for pedestrians should be provided.	Contractor	Construction

3.9 Socio-economic

Table 3-30: Socio-economic

Description of existing environmental and potential impacts		
Is the proposal likely to impact on local business? The nearest businesses at each proposal area include: - Quayside Close and Selwyn Street intersection (I-001): Morandoo Freight Yard is located 25 metres south, and Port Waratah Coal Services is located about 150 metres south west of the intersection. Port Waratah is located about 200 metres south east. - Selwyn Street, George Street, and Industrial Drive intersection (I-002): A commercial area is located about 20 metres west of the proposal area. Businesses within this area include McDonald's, Newcastle Auto Allies, Beach Fit Dance, Steel Coast Crossfit and Bridon-Bekaert Ropes Group. Bridon-Bekaert Ropes Group is located about 40 metres south west of the intersection. - Industrial Drive and Pacific Highway intersection (I-003): A commercial area is located about 15 metres north and west of the proposal area. Businesses within this area include Stoney Creek Campers, NHP, Newcastle Tile Co, Eagles Plumbing Plus, Supercheap Auto, and Jaycar Electronics. - John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004): There are no businesses within a 500-metre radius of this intersection. Daytime construction works are proposed at the Quayside Close and Selwyn Street intersection (I-001). Daytime construction works are prioritised for Selwyn Street, George	Yes ☐	No ☒

Description of existing environmental and potential impacts		
Street and Industrial Drive intersection (I-002), though some activities are likely to be carried out during nightworks. However, the proposal would not require any road closures or detours, and access to all businesses and residential properties within the vicinity of the proposal would be maintained throughout construction. Access to the Port of Newcastle would be managed by the Construction Contractor, in consultation with the Port of Newcastle, to avoid impacts to haulage in and out of the Port. Noise and vibration impacts to offices and/or retail outlets detailed above within 35 metres of Selwyn Street, George Street and Industrial Drive intersection (I-002) would be minimised through the implementation of additional mitigation measures outlined in Section 3.3 (Noise and vibration). The commercial area located north of the Industrial Drive and Pacific Highway intersection (I-003) is accessed from the southbound lanes on Pacific Highway. Businesses in this area operate during standard hours and are therefore unlikely to be impacted by works carried out during the evening and night, as proposed for this intersection.		
Is the proposal likely to require any property acquisition? As detailed in Section 2.2.2 (Proposal description), the proposed works would occur within two properties (Lot 42, DP1191982 and Lot 41, DP1191982) east of Quayside Close and one property (Lot 332, DP 1176879) north of George Street. Property boundary adjustments would not be required to accommodate these activities; however, formal agreement will be required from the landholder to carry out the proposed works on this land. EnergyCo will liaise with Port of Newcastle regarding the work required within their leasehold at Quayside Close and Selwyn Street intersection (I-001).	Yes ☒	No ☐
Is the proposal likely to alter any access for properties (either temporarily or permanently)? Access to businesses and residential properties within the vicinity of the proposal would be maintained throughout construction and would not change in operation.	Yes ☐	No ☒
Is the proposal likely to alter any on-street parking arrangements (either temporarily or permanently)? There are no existing parking arrangements within or adjacent to the proposal areas, however, additional no parking signs will be erected west of Quayside Close (I-001) and Selwyn Street (I-002).	Yes ☐	No ☒
Is the proposal likely to change pedestrian movements or pedestrian access (either temporarily or permanently)? The proposal would result in temporary changes to pedestrian access at the Industrial Drive and George Street intersection (I-002). Relocation of signage on the north-eastern corner of the Industrial Drive and George Street intersection (I-002) would require closure of the signalised pedestrian crossing located on the northern leg of this intersection. This is to ensure safety of pedestrians during construction. Pedestrian access to the grassed area located on the northern side of George Street, in between Selwyn Street and Industrial Drive, would be limited during construction works. This area would likely be used for equipment laydown, workforce parking and small-scale worker amenities. Access to this area would be reinstated once construction is completed. Any associated impacts to pedestrian and or bicycle path in relation to the proposed works at Industrial Drive and Pacific Highway intersection (I-003), which is in close proximity to the shared user path, would be controlled under traffic supervision during proposed evening and night works as required. Full access would be reinstated once construction is completed. There would be no permanent impacts to pedestrian movements or access within the proposal areas.	Yes ☒	No ☐
Is the proposal likely to impact on any items or places of social value to the community (either temporarily or permanently)?	Yes ☐	No ☒

Description of existing environmental and potential impacts		
The proposal is not located within the vicinity of items and places of social value to the community. As outlined in Section 3.3 (Noise and vibration), there are three churches about 0.9 kilometres from the Industrial Drive and Pacific Highway intersection (I-003). These include the Grace Presbyterian Church in the south, Mayfield Church of Christ in the south east and The Grainery Church Steel River in the south east. The proposal is unlikely to impact these places of worship given the limited scope of works and distance from the proposal.		
Is the proposal likely to reduce or change visibility of any businesses, farms, tourist attractions or the like (either temporarily or permanently)? Construction activities would be a temporary visual disruption in the form of equipment and heavy vehicles at all proposal areas, and lighting during night works proposed at Industrial Drive and Pacific Highway intersection (I-003) and John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004). However, due to the limited scope of work and minimal equipment required, these impacts would be minor. The removal of two trees at Selwyn Street, George Street and Industrial Drive intersection (I-002) would also result in increased visibility to the McDonalds, located immediately west of the proposal. Construction activities would primarily be carried out within the existing road reserve and the associated impacts would be temporary, occurring during the construction period only.	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? Section 3.7 (Biodiversity) identifies the proposed tree removal for the proposal. Two trees, located within the vicinity of the Selwyn Street, George Street and Industrial Drive (I-002) on the western side of Industrial Drive, will be removed to accommodate the swept path of OSOM vehicles. These trees are located on the western side of Industrial Drive on a grassed area (refer to Figure 3-21). These trees are likely to have been planted by Newcastle City Council and are unlikely to be a memorial or part of a memorial group. Council has been consulted on their removal and the trees will be replaced elsewhere as per safeguard B8. Four trees are proposed to be removed within the vicinity of the John Renshaw Drive onto Hunter Express Exit Ramp (I-004) to accommodate the construction of asphalt hardstand. These trees are located on the central roundabout median and were planted by the contractor who constructed the Hunter Expressway and unlikely to be a memorial or part of a memorial group.	Yes ☒	No ☐
Is the proposal likely to impact trees that form part of a streetscape, an avenue or roadside planting? As outlined above, two trees located within the vicinity of the Selwyn Street, George Street and Industrial Drive (I-002) will be removed to accommodate the swept path of OSOM vehicles. Newcastle City Council has been consulted and proposed safeguard B8 developed requiring replacement of impacted trees. Four trees are proposed to be removed at the central roundabout median at the John Renshaw Drive onto Hunter Express Exit Ramp (I-004). Consultation with Cessnock City Council would not be required as these trees are located on the state road network for which Transport is responsible. It is unlikely for there to be specific value to these trees.	Yes ☒	No ☐

Safeguards

Table 3-31: Socio-economic safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
C1	Socio-economic	Local residents, businesses and stakeholders will be notified at least five working days prior to works commencing and would be kept regularly informed of construction activities during the construction process. The notification is to include: details of the proposal, including temporary compound site	Contractor	Construction

Numbering	Impact	Environmental safeguards	Responsibility	Timing
		- the duration of works and working hours - any changed traffic or access arrangements - how to lodge a complaint or obtain more information - contact name and details		
C2	Socio-economic	Complaints received will be recorded and attended to promptly in accordance with the <i>Community Complaints and Feedback Management Standard (TfNSW, 2019)</i> .	Contractor	Construction

3.10 Landscape character and visual amenity

Table 3-32: 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), there is one heritage listed item located directly south west of the Selwyn Street, George Street and Industrial Drive intersection (I-002). This is the Australia Wire Rope Building, which is currently being used for commercial purposes by Bridon-Bekaert Ropes Group and due to its proximity, any vibratory causing plant or equipment at this intersection must be carried out in accordance with safeguard NV5. An additional two heritage listings, the BHP Administration Building and Quality Control Laboratory, are located about 130 metres north and 150 metres north east of the Selwyn Street, George Street and Industrial Drive intersection (I-002). Further, a former migrant camp is located about 195 metres northwest of the Industrial Drive and Pacific Highway intersection (I-003). These three heritage items are unlikely to be impacted by the proposal due to the distance between the intersection and heritage items, limited scope of works and minimal 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. Such impacts would be temporary and short-lived. 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 works would not substantially impact existing visual character and any impact on the existing environment would be minimal.	Yes ☐	No ☒
Would the proposal require the removal of mature trees or stands of vegetation, either native or introduced? No mature trees would be removed as a result of this proposal, though the proposal would involve the removal of six juvenile trees and one shrub in total. The shrub is located at the Quayside Close and Selwyn Street intersection (I-001), two trees are located within the vicinity of the Selwyn Street, George Street and Industrial Drive intersection (I-002) and four trees are located at the John Renshaw Drive onto Hunter Express Exit Ramp (I-004). Tree pruning may also be required for other vegetation at the John Renshaw Drive onto Hunter Express Exit Ramp (I-004); however, none of these trees impacted by the proposal are mature native trees. Further assessment of potential impacts tree impacts is provided in Section 3.5 (Biodiversity).	Yes ☐	No ☒

Description of existing environmental and potential impacts		
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 2060 square metres of hardstand in total. This is divided as follows: - Quayside Close and Selwyn Street intersection (I-001): construction of about 1200 square metres of asphalt to the east of Quayside Close, and construction of about 190 square metres of asphalt to the south of Selwyn Street - Selwyn Street, George Street and Industrial Drive intersection (I-002): construction of about 200 square metres of asphalt on the north west corner of the Selwyn Street and George Street intersection, and construction of about 150 square metres of asphalt at the western verge of Industrial Drive - Industrial Drive and Pacific Highway intersection (I-003): replacement of existing kerbing around the concrete splitter island with a mountable kerb at the intersection, including the construction of about 110 square metres of concrete median and 40 square metres of asphalt - John Renshaw Drive onto Hunter Express Exit Ramp (I-004): construction of about 170 square metres of concrete on the central roundabout median at the intersection. 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 work on existing bridges is proposed.	Yes ☐	No ☒
If involving lighting, would the proposal create unwanted light spillage on residential properties at night (in construction or operation)? Construction of the proposal would involve some night works requiring lighting, specifically at the Industrial Drive and Pacific Highway intersection (I-003) and John Renshaw Drive onto Hunter Express Exit Ramp (I-004). Light spillage on residential properties at night is likely to be minor during construction due to the distance between properties and the proposal areas. As outlined in Section 3.3 (Noise and vibration), the nearest residential properties located about 50 metres south west of the Industrial Drive and Pacific Highway intersection (I-003) do not have direct line of sight to the proposed works. The presence of existing trees along the western verge of Pacific Highway would also provide screening for these properties. Similarly, the nearest residential receiver to the John Renshaw Drive onto Hunter Express Exit Ramp (I-004) is located about 100 metres northeast of the proposal area and do not have direct line of sight to the proposed works. Lights from traffic would remain as existing during operation of the proposal.	Yes ☐	No ☒
Would any new structures or features to be constructed, resulting in over shadowing to adjoining properties or areas? The most substantial works proposed include earthworks and extension of asphalt, a median reconstruction, and utilities relocation. These activities are not anticipated to cause overshadowing.	Yes ☐	No ☒

Safeguards

Table 3-33: Landscape character and visual amenity safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
L1	Lighting	Task lighting for construction works shall be directed away from sensitive receivers.	Contractor	Construction

3.11 Waste

Table 3-34: 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)? Limited quantities of concrete, asphalt, green waste, domestic waste (from staff) and other waste types would be generated from the proposal. Waste generated is not expected to be over 200 tonnes or contaminated. Waste material would be loaded and removed from the construction site daily, and stockpiling of soil or fill may occur within the proposal area. Only fill derived from the site would be reused, or tested clean fill will be imported if required. All waste material would be disposed of at appropriately licensed waste facilities. Reuse of other waste materials is not proposed as part of this proposal; however, recycling facilities may accept concrete for crushing and reuse as aggregate in other civil applications.	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 ☒
Additional information pertaining to waste risks. As outlined in Section 3.1 (Soil), there is potential for contamination at the former BHP steelworks site, which the Quayside Close and Selwyn Street intersection (I-001) and Selwyn Street, George Street and Industrial Drive intersection (I-002) are located within. This site has been remediated by BHP (EPA, 2020), with a capping layer (about 0.5 metres thick) placed over the remediated land to isolate and prevent the spread of contamination. Pavement and other ground cover was laid down on top of this capping layer to varying depths. The extension of an existing culvert at the Quayside Close and Selwyn Street intersection (I-001) may require foundation improvements to meet loading specifications for OSOM vehicles and this will require site investigations as part of the detailed design process. Any foundation improvement works as a result of the detailed design process that has an interface with potentially contaminated material below the capping layer and or the capping layer itself, will be carried out in accordance with the nominated safeguards within this assessment. Further, while on-site reuse of potentially contaminated material is preferred, as per the CSMP (2016), any excavated spoil requiring off-site disposal would be tested in accordance with Safeguard M5 to determine appropriate method of disposal prior to being transported off site.		

Safeguards

Table 3-35: Waste safeguards and management measures

Numbering	Impact	Environmental safeguards	Responsibility	Timing
M1	Waste	Waste management measures will follow Transport's <i>Technical Guide: Management of road construction and maintenance waste</i> .	Contractor	Pre-construction
M2	Waste	The resource management hierarchy detailed by the <i>Waste Avoidance Resource Recovery Act 2001</i> will be	Contractor	Pre-construction

Numbering	Impact	Environmental safeguards	Responsibility	Timing
		adopted, namely avoid unnecessary consumption; resource recovery; disposal as a last resort.		Construction
M3	Waste	All waste will be treated in accordance with Transport's Waste <i>Minimisation and Management Guidelines</i> (RTA, 1998).	Contractor	Construction
M4	Waste	Waste material will not to be left on site once the works have been completed.	Contractor	Construction
M5	Waste	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. Disposal of contaminated waste will be completed in accordance with the POEO Act, <i>Protection of the Environment Operations (Waste) Regulation 2014</i> .	Contractor	Construction

3.12 Climate change and greenhouse gas emissions

Table 3-36: 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 outlined in Section 3.2 (Waterways and water quality), the proposal areas are at a low risk of flooding. Flood maps indicate that the Quayside Close and Selwyn Street intersection (I-001), and Selwyn Street, George Street and Industrial Drive intersection (I-002) are in areas mapped as very low risk. It is unlikely that the area would be permanently or tidally inundated in the future. It may be subject to increased duration and intensity of flooding however. The Industrial Drive and Pacific Highway intersection (I-003) and the John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004) are not located within flood prone areas.	Yes ☒	No ☐
Have opportunities for reduced energy consumption during construction and operation been considered. If yes, summarise actions taken e.g., material selection, local suppliers and construction staff, etc. 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 for NSW <i>Sustainable Design Guidelines – Version 4.0</i>. Materials 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 - electricity usage for street furniture including lighting, electronic signage and variable message signs 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 related to climate change and greenhouse gas emissions are provided.

3.13 Cumulative impact

Table 3-37: 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? There are a number of projects currently underway within the vicinity of the proposal. The closest projects within the vicinity are detailed in Table 3-38. Table 3-38: Past, present and future projects <table><tr><th>Project</th><th>Description</th></tr><tr><td>Pacific Highway improvements at Hexham (Hexham Straight)</td><td> This project involves the upgrade and development of the section of the Pacific Highway (Maitland Road) known as Hexham Straight between Newcastle Inner City Bypass and Hexham Bridge. Construction commenced in August 2023 and due for completion in 2026, though the construction works are not expected to result in a cumulative impact with the proposal as it is located about 2.3 kilometres northwest of the Industrial Drive and Pacific Highway intersection (I-003). </td></tr><tr><td>Upgrade at Main Road and Heddon Street, Hedda Greta</td><td> This project involves the upgrade of Main Road to improve traffic flow and safety from Standford Street to just north of Trenchard Street. Construction commenced in March 2023. The completion date is unknown, though the construction works are not expected to result in a cumulative impact with the proposal as it is located about 1.4 kilometres east of the John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004). </td></tr><tr><td>CWO REZ</td><td> As outlined in Section 2.2.2, the proposal would facilitate the transport of large and heavy 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. </td></tr></table>		Project	Description	Pacific Highway improvements at Hexham (Hexham Straight)	This project involves the upgrade and development of the section of the Pacific Highway (Maitland Road) known as Hexham Straight between Newcastle Inner City Bypass and Hexham Bridge. Construction commenced in August 2023 and due for completion in 2026, though the construction works are not expected to result in a cumulative impact with the proposal as it is located about 2.3 kilometres northwest of the Industrial Drive and Pacific Highway intersection (I-003).	Upgrade at Main Road and Heddon Street, Hedda Greta	This project involves the upgrade of Main Road to improve traffic flow and safety from Standford Street to just north of Trenchard Street. Construction commenced in March 2023. The completion date is unknown, though the construction works are not expected to result in a cumulative impact with the proposal as it is located about 1.4 kilometres east of the John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004).	CWO REZ	As outlined in Section 2.2.2, the proposal would facilitate the transport of large and heavy 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 ☒
Project	Description									
Pacific Highway improvements at Hexham (Hexham Straight)	This project involves the upgrade and development of the section of the Pacific Highway (Maitland Road) known as Hexham Straight between Newcastle Inner City Bypass and Hexham Bridge. Construction commenced in August 2023 and due for completion in 2026, though the construction works are not expected to result in a cumulative impact with the proposal as it is located about 2.3 kilometres northwest of the Industrial Drive and Pacific Highway intersection (I-003).									
Upgrade at Main Road and Heddon Street, Hedda Greta	This project involves the upgrade of Main Road to improve traffic flow and safety from Standford Street to just north of Trenchard Street. Construction commenced in March 2023. The completion date is unknown, though the construction works are not expected to result in a cumulative impact with the proposal as it is located about 1.4 kilometres east of the John Renshaw Drive onto Hunter Expressway Exit Ramp (I-004).									
CWO REZ	As outlined in Section 2.2.2, the proposal would facilitate the transport of large and heavy 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.									
It is unlikely the above projects would add to the potential construction impacts due to the isolated and short-term impacts associated with this proposal. There would be no cumulative operational impacts associated with the proposal.										

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
Soil	E1. Erosion and sediment control measures are to be implemented (in accordance with the Landcom/Department of Housing <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. Erosion and sedimentation controls are to 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 are to 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 is to be in accordance with Transport's <i>Stockpile Site Management Guideline</i> (EMS-TG-10). E7. Potential or actual acid sulphate soils are to be managed in accordance with Transport's <i>Guidelines for the Management of Acid Sulphate Materials</i> 2005. E8. Saline soils are to be managed in accordance with <i>NSW Department of Primary Industries (2014) Salinity Training Handbook</i>. E9. An unexpected find procedure for potential or actual contaminated soils will be included in the construction environmental management documentation for sites I-002, I-003 and I-004. E10. Design of the culvert at I-001 will be refined during detailed designment in accordance with Requirement 19.1 – Obligation to Manage Risk of the Contaminated Site Management Plan to minimise the potential for disturbance of the capping layer at the former BHP steelworks site. E11. All works at the former BHP steelworks site will be carried out in accordance with the applicable development requirements from the Contaminated Site Management Plan (Hunter Development Corporation, 2016).

Factor	Safeguards
	E12. A Work Management Plan will be developed and approved by the Site Auditor in accordance with section 8.2 of the Contaminated Site Management Plan (Hunter Development Corporation, 2016) prior to any ground disturbance with potential impact to the integrity of the existing capping layer.
Waterways and water quality	W1. Weather forecasts (probability and amount of rain) to be considered when programming works. W2. An emergency spill kit is to 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. W3. If a spill occurs, Transport's Environmental Incident Procedure 2021 will be followed and the Transport Project Manager notified as soon as practicable. W4. Reinstate water diversion at the culvert extension at I-001 using the existing pipe connections to the drainage channel to avoid risk of contaminated water or soil runoff during construction. W5. The Bureau of Meteorology flood forecasting and warning service is to be monitored for possible flooding to the Hunter River. In the event a flood warning is issued where flooding could occur at the work site(s), then the site(s) would be stabilised to minimise erosion extent and sediment runoff, plant and mobile equipment moved to higher ground where possible, and any remaining equipment on site stabilised to mitigate risk of floating offsite. Measures to remain until flooding has subsided and warnings
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 business days prior to commencement of any work 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. 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 (ICNG)</i> (NSW DECC, 2009). NV4. Additional noise mitigation measures are to be implemented where appropriate, as identified in Tables 3-10 to 3-11. NV5. Any vibratory causing plant or equipment used at I-002 must not encroach into their respective safe working distances to the Australia Wire Rope Building and/or McDonald's restaurant. If there is any risk of exceedance, a permanent vibration monitoring system must be installed for the duration of works (via flashing light, audible alarm, or SMS) to alert plant operators when vibration levels are approaching the cosmetic damage threshold. Vibratory causing works must cease prior to reaching the threshold and additional safeguards implemented to prevent cosmetic damage prior to recommencement of works. Safe working distances to be applied are outlined in Table 3-13 or alternatively, site specific distances can be applied provided attended vibration measurements are carried out at the commencement of works and confirm that damage screening criteria won't be exceeded.

Factor	Safeguards
Air quality	A1. Vehicles transporting waste or other materials that have a potential to produce odours or dust are to be covered during transportation. A2. Avoiding works that could generate dust onto sensitive receivers during strong winds or unfavourable weather conditions. 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 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 are to 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 is to 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 are to 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 Guidelines 2011 – Guide 1</i> (Pre-clearing process). B2. All construction work will be undertaken in accordance with Transport's <i>Biodiversity Guidelines, Protecting and Managing Biodiversity on RMS Projects, 2011</i>. B3. The location and extent of all works will be clearly demarcated, including exclusion zones, and communicated to all staff and contractors working within the area during site inductions and daily toolbox talks. B4. Vegetation to be retained is to be protected in accordance with <i>AS 4970-2009 – Protection of trees on development sites</i> and may require exclusion fencing of the Tree Protection Zones. B5. Any tree trimming will be no more than 20% of the canopy cover for each tree. B6. Any additional impact to trees from that identified must be assessed and approved by the project arborist and must comply with <i>AS 4970-2009 – Protection of trees on development sites</i>. B7. Tree removal and pruning will be undertaken by a suitably qualified arborist. B8. The two fig trees proposed to be removed west of Industrial Drive will be offset by replanting new trees further to the north on Industrial Drive where feasible, otherwise at an alternative location in

Factor	Safeguards
	consultation with City of Newcastle guided by Council's public tree scheme and in accordance with the City of Newcastle's Street Tree Selection Manual.
Traffic and transport	T1. Current traffic movements and property accesses will be maintained during the works. T2. Where works affect the free flow of traffic, a ROL will be obtained, and a Traffic Control Plan would be prepared in accordance with Transport's <i>Traffic Control at Worksites Manual (2003)</i>. T3. 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. T4. Vehicle movement arrangements will be developed to limit impacts on other road users (including pedestrians, vehicles and cyclists) and the environment, with specific regard to other road works in the area, local traffic movement requirements and peak traffic volumes. A Traffic Management Plan shall be prepared by the Contractor and approved by Transport for NSW prior to any changes to road user movements and access. T5. Designated work areas within any road reserve will be delineated prior to the work commencing. This area would be the minimum required for safely undertaking the activity. T6. Pedestrian access around the intersection works zone will be maintained at all times. Where this cannot be achieved a safe diversion for pedestrians should be provided.
Socio-economic	C1. Local residents, businesses and stakeholders will be notified at least five working days prior to works commencing, and would be kept regularly informed of construction activities during the construction process. The notification is to include: • details of the proposal, including temporary compound site • the duration of works and working hours • any changed traffic or access arrangements • how to lodge a complaint or obtain more information • contact name and details. C2. Complaints received will be recorded and attended to promptly in accordance with the Community <i>Complaints and Feedback Management Standard (TfNSW, 2019)</i>.
Landscape character and visual amenity	L1. Task lighting for construction works shall be directed away from sensitive receivers.
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 (RTA, 1998)</i>. M4. Waste material will not to be left on site once the works have been completed. M5. 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. Disposal of contaminated waste will be completed in accordance with the POEO Act, <i>Protection of the Environment Operations (Waste) Regulation 2014</i>.

Factor	Safeguards
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 Licence from Transport for NSW</i>	For any lane closures other than Selwyn Street	Prior to start of construction
<i>Road Occupancy Licence from Newcastle City Council</i>	For any lane closures on Selwyn Street	Prior to start of construction

4.3 Other requirements

Table 4-3: Other requirements

Requirement		
Environmental management plan sent to SMES or their delegate (ESL) for review.	Yes ☐	No ☒
Not applicable.		

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: 27/06/2024

Minor works REF reviewed by:

Signature



Name: Kate Wiggins

Position: Environmental Lead

Company name: Arcadis

Date: 27/06/2024

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 to upgrade several intersections along the State Road Network from the Port of Newcastle to the CWO REZ 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: Mark Woods

Position: A/Senior Manager Environment
and Sustainability

Date: 5/7/24

Noted by:

Signature 

Name: Cameron Peace

Position: A/Senior Manager
Renewables Transportation

Date: 05/07/24

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: Anna Zycki

Position: Regional Director North

Date: 9 July 2024

Signature 

Name: Damien Pfeiffer

Position: Director Development Services (Land Use)

Date: 9/07/2024

5.5 EP&A Regulation publication requirement

Table 0-1: 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 5-1: Definitions

Term	Definition
AHIMS	Aboriginal Heritage Information Management System
ARTC	Australian Rail Track Corporation
BC Act	<i>Biodiversity Conservation Act 2016</i>
CEMP	Construction Environmental Management Plan
Cessnock LEP 2011	Cessnock Local Environmental Plan 2011
CWO REZ	Central West Orana Renewable Energy Zone
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
HDC	Hunter Development Corporation
ICNG	Interim Construction Noise Guideline
LEP	Local Environmental Plan
LGA	Local Government Area
Minor works REF	Minor Works Review of Environmental Factors
Newcastle LEP 2012	Newcastle Local Environmental Plan 2012
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 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
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

- (Cessnock City Council, 2022). Cessnock Community Strategic Plan 2036, Cessnock City Council. Retrieved from <https://www.cessnock.nsw.gov.au/Council/Forms-and-documents/Integrated-planning-and-reporting/Community-Strategic-Plan>
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- (Transport for NSW, 2011). *Procedure for Aboriginal Cultural Heritage Consultation and Investigation* (PACHCI), Transport for NSW. Retrieved from <https://www.transport.nsw.gov.au/system/files/media/documents/2023/roads-and-maritime-services-procedure-for-aboriginal-cultural-heritage-consultation-and-investigation.pdf>
- (Transport for NSW, 2023). *Construction Noise and Vibration Guideline (Roads)*, Transport for NSW. 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

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.	Construction of the proposal would potentially introduce short term noise impacts. These impacts would be minimised through the implementation of the safeguards and environmental management measures outlined in Section 4.1 of this minor works REF. In the long term, the proposal would facilitate the safe delivery of over-sized and over-massed components from the Port of Newcastle to the CWO REZ.	Short-term negative (minor) Long-term, positive
b) The transformation of the locality.	The proposed works would be primarily limited to intersection upgrades within the existing road reserve. Accordingly, there would be no transformation of the locality.	Nil
c) Any environmental impact on the ecosystems of the locality.	The proposal would result in the removal of two trees at the Selwyn Street, George Street and Industrial Drive intersection (I-002) and four trees at John Renshaw Drive and Hunter Expressway Exit Ramp (I-004). One shrub would also be removed from Quayside Close and Selwyn Street intersection (I-001). Tree removal would consist of primarily planted trees and as such would have a minor environmental impact on existing ecosystems.	Short-term negative (minor)
d) Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality.	The proposal would result in a reduction in the aesthetic quality of the locality as a result of noise and visual impacts during construction. These impacts would be minimised through the implementation of the safeguards and environmental management measures outlined in Section 4.1 of this minor works REF.	Short-term negative (minor)
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	The proposal would not impact cultural heritage or places of heritage value given that limited scope of works within the existing road reserve.	Nil

Factor	Description of impact	Duration and extent
or future generations.		
f) Any impact on the habitat of protected fauna (within the meaning of the Biodiversity and Conservation Act 2016).	There would be no impact on the habitat of protected fauna (within the meaning of the Biodiversity and Conservation Act 2016).	Nil
g) Any endangering of a species of animal, plant or other form of life, whether living on land, in water or in the air.	It is unlikely that the proposal would endanger any species of animal, plant or other form of life, whether living on land, in water or in the air.	Nil
h) Any long-term effects on the environment	In the long term, the proposal would facilitate the safe delivery of over-sized and over-massed components from the Port of Newcastle to the CWO REZ.	Long-term positive
i) Any degradation of the quality of the environment.	Construction of the proposal would potentially introduce short term noise impacts. These impacts would be minimised through the implementation of the safeguards and environmental management measures outlined in Section 4.1 of this minor works REF.	Short-term negative
j) Any risk to the safety of the environment.	The proposal would not pose any safety risks to the environment.	Nil
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 has the potential to produce air pollution during construction. These impacts would be minimised through the implementation of the safeguards and environmental management measures outlined in Section 3.4 of this minor works REF.	Short-term negative
m) Any environmental problems associated with the disposal of waste	The proposal would not result in any environmental problems associated with the disposal of waste. All waste material will be disposed of at appropriately licensed waste facilities. Reuse of other waste materials is not proposed as part of this proposal, however recycling facilities may accept concrete for crushing and reuse as aggregate in other civil applications.	Nil
n) Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply.	The proposal is unlikely to increase demands on resources (natural or otherwise) that are, or likely to become, in short supply.	Nil

Factor	Description of impact	Duration and extent
o) The cumulative environmental effect with other existing or likely future activities.	The proposal is unlikely to have cumulative environmental effects with other existing or likely future activities.	Nil
p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions.	The proposal would not impact coastal processes and coastal hazards, including those projected climate change conditions.	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 Cessnock Community Strategic Plan 2036 and Port of Newcastle Plan – Port Master Plan 2040 by facilitating the safe delivery of over-sized and over-massed components from Port of Newcastle to the CWO REZ. The proposal aligns with the following objectives: - to provide better transport links and improving the road network. - to utilise existing road and rail transport assets to improve freight efficiency	Long-term positive
r) Other relevant environmental factors	Nil	In considering the potential impacts of this proposal all relevant environmental factors have been considered, refer to Chapter 3 of this assessment.

Matters of National Environmental Significance

Table A2: Matters of national environmental significance

Environmental factor	Impact
a) Any impact on a World Heritage property?	Nil
b) Any impact on a National Heritage place?	Nil
c) Any impact on a wetland of international importance (often called 'Ramsar' wetlands)?	Nil
d) Any impact on nationally threatened species, ecological communities or migratory species?	Nil
e) Any impact on a Commonwealth marine area?	Nil
f) 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: Contamination searches

Minor works review of environmental factors

Public registers

+ POEO Public Register

- Contaminated land record of notices

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Your search for: LGA: NEWCASTLE CITY COUNCIL

Matched 173 notices relating to 25 sites.

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Suburb	Address	Site Name	Notices related to this site
HAMILTON	116 Tudor STREET	Taxi Services	5 former
HAMILTON NORTH	56 Clyde STREET	Former Black and Decker Site	2 current
HAMILTON NORTH	54 Clyde STREET	Former ELMA Site	1 current and 1 former
HAMILTON NORTH	1 Chatham ROAD	Hamilton Gasworks	4 current and 8 former
HAMILTON NORTH	5 Chatham ROAD	Shell Newcastle Terminal	6 former
HEXHAM	21 Sparke STREET	Former Forgacs Site	1 current
HEXHAM	64 Old Maitland ROAD	Trojay Pty Ltd	1 current
KOORAGANG	544 Cormorant Road, Kooragang ROAD	544 Cormorant Road, Kooragang	3 current
KOORAGANG	Cormorant ROAD	BHP Kooragang	1 current and 1 former
KOORAGANG	15 Greenleaf ROAD	Orica Kooragang Island	5 current and 11 former
MARYVILLE	184-188 Hannell STREET	7-Eleven Service Station	6 former
MARYVILLE	Portside Business Park ROAD	Former Mobile Terminal Maryville	2 former
MAYFIELD	The Buffer Zone' extending directly adjacent to the Hunter River; near the Tourle Street Bridge STREET	BHP Steel River	3 current and 1 former
MAYFIELD	Industrial DRIVE	OneSteel (BHP)	2 current and 5 former
MAYFIELD NORTH	Bound by Hunter River, Selwyn Street & Industrial DRIVE	BHPB Closure site and bed sediments of the Hunter River	5 current and 24 former
MAYFIELD NORTH	Industrial DRIVE	Former BHPB Supply site	2 current and 11 former
MAYFIELD WEST	East of Woodstock Street and Tourle STREET	Koppers Coal Tar	2 current and 7 former
NEWCASTLE	26-28 Honeysuckle DRIVE	Reclaimed Land	1 former
SANDGATE	Maitland ROAD	North Limited Storage Handling facility	1 current and 7 former
SHORTLAND	2 (part) & 28 (part) Astra STREET	Former Astra Street Landfill	4 current and 5 former

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Public registers

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Suburb	Address	Site Name	Notices related to this site
TARRO	Woodland CLOSE	Green Acres Farm	1 current
TIGHES HILL	110 Elizabeth STREET	Former Mobil Terminal	6 former
WARATAH	Turton and Georgetown ROADS	Waratah former Gasworks	3 current and 12 former
WICKHAM	156 Hannell Street and 33 Annie STREET	Caltex Terminal and "Building 33" on offsite adjacent land	4 current and 3 former
WICKHAM	2 Holland STREET	Fuchs Lubricants Wickham	4 current and 3 former

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25 March 2024

Appendix C: Construction noise assessment

Distanced Based Assessment (Construction Scenario): I-001 and I-002

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 contact a Roads and Maritime noise specialist for more information)

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		L _{Aeq} (5minute) noise level above background (L _{A90})												L _{Aeq} (5minute) 75 dB(A) or greater (Highly affected)			Sleep disturbance L _{Amax} 65 dB(A)
Affected distance (m)		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			Affected distance (m)
		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		125					N	40	70	N, PC, RO	25	75	N, PC, RO	25	75	155
	Day (OOHW)		185					N, R1, DR	40	70	N, R1, DR, PC, SN	15	80	N, PC, RO	25	75	
	Evening		265		N, R1, DR	125	60	N, R1, DR	75	65	N, R1, DR, PC, SN	25	75	N, PC, RO	25	75	
	Night	N	390	45	N, R2, DR	265	50	N, PC, SN, R2, DR	125	60	AA, N, PC, SN, R2, DR	40	70	N, PC, RO	25	75	
	Highly Affected		25											N, PC, RO	25	75	
Developed settlements (urban and suburban)	Day		140					N	45	70	N, PC, RO	25	75	N, PC, RO	25	75	180
	Day (OOHW)		215		N, R1, DR	140	60	N, R1, DR	45	70	N, R1, DR, PC, SN	15	80	N, PC, RO	25	75	
	Evening		330		N, R1, DR	215	55	N, R1, DR	85	65	N, R1, DR, PC, SN	25	75	N, PC, RO	25	75	
	Night	N	500	45	N, R2, DR	330	50	N, PC, SN, R2, DR	140	60	AA, N, PC, SN, R2, DR	45	70	N, PC, RO	25	75	
	Highly Affected		25											N, PC, RO	25	75	
Propagation across a valley / over water	Day		170					N	55	70	N, PC, RO	25	75	N, PC, RO	25	75	230
	Day (OOHW)		280		N, R1, DR	170	60	N, R1, DR	55	70	N, R1, DR, PC, SN	15	80	N, PC, RO	25	75	
	Evening		440		N, R1, DR	280	55	N, R1, DR	100	65	N, R1, DR, PC, SN	25	75	N, PC, RO	25	75	
	Night	N	685	45	N, R2, DR	440	50	N, PC, SN, R2, DR	170	60	AA, N, PC, SN, R2, DR	55	70	N, PC, RO	25	75	
	Highly Affected		25											N, PC, RO	25	75	

Non-residential receiver Developed settlements (urban and suburban)				L _{Aeq} (15minute) noise level above NML								
	Standard hours			<10 dB(A)			10 to 20 dB(A)			L _{Aeq} (15minute) 75 dB(A) or greater (Highly affected)		
	Period	NML	Affected distance (m)	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))
Classroom at schools and other educational institutions	Day	55	330				N	140	65	N, PC, RO	45	75
Hospital wards and operating theatres	Day	65	140							N, PC, RO	45	75
Place of worship	Day	55	330				N	140	65	N, PC, RO	45	75
Active recreation	Day	65	140							N, PC, RO	45	75
Passive recreation	Day	60	215				N	85	70	N, PC, RO	45	75
Industrial premise	Day	75	45							N, PC, RO	45	75
Offices, retail outlets	Day	70	85							N, PC, RO	45	75

Distanced Based Assessment (Construction Scenario): I-003

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 contact a Roads and Maritime noise specialist for more information)

Abbreviation

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

Please pick from drop-down list in orange cells

Noise area category		R3
RBL or LA90 Background level (dB(A)) LAeq(5minute)	Day	50
	Evening	45
	Night	40
	Day	60
Noise Mangement Level (dB(A))	Day (OOHW)	55
	Evening	50
	Night	45
	Scenario	Paving / asphalting
Is there line of sight to receiver?		No (behind solid barrier)

Residential receiver		LAeq(5minute) noise level above background (LA90)												LAeq(5minute) 75 dB(A) or greater (Highly affected)			Sleep disturbance LAmax 65 dB(A)
Affected distance (m)		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			Affected distance (m)
		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		60					N	20	70	N, PC, RO	10	75	N, PC, RO	10	75	185
	Day (OOHW)		105		N, R1, DR	60	60	N, R1, DR	20	70	N, R1, DR, PC, SN	5	80	N, PC, RO	10	75	
	Evening		155		N, R1, DR	105	55	N, R1, DR	25	65	N, R1, DR, PC, SN	10	75	N, PC, RO	10	75	
	Night	N	230	45	N, R2, DR	155	50	N, PC, SN, R2, DR	60	60	AA, N, PC, SN, R2, DR	20	70	N, PC, RO	10	75	
	Highly Affected		10											N, PC, RO	10	75	
Developed settlements (urban and suburban)	Day		70					N	20	70	N, PC, RO	10	75	N, PC, RO	10	75	215
	Day (OOHW)		115		N, R1, DR	70	60	N, R1, DR	20	70	N, R1, DR, PC, SN	5	80	N, PC, RO	10	75	
	Evening		180		N, R1, DR	115	55	N, R1, DR	35	65	N, R1, DR, PC, SN	10	75	N, PC, RO	10	75	
	Night	N	280	45	N, R2, DR	180	50	N, PC, SN, R2, DR	70	60	AA, N, PC, SN, R2, DR	20	70	N, PC, RO	10	75	
	Highly Affected		10											N, PC, RO	10	75	
Propagation across a valley / over water	Day		80					N	20	70	N, PC, RO	10	75	N, PC, RO	10	75	280
	Day (OOHW)		140		N, R1, DR	80	60	N, R1, DR	20	70	N, R1, DR, PC, SN	5	80	N, PC, RO	10	75	
	Evening		230		N, R1, DR	140	55	N, R1, DR	40	65	N, R1, DR, PC, SN	10	75	N, PC, RO	10	75	
	Night	N	365	45	N, R2, DR	230	50	N, PC, SN, R2, DR	80	60	AA, N, PC, SN, R2, DR	20	70	N, PC, RO	10	75	
	Highly Affected		10											N, PC, RO	10	75	

Non-residential receiver Developed settlements (urban and suburban)				L _{Aeq} (15minute) noise level above NML								
	Standard hours			<10 dB(A)			10 to 20 dB(A)			L _{Aeq} (15minute) 75 dB(A) or greater (Highly affected)		
	Period	NML	Affected distance (m)	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))	Measure	Within distance (m)	Mitigation level (dB(A))
Classroom at schools and other educational institutions	Day	55	180				N	70	65	N, PC, RO	20	75
Hospital wards and operating theatres	Day	65	70							N, PC, RO	20	75
Place of worship	Day	55	180				N	70	65	N, PC, RO	20	75
Active recreation	Day	65	70							N, PC, RO	20	75
Passive recreation	Day	60	115				N	35	70	N, PC, RO	20	75
Industrial premise	Day	75	20							N, PC, RO	20	75
Offices, retail outlets	Day	70	35							N, PC, RO	20	75

Transport
for NSW



Distanced Based Assessment (Construction Scenario): I-004

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 contact a Roads and Maritime noise specialist for more information)

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

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(5minute) Noise	Day		55
	Day (OOHW)		50
Mangement Level (dB(A))	Evening		45
	Night		40
Scenario			Paving / asphalting
Is there line of sight to receiver?			No (behind solid barrier)

Residential receiver				LAeq(5minute) noise level above background (LA90)												LAeq(5minute) 75 dB(A) or greater (Highly affected)			Sleep disturbance LAmax 65 dB(A)
Affected distance (m)				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			Affected distance (m)
				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	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	575	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 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

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

17/ 12/ 2024

Dimitri Perdikaris
76 Victoria Street
Grafton NSW 2460

Dear Dimitri,

Preliminary assessment results for Central West Orana Renewable Energy Zones, Site I-002 based on Stage 1 of the Procedure for Aboriginal cultural heritage consultation and investigation (the procedure).

The project, 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 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.

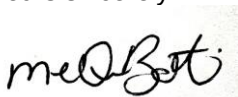
Your project may proceed in accordance with the environmental impact assessment process, as relevant, and all other relevant approvals.

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*.

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

Yours sincerely



Merredy Quinn- Bates
Aboriginal Cultural Heritage Officer



- Legend**
- MWREF Proposal Area
 - Modified Proposal Area
 - Laydown
 - Digitised Cadastre
 - Surveyed Cadastre
 - Proposed Telstra utilities
 - Cupaniopsis anacardioides* to be removed

- A - Connect into existing manhole
- B - Install new pit
- C - Connect into existing pit
- D - Replace existing asbestos pit with new pit
- E - Removal of existing manhole
- F - Replace existing asbestos pit with new manhole and installation of starter pipes for NBN cabinet and pillar entry

1:1,500 at A4
 Coordinate System: GDA2020 MGA Zone 58
 Data Issued: November 7, 2024
 Imagery: Nearmap





- Legend
- Modified Proposal Area
 - Cadastre
 - Existing Telstra utilities
 - Proposed NBN conduit

G/H – Connect into existing Telstra pit

1:750 at A4
Coordinate System: GDA2020 MGA Zone 56
Data issued: November 8, 2024
Imagery: Nearmap





- Legend
- Modified Proposal Area
 - Cadastre
 - Existing Telstra utilities
 - Proposed NBN conduit

I/J – Connect into existing Telstra pit

1:750 at A4
Coordinate System: GDA2020 MGA Zone 56
Data issued: November 8, 2024
Imagery: Nearmap



Appendix E: Non-Aboriginal cultural heritage searches



Newcastle Local Environmental Plan 2012

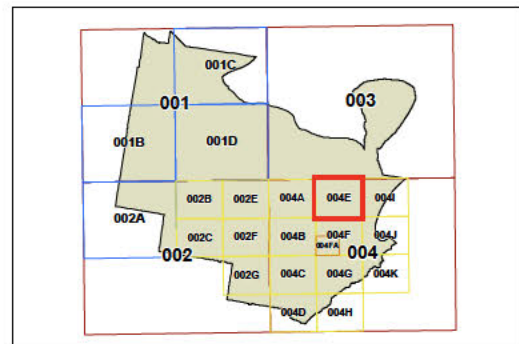
Heritage Map - Sheet HER_004E

Heritage

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

Cadastral

- Base data 01/08/2007 © Land and Property Information (LPI)
- Addendum data 02/11/2011 © City of Newcastle



0 200 400 Metres

Scale: 1:10,000 @ A3

Projection: GDA 1994
MGA Zone 56

Map identification number: 5900_COM_HER_004E_010_20120402





Newcastle Local Environmental Plan 2012

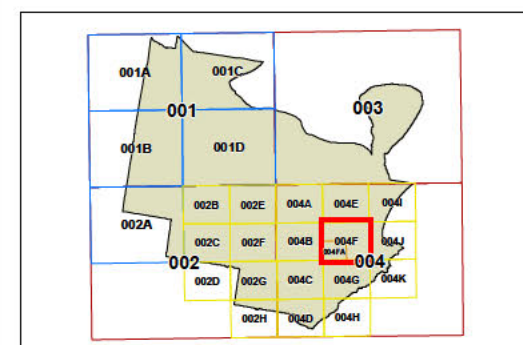
Heritage Map - Sheet HER_004F

Heritage

-  Conservation Area - General
 Item - General
 Item - Archaeological
 Item - Landscape

Cadastre

Base data 01/08/2007
© Land and Property Information (LPI)
Addendum data 15/01/2021 © City of Newcastle



Projection: GDA 1994
MGA Zone 58

Scale:1:10,000 @ A3

Map identification number: 5900_COM_HER_004F_010_20210115





City of
Newcastle

Newcastle Local Environmental Plan 2012

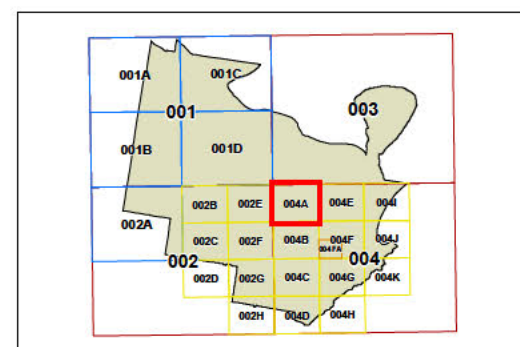
Heritage Map - Sheet HER_004A

Heritage

- Conservation Area - General
- Item - General
- Item - Archaeological
- Item - Landscape

Cadastre

Base data 01/08/2007
© Land and Property Information (LPI)
Addendum data 16/09/2021 © City of Newcastle



0 200 400 Metres

Scale: 1:10,000 @ A3

Projection: GDA 1994
MGA Zone 56

Map identification number: 5000_COM_HER_004A_010_20210916





Cessnock Local Environmental Plan 2011

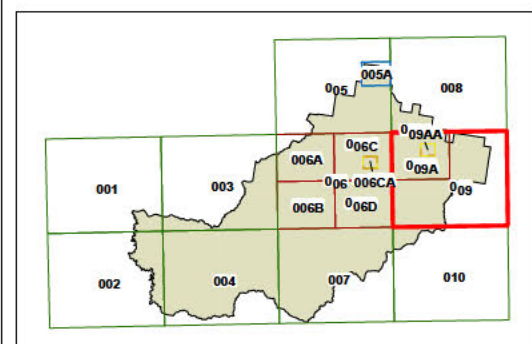
Heritage Map - Sheet HER_009

Heritage

- Conservation Area - General
- Aboriginal Place of Heritage Significance
- Item - Archaeological
- Item - General
- Item - Landscape

Cadastre

Cadastre 08/02/2019 © Spatial Services



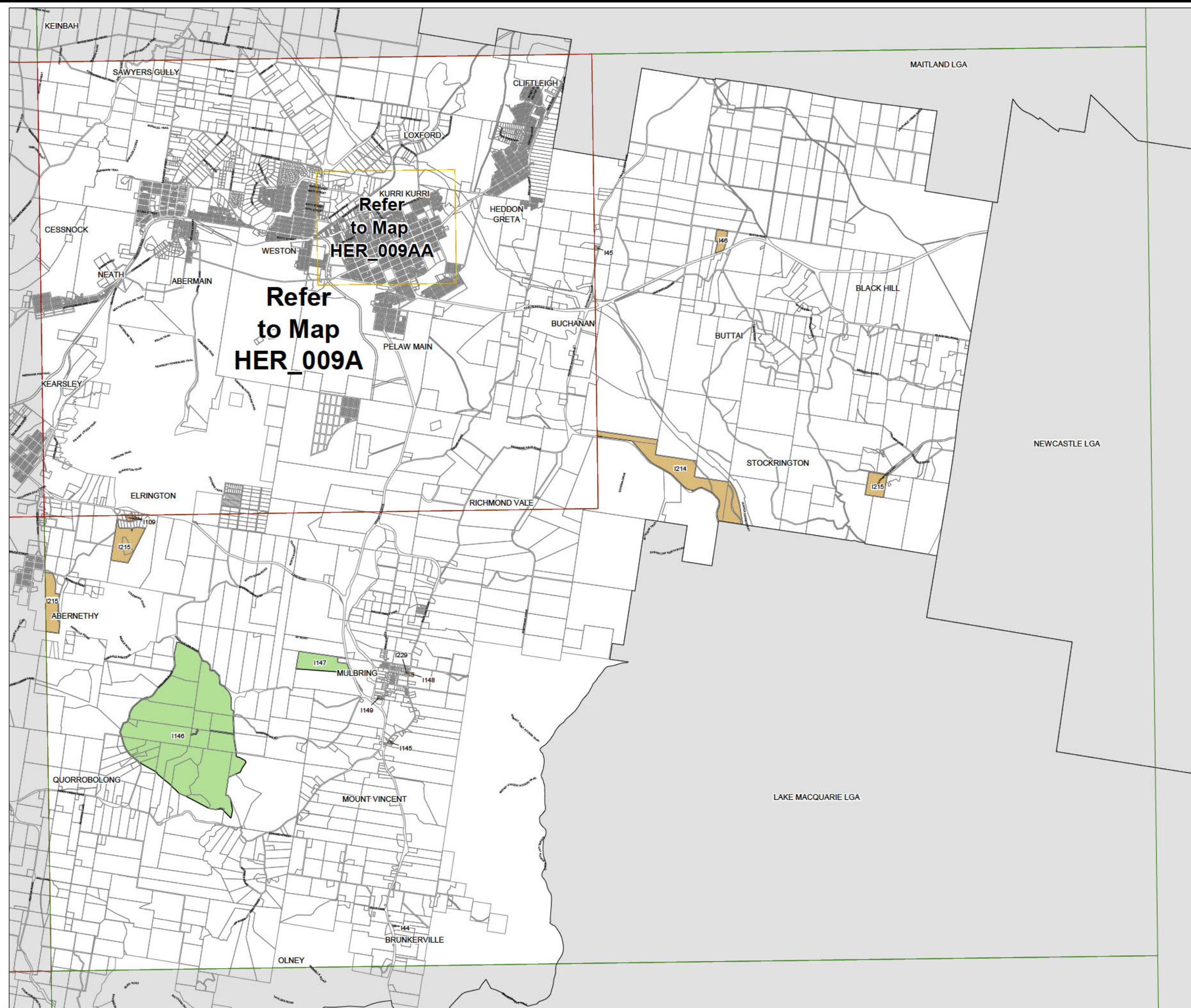
N

0 800 1,600 2,400 3,200
Metres

Scale 1:80,000 @ A3

Projection GDA 1994
Zone 56

Map identification number: 1720_COM_HER_009_080_20190208



Placeholder for NSW State heritage inventory figures (I-001 to I-004)

Search Results

2 results found.

Fort Wallace Fullerton Rd	Stockton, NSW, Australia	(Listed place) Commonwealth Heritage List
Nobbys Lighthouse Nobbys Rd	Newcastle East, NSW, Australia	(Listed place) Commonwealth Heritage List

Report Produced: Thu Mar 21 16:03:23 2024

Search Results

No results found.

Enter at least one search criterion.

[Search Hints](#)

Search

Reset form

Place name

Street name

Town or suburb

State

New South Wales

Country

Advanced search options

List

Commonwealth Heritage List

Different lists will provide different status and class options

Local Government Area

Cessnock

Place ID number

Legal status

Listed place

Class

--All--

Keyword Search

☐ Description

☐ Statement of Significance

☐ Place history

[Latitude/Longitude](#)

N

Latitude 1

Longitude 1

W

E

S

Latitude 2

Longitude 2

E

S

☐ Wholly within region

☒ Wholly or partially within region

Longitude coordinates should be entered as ddd.mm.ss

Latitude coordinates should be entered as dd.mm.ss

Map Ref No

1:100,000 eg 2357

1:250,000 eg SF-50-01

Search Hints

- Not all fields need to be filled in. The fewer you fill in the more results you will get.
- If you cannot find a place, check spelling and try alternative names. Reduce the number of words that you include and use fewer fields.
- The Local Government field used on its own will provide a comprehensive list of places in an area.

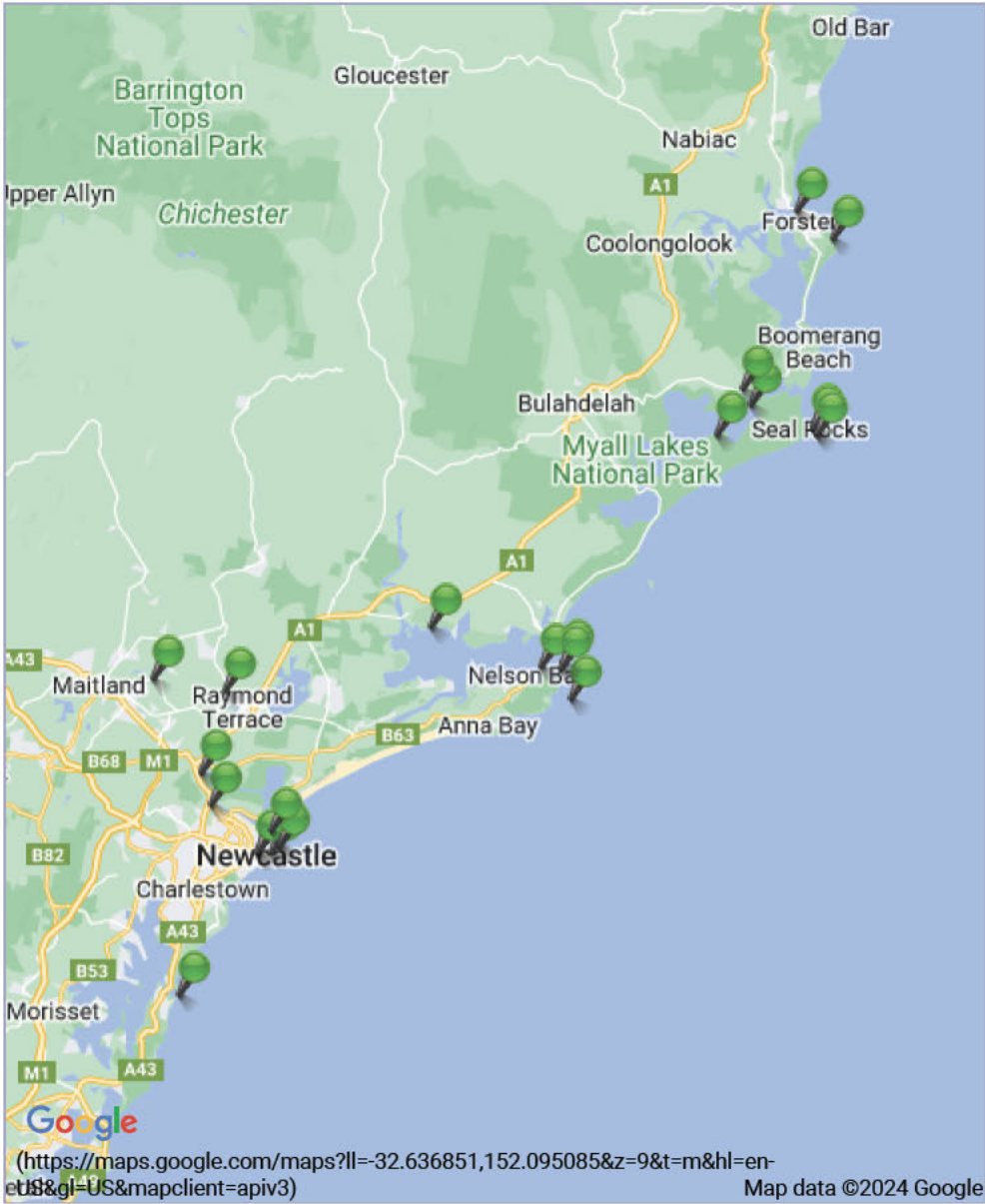
Report Produced: Thu Mar 21 16:01:30 2024



[Topics](#) > [Heritage](#) > [Search heritage databases](#) > [Maritime heritage database](#)
> [Search maritime heritage sites with map](#)

Search maritime heritage sites with map

[Search for maritime heritage sites by region, category and type.](#)



Region

- ☐ All regions
- ☐ Northern Rivers
- ☐ Mid north coast
- ☒ Hunter Valley
- ☐ Central Coast
- ☐ Sydney
- ☐ Illawarra
- ☐ South East
- ☐ NSW - Other
- ☐ Lord Howe Island and Middleton & Elizabeth Reefs
- ☐ Darling
- ☐ Murray river

Maritime category

Maritime Heritage ▾

Maritime type

All type ▾

Site search results

Site title	Description	Category	Region
Cape Hawke Lighthouse (ViewSiteDetail.aspx?siteid=2031)		Maritime Heritage Site	Hunter Valley
Cape Hawke, Forster (ViewSiteDetail.aspx?siteid=2036)	The harbour works at Forster near Cape Hawke were undertaken in earnest during 1898. ...	Maritime Heritage Site	Hunter Valley
Carrington Cemetery (ViewSiteDetail.aspx?siteid=2251)		Maritime Heritage Site	Hunter Valley
Fort Scratchley	The Fort Scratchley Historic	Maritime	Hunter

View Site Detail (ViewSiteDetail.aspx?siteid=2040)	The Fort is a nineteenth century Site is a nineteenth century Coast Defence Fort located in a commanding position guarding the Hunter River and Newcastle. ...	Heritage Site	Valley
Historic Wharves - Hunter River, Morpeth (ViewSiteDetail.aspx?siteid=2782)	The remains of thirteen historic wharves are located along the bank of the Hunter River at	Maritime Heritage Site	Hunter Valley
Hunter River, Newcastle (ViewSiteDetail.aspx?siteid=2039)		Maritime Heritage Site	Hunter Valley
Lake Macquarie Port (ViewSiteDetail.aspx?siteid=2350)	Lake Macquarie was a centre for early trade. ...	Maritime Heritage Site	Hunter Valley
Myall Lakes (ViewSiteDetail.aspx?siteid=2361)	Myall Lakes was an important area in the collection and transshipment of raw material, particularly timber, from the nineteenth to twentieth centuries. ...	Maritime Heritage Site	Hunter Valley
Nelson Head Lighthouse Cottage & Reserve (ViewSiteDetail.aspx?siteid=2360)	The Nelson Head Lighthouse Cottage and Reserve is located in the historic Nelson Head Lighthouse complex. ...	Maritime Heritage Site	Hunter Valley
Nelson Head Lighthouse Group (ViewSiteDetail.aspx?siteid=2259)	The first light was installed in 1872 and the present cottage was built three years later. ...	Maritime Heritage Site	Hunter Valley
Nelsons Plains Wharf Hunter River (ViewSiteDetail.aspx?siteid=2588)	Remains of a timber wharf located on the eastern bank of the Hunter River at 30-31 Nobles Road, Nelsons Plains. ...	Maritime Heritage Site	Hunter Valley
Nerani Head Cemetery (ViewSiteDetail.aspx?siteid=2254)		Maritime Heritage Site	Hunter Valley
Newcastle Regional Maritime Museum (ViewSiteDetail.aspx?	NEWCASTLE REGIONAL MARITIME MUSEUMStreet Address:Off Nobby's	Maritime Heritage Site	Hunter Valley

siteid=2035)	RoadFort Scratchley, Newcastle East Postal Address:PO Box 148Newcastle NSW 2300 Ph 024929 2588Facsimile: 02 4929 5457E-mail: nrmm@hunt		
Newcastle Regional Museum (ViewSiteDetail.aspx? siteid=2337)	NEWCASTLE REGIONAL MUSEUM Street Address:787 Hunter StreetNewcastle West NSW 2302 Postal Address:PO Box 2156DANGAR NSW 2309 Telephone: (02) 4974 1400 Facsimile: (02) 4974 1405 E- mail :nrmuseum@ncc. ...	Maritime Heritage Site	Hunter Valley
Nobby's Head Lighthouse (ViewSiteDetail.aspx? siteid=2034)	Nobby's Head Lighthouse < ...	Maritime Heritage Site	Hunter Valley
Old Bungwahl Cemetery (ViewSiteDetail.aspx? siteid=2250)		Maritime Heritage Site	Hunter Valley
Point Stephens Lighthouse	Point Stephens Lighthouse. ...	Maritime Heritage Site	Hunter Valley

Page last updated 5 October 2022

Contact us

Heritage NSW

 02 9873 8500

 [Email](#)

Please consider the environment before printing.

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	
<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>Limnium 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
<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

Scientific Name	Common name	Biosecurity duty
<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 Regional recommended measure
<i>Chromolaena odorata</i>	Siam weed	Prohibited Matter
<i>Limonium hyblaeum</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

Scientific Name	Common name	Biosecurity duty
		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</i> species	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</i> species	Willows	Prohibition on certain dealings
<i>Striga</i> species	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: 06-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:	5
Listed Threatened Species:	75
Listed Migratory Species:	54

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:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	61
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:	1
Regional Forest Agreements:	1
Nationally Important Wetlands:	1
EPBC Act Referrals:	21
Key Ecological Features (Marine):	None
Biologically Important Areas:	4
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	Within 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
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area	In feature area
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Community may occur within area	In feature area
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria	Critically Endangered	Community likely to occur within area	In feature area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area	In buffer area only

Listed Threatened Species	[Resource Information]
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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			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known 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
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Climacteris picumnus victoriae Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
Erythroriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may occur within area	In buffer area only
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 known to occur within area	In feature area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour 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 may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pycnoptilus floccosus Pilotbird [525]	Vulnerable	Species or species habitat may 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 known to occur within area	In feature area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche bulleri platei Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
FISH			
Epinephelus daemeli Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thunnus maccoyii Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area	In feature area
FROG			
Litoria aurea Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat known to occur within area	In feature area
Mixophyes balbus Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat may occur within area	In feature area
Uperoleia mahonyi Mahony's Toadlet [89189]	Endangered	Species or species habitat may occur within area	In buffer area only
MAMMAL			
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
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
Notamacropus parma Parma Wallaby [89289]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Petauroides volans Greater Glider (southern and central) [254]	Endangered	Species or species habitat likely to occur within area	In feature area
Petaurus australis australis Yellow-bellied Glider (south-eastern) [87600]	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 known to occur within area	In feature area
Potorous tridactylus tridactylus Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area	In feature area
PLANT			
Angophora inopina Charmhaven Apple [64832]	Vulnerable	Species or species habitat may occur within area	In feature area
Caladenia tessellata Thick-lipped Spider-orchid, Daddy Long-legs [2119]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Commersonia prostrata Dwarf Kerrawang [87152]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Cynanchum elegans White-flowered Wax Plant [12533]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Diuris praecox Newcastle Doubletail [55086]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Eucalyptus camfieldii Camfield's Stringybark [15460]	Vulnerable	Species or species habitat may occur within area	In feature area
Eucalyptus parramattensis subsp. decadens Earp's Gum, Earp's Dirty Gum [56148]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat may occur within area	In feature area
Grevillea shiressii [19186]	Vulnerable	Species or species habitat may occur within area	In feature area
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat likely to 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
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Syzygium paniculatum Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Tetratheca juncea Black-eyed Susan [21407]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In feature area

REPTILE			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In feature area
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area	In feature area

SHARK			
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	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			
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Ardenna grisea Sooty Shearwater [82651]		Species or species habitat likely to occur within area	In feature area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In feature area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
Migratory Marine Species			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In feature area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In feature area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area	In feature area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat may occur within area	In feature area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat may occur within area	In feature area
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area	In feature area
Migratory Terrestrial Species			
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		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	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat likely to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Arenaria interpres Ruddy Turnstone [872]		Species or species habitat likely to occur within area	In buffer area only
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known 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
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Limicola falcinellus Broad-billed Sandpiper [842]		Species or species habitat likely to occur within area	In buffer area only
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
Limosa limosa Black-tailed Godwit [845]		Species or species habitat likely to occur within area	In buffer area only
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]		Species or species habitat may occur within area	In feature area
Numenius phaeopus Whimbrel [849]		Species or species habitat likely to occur within area	In buffer area only
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In feature area
Pluvialis fulva Pacific Golden Plover [25545]		Species or species habitat likely to occur within area	In buffer area only
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area	In feature area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Species or species habitat likely to occur within area	In buffer area only
Xenus cinereus Terek Sandpiper [59300]		Species or species habitat likely to occur within area	In buffer area only

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Defence		
Commonwealth Land - Defence Service Homes Corporation [11679]	NSW	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Anous stolidus Common Noddy [825]		Species or species habitat likely to 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
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]		Species or species habitat likely to occur within area	In feature area
Arenaria interpres Ruddy Turnstone [872]		Species or species habitat likely to occur within area	In buffer area only
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Breeding likely to occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area overfly marine 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 known to occur within area overfly marine area	In feature area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea antipodensis gibsoni as Diomedea gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In feature area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to 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 known to occur within area overfly marine area	In feature area
Limicola falcinellus Broad-billed Sandpiper [842]		Species or species habitat likely to occur within area overfly marine area	In buffer area only
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
Limosa limosa Black-tailed Godwit [845]		Species or species habitat likely to occur within area overfly marine area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known 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
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Numenius phaeopus Whimbrel [849]		Species or species habitat likely to occur within area	In buffer area only
Pachyptila turtur Fairy Prion [1066]		Species or species habitat known to occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In feature area
Pluvialis fulva Pacific Golden Plover [25545]		Species or species habitat likely to occur within area	In buffer area only
Pterodroma cervicalis White-necked Petrel [59642]		Species or species habitat may occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to 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
Sterna striata White-fronted Tern [799]		Migration route may occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat likely to occur within area overfly marine area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche bulleri platei as Thalassarche sp. nov. Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area	In feature area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Species or species habitat likely to occur within area overfly marine area	In buffer area only
Xenus cinereus Terek Sandpiper [59300]		Species or species habitat likely to occur within area overfly marine area	In buffer area only
Reptile			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In feature area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In feature area
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Hunter Wetlands	National Park	NSW	In buffer area only

Regional Forest Agreements	[Resource Information]
Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.	

RFA Name	State	Buffer Status
North East NSW RFA	New South Wales	In feature area

Nationally Important Wetlands		[Resource Information]
Wetland Name	State	Buffer Status
Kooragang Nature Reserve	NSW	In feature area

EPBC Act Referrals					[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status	
Controlled action					
Gas Transmission Pipeline	2011/5917	Controlled Action	Completed	In buffer area only	
Hunter River Port and Transport Corridor	2001/419	Controlled Action	Completed	In buffer area only	
Hunter River south arm dredging	2003/950	Controlled Action	Post-Approval	In feature area	
Newcastle LNG export facility	2011/5915	Controlled Action	Completed	In buffer area only	
Port Site and Materials Handling Development	2001/242	Controlled Action	Completed	In feature area	

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Protech Cold Mill Facility	2001/274	Controlled Action	Post-Approval	In feature area
Queensland Hunter Gas Pipeline, approximately 825 km in length	2008/4483	Controlled Action	Completed	In feature area
River Dredging Operations	2001/249	Controlled Action	Completed	In feature area
Terminal 4 Coal Export Terminal Project, Kooragang Island	2011/6029	Controlled Action	Post-Approval	In buffer area only
Not controlled action				
Expansion to Kooragang Coal Terminal	2007/3352	Not Controlled Action	Completed	In buffer area only
Fort Scratchley refurbishment works	2005/2283	Not Controlled Action	Completed	In feature area
Fort Scratchley site remediation	2005/2075	Not Controlled Action	Completed	In feature area
Geological exploration and historical research of convict coal mines beneath For	2004/1421	Not Controlled Action	Completed	In feature area
Green & Golden Bell Frog Habitat Enhancement Project	2004/1795	Not Controlled Action	Completed	In feature area
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
sale of property located at 96, Hunter Street	2003/1097	Not Controlled Action	Completed	In feature area
Sandgate Rail Grade Separation	2005/1948	Not Controlled Action	Completed	In buffer area only
Shorebird and wader habitat rehabilitation	2001/457	Not Controlled Action	Completed	In buffer area only
Tomago to Tomaree Electricity Supply Upgrade	2003/1023	Not Controlled Action	Completed	In feature area
Not controlled action (particular manner)				
Kooragang Island coal export terminal	2006/2987	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Rehabilitation of Hexham Swamp	2003/1244	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Biologically Important Areas			
Scientific Name	Behaviour	Presence	Buffer Status
Dolphins			
Tursiops aduncus			
Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Foraging	Known to occur	In feature area
Seabirds			
Ardenna grisea			
Sooty Shearwater [82651]	Foraging	Likely to occur	In buffer area only
Ardenna pacifica			
Wedge-tailed Shearwater [84292]	Foraging	Likely to occur	In buffer area only
Ardenna tenuirostris			
Short-tailed Shearwater [82652]	Foraging	Likely to occur	In buffer area only
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.

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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: 21-Feb-2024

[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:	4
Listed Threatened Species:	75
Listed Migratory Species:	46

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:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	53
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:	1
Nationally Important Wetlands:	1
EPBC Act Referrals:	18
Key Ecological Features (Marine):	None
Biologically Important Areas:	1
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	Within 10km of Ramsar site	In feature area

Listed Threatened Ecological Communities	[Resource Information]
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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
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area	In feature area
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Community may occur within area	In feature area
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species	[Resource Information]
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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			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known 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
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known 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
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
Erythroriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may occur within area	In buffer area only
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	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 known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Endangered	Species or species habitat known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

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 may occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pycnoptilus floccosus Pilotbird [525]	Vulnerable	Species or species habitat may 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 known to occur within area	In feature area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche bulleri platei Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area	In feature area
FISH			
Epinephelus daemeli Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
FROG			
Litoria aurea Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat known to occur within area	In feature area
Mixophyes balbus Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	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

Scientific Name	Threatened Category	Presence Text	Buffer Status
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
Notamacropus parma Parma Wallaby [89289]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Petauroides volans Greater Glider (southern and central) [254]	Endangered	Species or species habitat likely to occur within area	In feature area
Petaurus australis australis Yellow-bellied Glider (south-eastern) [87600]	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 known to occur within area	In feature area
Potorous tridactylus tridactylus Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area	In feature area
PLANT			
Angophora inopina Charmhaven Apple [64832]	Vulnerable	Species or species habitat may occur within area	In feature area
Caladenia tessellata Thick-lipped Spider-orchid, Daddy Long-legs [2119]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Commersonia prostrata Dwarf Kerrawang [87152]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Cynanchum elegans White-flowered Wax Plant [12533]	Endangered	Species or species habitat likely to occur within area	In buffer area only
Diuris praecox Newcastle Doubletail [55086]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Eucalyptus camfieldii Camfield's Stringybark [15460]	Vulnerable	Species or species habitat may occur within area	In feature area
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat may occur within area	In feature area
Grevillea shiressii [19186]	Vulnerable	Species or species habitat may occur within area	In feature area
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat likely to 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
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Syzygium paniculatum Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Tetratheca juncea Black-eyed Susan [21407]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In feature area
REPTILE			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
SHARK			
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only
Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Ardenna grisea Sooty Shearwater [82651]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area	In buffer area only
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In feature area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In buffer area only
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
Migratory Marine Species			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area	In buffer area only
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat may occur within area	In buffer area only
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat may occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Migratory Terrestrial Species			
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		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	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat likely to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known 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
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands

[[Resource Information](#)]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Commonwealth Land Name	State	Buffer Status
Defence		
Commonwealth Land - Defence Service Homes Corporation [11679]	NSW	In buffer area only

Listed Marine Species

[[Resource Information](#)]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Anous stolidus Common Noddy [825]		Species or species habitat likely to 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
Ardenna grisea as Puffinus griseus Sooty Shearwater [82651]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Breeding likely to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine 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 known to occur within area overfly marine area	In feature area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area	In buffer area only
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea antipodensis gibsoni as Diomedea gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In feature area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area	In buffer area only
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to 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 known to occur within area overfly marine area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known 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
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat known to occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In feature area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In buffer area only
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 known to 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
Sterna striata White-fronted Tern [799]		Migration route may occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat likely to occur within area overfly marine area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche bulleri platei as Thalassarche sp. nov. Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Reptile			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Species or species habitat known to occur within area	In buffer area only

Extra Information

Regional Forest Agreements

[[Resource Information](#)]

Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.

RFA Name	State	Buffer Status
North East NSW RFA	New South Wales	In feature area

Nationally Important Wetlands				[Resource Information]
Wetland Name		State	Buffer Status	
Kooragang Nature Reserve		NSW	In feature area	
EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Hunter River Port and Transport Corridor	2001/419	Controlled Action	Completed	In buffer area only
Hunter River south arm dredging	2003/950	Controlled Action	Post-Approval	In feature area
Port Site and Materials Handling Development	2001/242	Controlled Action	Completed	In feature area
Protech Cold Mill Facility	2001/274	Controlled Action	Post-Approval	In feature area
Queensland Hunter Gas Pipeline, approximately 825 km in length	2008/4483	Controlled Action	Completed	In buffer area only
River Dredging Operations	2001/249	Controlled Action	Completed	In feature area
Terminal 4 Coal Export Terminal Project, Kooragang Island	2011/6029	Controlled Action	Post-Approval	In buffer area only
Not controlled action				
Expansion to Kooragang Coal Terminal	2007/3352	Not Controlled Action	Completed	In buffer area only
Fort Scratchley refurbishment works	2005/2283	Not Controlled Action	Completed	In feature area
Fort Scratchley site remediation	2005/2075	Not Controlled Action	Completed	In feature area
Geological exploration and historical research of convict coal mines beneath For	2004/1421	Not Controlled Action	Completed	In feature area
Green & Golden Bell Frog Habitat Enhancement Project	2004/1795	Not Controlled Action	Completed	In feature area
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
sale of property located at 96, Hunter Street	2003/1097	Not Controlled Action	Completed	In feature area
Sandgate Rail Grade Separation	2005/1948	Not Controlled Action	Completed	In buffer area only
Tomago to Tomaree Electricity Supply Upgrade	2003/1023	Not Controlled Action	Completed	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action (particular manner)				
Kooragang Island coal export terminal	2006/2987	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Rehabilitation of Hexham Swamp	2003/1244	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Biologically Important Areas				
Scientific Name		Behaviour	Presence	Buffer Status
Dolphins				
Tursiops aduncus				
Indo-Pacific/Spotted Bottlenose Dolphin [68418]		Foraging	Known to occur	In buffer area only

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.

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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: 06-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:	4
Listed Threatened Species:	76
Listed Migratory Species:	63

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:	16
Commonwealth Heritage Places:	None
Listed Marine Species:	73
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:	2
Regional Forest Agreements:	1
Nationally Important Wetlands:	1
EPBC Act Referrals:	24
Key Ecological Features (Marine):	None
Biologically Important Areas:	1
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	Within 10km of Ramsar site	In feature area

Listed Threatened Ecological Communities	[Resource Information]
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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
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area	In feature area
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Community may occur within area	In feature area
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species	[Resource Information]
---------------------------	--------------------------

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			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to 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
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known 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
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea antipodensis gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
Erythroriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may 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 known to occur within area	In feature area
Limosa lapponica baueri Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Vulnerable	Species or species habitat known to occur within area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Melanodryas cucullata cucullata South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Pachyptila turtur subantarctica Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pycnoptilus floccosus Pilotbird [525]	Vulnerable	Species or species habitat may occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat known 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
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche bulleri platei Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
FISH			
Epinephelus daemeli Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Thunnus maccoyii Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only
FROG			
Litoria aurea Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat known to occur within area	In feature area
Mixophyes balbus Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat may occur within area	In feature area
Uperoleia mahonyi Mahony's Toadlet [89189]	Endangered	Species or species habitat may occur within area	In buffer area only
MAMMAL			
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
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
Notamacropus parma			
Parma Wallaby [89289]	Vulnerable	Species or species habitat may occur within area	In feature area
Petauroides volans			
Greater Glider (southern and central) [254]	Endangered	Species or species habitat may occur within area	In feature area
Petaurus australis australis			
Yellow-bellied Glider (south-eastern) [87600]	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 known to occur within area	In feature area
Potorous tridactylus tridactylus			
Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pseudomys novaehollandiae			
New Holland Mouse, Pookila [96]	Vulnerable	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 known to occur within area	In feature area
PLANT			
Angophora inopina			
Charmhaven Apple [64832]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Caladenia tessellata			
Thick-lipped Spider-orchid, Daddy Long-legs [2119]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Commersonia prostrata			
Dwarf Kerrawang [87152]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Cynanchum elegans White-flowered Wax Plant [12533]	Endangered	Species or species habitat likely to occur within area	In feature area
Diuris praecox Newcastle Doubletail [55086]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Eucalyptus camfieldii Camfield's Stringybark [15460]	Vulnerable	Species or species habitat may occur within area	In feature area
Euphrasia arguta [4325]	Critically Endangered	Species or species habitat may occur within area	In feature area
Grevillea shiressii [19186]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat likely to 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
Rhizanthella slateri Eastern Underground Orchid [11768]	Endangered	Species or species habitat may occur within area	In buffer area only
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Syzygium paniculatum Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Tetratheca juncea Black-eyed Susan [21407]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In feature area

REPTILE			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only

SHARK			
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area	In buffer area only

Listed Migratory Species		[Resource Information]	
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Anous stolidus Common Noddy [825]		Species or species habitat likely to occur within area	In feature area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Ardenna grisea Sooty Shearwater [82651]		Species or species habitat likely to occur within area	In buffer area only
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area	In buffer area only
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area	In buffer area only
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area	In buffer area only
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In buffer area only
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
Migratory Marine Species			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area	In buffer area only
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat may occur within area	In buffer area only
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat may occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Migratory Terrestrial Species			
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		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	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat likely to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Arenaria interpres Ruddy Turnstone [872]		Roosting known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Roosting known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]		Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area	In feature area
Calidris tenuirostris Great Knot [862]		Critically Endangered	Roosting known to occur within area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area	In feature area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area	In buffer area only
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area	In buffer area only
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area	In buffer area only
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Philomachus pugnax Ruff (Reeve) [850]		Roosting known to occur within area	In feature area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area	In feature area
Pluvialis squatarola Grey Plover [865]		Roosting known to occur within area	In feature area
Tringa brevipes Grey-tailed Tattler [851]		Roosting known to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area	In feature area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area	In feature area
Xenus cinereus Terek Sandpiper [59300]		Roosting known to occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]		
The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.		
Commonwealth Land Name	State	Buffer Status
Commonwealth Trading Bank of Australia		
Commonwealth Land - Commonwealth Trading Bank of Australia [11682]	NSW	In buffer area only
Communications, Information Technology and the Arts - Australian Postal Corporation		
Commonwealth Land - Australian Postal Corporation [11690]	NSW	In buffer area only
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian Telecommunications Commission [11700]	NSW	In feature area
Defence		
Commonwealth Land - Defence Service Homes Corporation [11675]	NSW	In feature area
Defence - Defence Housing Authority		
Commonwealth Land - Defence Housing Authority [16168]	NSW	In feature area

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Defence Housing Authority [16169]	NSW	In feature area
Commonwealth Land - Defence Housing Authority [16165]	NSW	In feature area
Commonwealth Land - Defence Housing Authority [16166]	NSW	In feature area
Commonwealth Land - Defence Housing Authority [16170]	NSW	In feature area
Commonwealth Land - Defence Housing Authority [16172]	NSW	In feature area
Commonwealth Land - Defence Housing Authority [16171]	NSW	In feature area
Commonwealth Land - Defence Housing Authority [11678]	NSW	In feature area
Commonwealth Land - Defence Housing Authority [16173]	NSW	In feature area
Commonwealth Land - Defence Housing Authority [16167]	NSW	In feature area
Commonwealth Land - Director of War Service Homes [11677]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [11676]	NSW	In buffer area only

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Anous stolidus			
Common Noddy [825]		Species or species habitat likely to 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
Ardenna grisea as Puffinus griseus			
Sooty Shearwater [82651]		Species or species habitat likely to occur within area	In buffer area only
Arenaria interpres			
Ruddy Turnstone [872]		Roosting known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Breeding likely to occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Roosting known to occur within area	In feature area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area	In feature area
Calidris ruficollis Red-necked Stint [860]		Roosting known to occur within area overfly marine area	In feature area
Calidris tenuirostris Great Knot [862]	Critically Endangered	Roosting known to occur within area overfly marine area	In feature area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat known to occur within area	In buffer area only
Charadrius bicinctus Double-banded Plover [895]		Roosting known to occur within area overfly marine area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Charadrius mongolus Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Charadrius ruficapillus Red-capped Plover [881]		Roosting known to occur within area overfly marine area	In feature area
Diomedea antipodensis Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea antipodensis gibsoni as Diomedea gibsoni Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea epomophora Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
Diomedea sanfordi Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area	In buffer area only
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area	In buffer area only
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat known to occur within area overfly marine area	In feature area
Gallinago megala Swinhoe's Snipe [864]		Roosting likely to occur within area overfly marine area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Gallinago stenura Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area	In buffer area only
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
Himantopus himantopus Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area overfly marine 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 known to occur within area overfly marine area	In feature area
Limicola falcinellus Broad-billed Sandpiper [842]		Roosting known to occur within area overfly marine area	In feature area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
Limosa limosa Black-tailed Godwit [845]		Roosting known to occur within area overfly marine area	In feature area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In buffer area only
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat known to occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known 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
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Numenius minutus Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area overfly marine area	In buffer area only
Numenius phaeopus Whimbrel [849]		Roosting known to occur within area	In feature area
Pachyptila turtur Fairy Prion [1066]		Species or species habitat known to occur within area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area	In buffer area only
Philomachus pugnax Ruff (Reeve) [850]		Roosting known to occur within area overfly marine area	In feature area
Pluvialis fulva Pacific Golden Plover [25545]		Roosting known to occur within area	In feature area
Pluvialis squatarola Grey Plover [865]		Roosting known to 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
Recurvirostra novaehollandiae Red-necked Avocet [871]		Roosting known to occur within area overfly marine area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to 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 known to occur within area overfly marine area	In feature area
Sterna striata White-fronted Tern [799]		Migration route may occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat likely to occur within area overfly marine area	In feature area
Thalassarche bulleri Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Thalassarche bulleri platei as Thalassarche sp. nov. Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche cauta Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche eremita Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche salvini Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area	In feature area
Tringa brevipes as Heteroscelus brevipes Grey-tailed Tattler [851]		Roosting known to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat known to occur within area overfly marine area	In feature area
Tringa stagnatilis Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Xenus cinereus Terek Sandpiper [59300]		Roosting known to occur within area overfly marine area	In feature area
Reptile			
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In buffer area only
Chelonia mydas Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In buffer area only
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only
Natator depressus Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In buffer area only

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Hexham Swamp	NRS Addition - Gazettal in Progress	NSW	In buffer area only
Hunter Wetlands	National Park	NSW	In buffer area only

Regional Forest Agreements	[Resource Information]
Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.	

RFA Name	State	Buffer Status
North East NSW RFA	New South Wales	In feature area

Nationally Important Wetlands		[Resource Information]
Wetland Name	State	Buffer Status

Wetland Name	State	Buffer Status
Kooragang Nature Reserve	NSW	In buffer area only

EPBC Act Referrals

[Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Construction and Sequential Filling of Waste Emplacement Facility	2008/4652	Controlled Action	Post-Approval	In buffer area only
Hunter River Port and Transport Corridor	2001/419	Controlled Action	Completed	In buffer area only
Hunter River south arm dredging	2003/950	Controlled Action	Post-Approval	In buffer area only
Kooragang Island Waste Emplacement Facility - Area 2 Closure Works, NSW	2016/7670	Controlled Action	Post-Approval	In buffer area only
Kooragang Wetland Rehabilitation Project	2007/3220	Controlled Action	Post-Approval	In buffer area only
Port Site and Materials Handling Development	2001/242	Controlled Action	Completed	In feature area
Protech Cold Mill Facility	2001/274	Controlled Action	Post-Approval	In feature area
Remediation Works, Kooragang island waste facility emplacement facility NSW	2011/5920	Controlled Action	Completed	In buffer area only
River Dredging Operations	2001/249	Controlled Action	Completed	In feature area
Terminal 4 Coal Export Terminal Project, Kooragang Island	2011/6029	Controlled Action	Post-Approval	In feature area
Not controlled action				
Fort Scratchley refurbishment works	2005/2283	Not Controlled Action	Completed	In feature area
Fort Scratchley site remediation	2005/2075	Not Controlled Action	Completed	In buffer area only
Geological exploration and historical research of convict coal mines beneath For	2004/1421	Not Controlled Action	Completed	In feature area
Green & Golden Bell Frog Habitat Enhancement Project	2004/1795	Not Controlled Action	Completed	In feature area
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Newcastle Inner City Bypass - Sandgate to Shortland	2007/3633	Not Controlled Action	Completed	In buffer area only
Queensland Hunter Gas Pipeline, approximately 833 km in length	2008/4620	Not Controlled Action	Completed	In feature area
sale of property located at 96, Hunter Street	2003/1097	Not Controlled Action	Completed	In feature area
Sandgate Rail Grade Separation	2005/1948	Not Controlled Action	Completed	In feature area
Tomago to Tomaree Electricity Supply Upgrade	2003/1023	Not Controlled Action	Completed	In feature area

Not controlled action (particular manner)				
Kooragang Island coal export terminal	2006/2987	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Kooragang Island Waste Emplacement Facility Closure Works	2012/6464	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Rehabilitation of Hexham Swamp	2003/1244	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
TransGrid 132kV Power Transmission Line	2002/794	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only

Biologically Important Areas				
Scientific Name		Behaviour	Presence	Buffer Status
Dolphins				
Tursiops aduncus				
Indo-Pacific/Spotted Bottlenose Dolphin [68418]		Foraging	Known to occur	In buffer area only

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.

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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: 06-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:	51
Listed Migratory Species:	17

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:	24
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:	1
Nationally Important Wetlands:	None
EPBC Act Referrals:	9
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	10 - 20km 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
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area	In feature area
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Community may occur within area	In feature area
Kurri sand swamp woodland of the Sydney Basin bioregion	Endangered	Community likely to occur within area	In feature area
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria	Critically Endangered	Community likely to 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			
Anthochaera phrygia			
Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to 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
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may 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
Erythroriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may 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 known to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to 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 may occur within area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pycnoptilus floccosus Pilotbird [525]	Vulnerable	Species or species habitat may 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
FROG			
Litoria aurea Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Mixophyes balbus Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat may occur within area	In feature area
Mixophyes iteratus Giant Barred Frog, Southern Barred Frog [1944]	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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Notamacropus parma Parma Wallaby [89289]	Vulnerable	Species or species habitat may occur within area	In feature area
Petauroides volans Greater Glider (southern and central) [254]	Endangered	Species or species habitat may occur within area	In feature area
Petaurus australis australis Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may 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 known to occur within area	In feature area
Potorous tridactylus tridactylus Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat may occur within area	In feature area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat known to occur within area	In feature area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
PLANT			
Acacia bynoeana Bynoe's Wattle, Tiny Wattle [8575]	Vulnerable	Species or species habitat known to occur within area	In feature area
Caladenia tessellata Thick-lipped Spider-orchid, Daddy Long-legs [2119]	Vulnerable	Species or species habitat may occur within area	In feature area
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Cynanchum elegans White-flowered Wax Plant [12533]	Endangered	Species or species habitat likely to occur within area	In feature area
Eucalyptus glaucina Slaty Red Gum [5670]	Vulnerable	Species or species habitat may occur within area	In feature area
Eucalyptus parramattensis subsp. decadens Earp's Gum, Earp's Dirty Gum [56148]	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
Grevillea parviflora subsp. parviflora Small-flower Grevillea [64910]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pomaderris brunnea Rufous Pomaderris, Brown Pomaderris [16845]	Vulnerable	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
Pterostylis gibbosa Illawarra Greenhood, Rufa Greenhood, Pouched Greenhood [4562]	Endangered	Species or species habitat may occur within area	In feature area
Rhizanthella slateri Eastern Underground Orchid [11768]	Endangered	Species or species habitat may occur within area	In feature area
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rhodomyrtus psidioides Native Guava [19162]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rutidosia heterogama Heath Wrinklewort [13132]	Vulnerable	Species or species habitat known to occur within area	In feature area
Syzygium paniculatum Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Tetradlea juncea Black-eyed Susan [21407]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In feature area

REPTILE			
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			
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		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	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		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 known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to 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 known to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat likely to occur within area overfly marine area	In feature area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	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 likely to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to 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 known to 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
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat likely to occur within area overfly marine area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known 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
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area	In feature area
Pterodroma cervicalis White-necked Petrel [59642]		Species or species habitat may occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to 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
Sterna striata White-fronted Tern [799]		Migration route may occur within area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat may occur within area overfly marine area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

Regional Forest Agreements

[[Resource Information](#)]

Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.

RFA Name	State	Buffer Status
North East NSW RFA	New South Wales	In feature area

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
F3 to Branxton Link Electricity Adjustments	2007/3814	Controlled Action	Post-Approval	In feature area
New dual carriageway from F3 Fwy to Branxton Link	2007/3431	Controlled Action	Post-Approval	In feature area
Not controlled action				
Hebburn No 2 Colliery	2001/301	Not Controlled Action	Completed	In feature area
Hunter Natural Gas Pipeline	2004/1902	Not Controlled Action	Completed	In feature area
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
Revised alignment Hunter Natural Gas Pipeline	2005/2470	Not Controlled Action	Completed	In feature area
Not controlled action (particular manner)				
Collection and reprocessing of carbonaceous materials	2005/2196	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
Rehabilitation of Hexham Swamp	2003/1244	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Rezoning and Residential Development of Avery's Village, Cessnock, NSW	2007/3880	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
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

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- [-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

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

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