REVIEW OF ENVIRONMENTAL FACTORS:

CONCLUSIONS AND SIGN-OFF OF HOOKA CREEK BUSH FIRE TRAIL WORKS

This report documents the outcomes of the Review of Environmental Factors (REF) undertaken for proposed works comprising of Hooka Creek Bush Fire Trail Works.

The proposed activity has been assessed against the SEPP (Transport and Infrastructure) 2021 and does not require consent under Chapter 2 Division 6 Emergency services facilities and bush fire hazard reduction, Chapter 2 Division 12 Parks and Other Reserves, and Schedule 1 - Exempt development – General Provisions - Signs.

As the proposed activity does not require development consent, the environmental impacts have been considered in accordance with the environmental assessment requirements of Part 5, Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). In accordance with the requirements of Part 5 of the EP&A Act, the factors listed in Clauses 170 and 171 of the *Environmental Planning and Assessment Regulation 2021* have been taken into account in the consideration of the likely impacts of the proposed activity on the environment.

The results of the REF indicate that the proposed activity will have no significant environmental impacts, provided the safeguards identified in this report are strictly implemented.

If the scope of works or work methods described in this report change significantly, additional environmental assessment must be undertaken by an Environment Strategy Officer. If construction begins more than 1 year after the AHIMs, then the project manager needs to seek an updated AHIMs search prior to the commencement of works.

Works are to commence, and be substantially completed, within 2 years of the REF preparation sign off date. Any substantial works to be undertaken outside this period will require a review of the REF.

Publication Requirements:

The EP&A Regulation (clause 171(4)) requires the REF to be **published** (on the Portal) prior to works commencing (if possible, otherwise within a month) if the activity involves:

- a capital investment value of more than $5 million or,
- an approval or permit for activity that requires approval under:
  - FM Act sections 144, 200, 205 or 219, or
  - Heritage Act 1977 section 57, or
  - National Parks and Wildlife Act 1974 section 90 or
  - Protection of the Environment operations Act 1997 sections 47-49 or 122, or
- if the determining authority considers it to be in the public interest

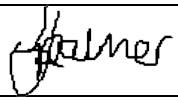
The application did require publication in accordance with EP&A Regulation (clause 171(4)).

Community Consultation was not required.

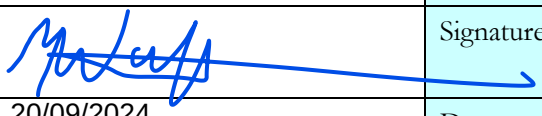
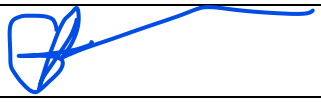
REF Preparation Sign Off over page

REF Preparation Sign Off:

I, the undersigned, certify that I have reviewed and endorsed the contents of this REF document 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 clause 170 of the EP&A Regulation, and the information it contains is neither false nor misleading.

REF Preparation:	Julia Palmer	REF Review:	Amanda Schipp
Position:	Environment Strategy Officer	Position:	Environment Strategy Officer
Signature:		Signature:	
Date:	19/09/2024	Date:	19/09/2024

Client accepts that this REF is for the environmental assessment component only and is responsible for all other project risks associated with the project management components. The information in this document is not considered sufficient to address any other project management requirements and safety/risk approvals, such as services investigations; consultation; cost estimate; traffic and site management; project risk assessment (etc):

Name:	Matthew Watts	Name:	Greg Fikkers
Position:	Natural Area Officer	Position:	
Signature		Signature:	
Date	20/09/2024	Date:	20/9/24

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1. INTRODUCTION

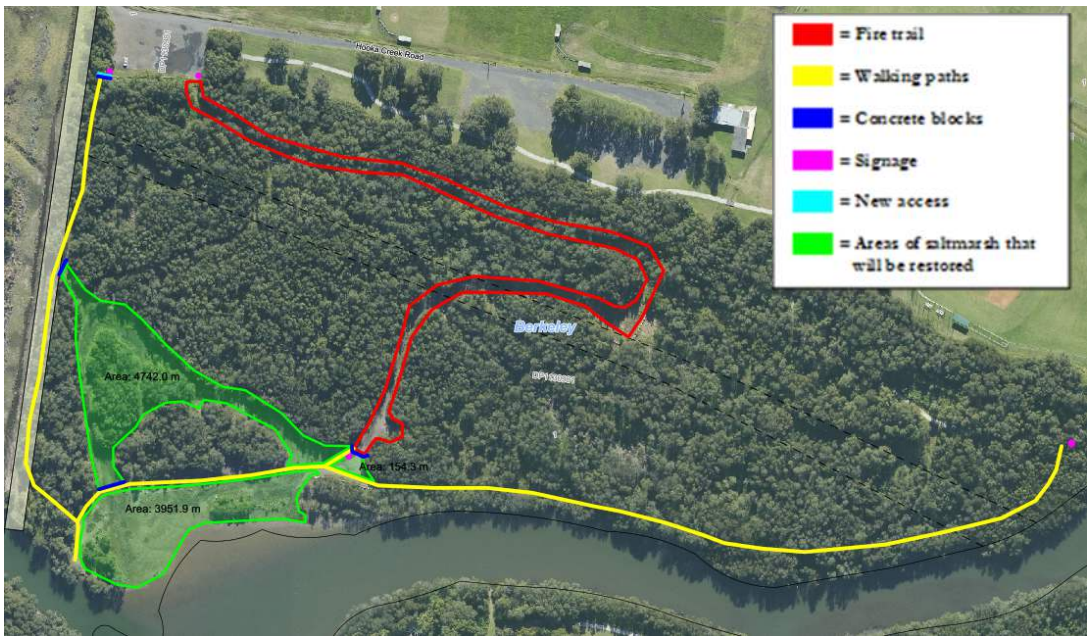
As the proposed activity does not require development consent, the environmental impacts have been considered in accordance with the environmental assessment requirements of Part 5 of the EP&A Act. In accordance with the requirements of Part 5 of the EP&A Act, the factors listed in Clauses 170 and 171 of the *Environmental Planning and Assessment Regulation 2021* have been taken into account in the consideration of the likely impacts of the proposed activity on the environment.

The assessment has been undertaken through impact identification and a risk management assessment. This report documents the outcomes of the assessment and identifies the environmental safeguards that must be implemented in conjunction with the proposal.

2. PROJECT DETAILS

Project Name	**Hooka Creek Bush Fire Trail Works**
Location	Fred Finch Park, Hooka Creek Road, Berkeley Lot 1 DP 1130981
Land Ownership	Wollongong City Council
Land Classification	Land on which works are being undertaken is Community Land – Natural Area Bushland and Sportsground.
LEP 2009 Zoning	C2 – Environmental Conservation
Nature of existing environment within the work area	• Biodiversity mapped. • Biodiversity Strategy Conservation Class – HCV • Coastal Zone Study Information - 2010, 2050, 2100 Ocean Inundation Extent • Habitat Models – Green and Golden Bell Frog, Black Bittern • Key Fish Habitat mapped along southern side of work area. • Lake Illawarra Catchment mapped. • Lake Illawarra 100m buffer mapped. • NP Conservation Assessment – Primary • NP PCT Vegetation SVTMvC2M2 – 3962, 4027, 4028 • NP PCT Vegetation Escarpment and Coast 2002 – MU36, MU52, MU53, MU56d, MU57e • Slope Class – Less than 4 degrees • Bushcare mapped over whole site. • Bush Restoration mapped over whole site. • Natural Area Asset Unit – 261 • Bushfire Prone Land – Small section of Buffer and Vegetation Category 3 on west side of site. • EECs – MU36, MU52, MU53 • Section 10.7 Flood Coded mapped over site. • Riparian Corridors – Category 2 mapped along north end of site, and along Hooka Creek. Category 1 mapped on south-west corner of site. • Threatened species – none mapped on site. • Coastal Zones – Coastal Use Area, Coastal Environment Area, Coastal Wetlands and Coastal Wetlands Buffer mapped. • Wollongong LEP 2009 Zones – C2 Environmental Conservation • Acid Sulfate Soils – Class 1 & 2

	• Natural Resource Sensitivity – Biodiversity mapped.
Nature of existing environment adjacent to the work area	• Biodiversity mapped. • Biodiversity Strategy Conservation Class – HCV • Coastal Zone Study Information – 2010, 2050, 2100 Ocean Inundation Extent, Coastal Geotechnical Risk • Habitat Models – Green and Golden Bell Frog, Black Bittern • Key Fish Habitat mapped. • Lake Illawarra Catchment mapped. • Lake Illawarra 100m buffer mapped. • NP Conservation Assessment – Primary and Enhancement • Slope Class – Less than 4 degrees • Bushcare mapped to north and south of site along creek. • Bush Restoration mapped to north and south of site. • Natural Area Asset Unit – 260 • Bushfire Prone Land – Vegetation Category 3 west of site, Buffer and Vegetation Category 2 south of site. • EECS – MU24, MU36, MU52, MU53, MU54 • Section 10.7 Flood Coded mapped. • Riparian Corridors - Category 2 mapped along north end of site (review of historical imagery this appears to be a man-made channel), and along Hooka Creek. Category 1 mapped along Mullet Creek Tank Trap. • Threatened species – Black Bittern, Bar-tailed Godwit, White-bellied Sea Eagle, Masked Owl, Black-necked Stork, Wedge-tailed Shearwater, Grey-headed Flying Fox. See Threatened Flora and Fauna Assessment for further detailed assessment of threatened species and communities. • Coastal Zones – Coastal Use Area, Coastal Environment Area, Coastal Wetlands and Coastal Wetlands Buffer mapped. • Wollongong LEP 2009 Zones – RE1 Public Recreation to north, east and south; C2 Environmental Conservation to east and south; C3 – Environmental Management to west; R2 – Low Density Residential to east; RE2 – Private Recreation to north-west. • Acid Sulfate Soils – Class 1, 2, 3 & 5 • Foreshore Building Lines mapped to east. • Natural Resource Sensitivity – Biodiversity mapped.
Project Description/Scope of Works	The works are to formalise existing tracks within the Hooka Creek area to allow for RFS emergency vehicle access, close off informal tracks and trails, provide designated walking tracks for the public, and to reduce 4WD and motorbike access to the site to protect and enhance sensitive coastal wetland area and vegetation. The works are broken down into the following tasks as depicted in the map below: • Task 1 Red Lines - to allow formal access to site for Category 1 emergency vehicles including the formalisation of the existing turning circles. It will involve bringing in neutral soil material to fill up low areas, mowing grass, and pruning vegetation. • Task 2 Yellow Lines – to formalise the existing walking tracks that are already used by the public. Work would include placing neutral soil material to fill up low areas (excluding areas mapped as Key Fish Habitat) caused by motorbikes and 4WDs, under-pruning (no vegetation removal) to clear paths, and blocking off little tracks and trails so only the tracks in yellow are used.

	• Task 3 Dark Blue Lines – indicate locations where concrete blocks may need to be placed to reduce access points for motor bikes and 4WDs. Existing blocks near the end turning circle will be repositioned. • Task 4 Purple Points – the installation of interpretive Council signs at the entry to the site and one near the saltmarsh area near the creek. Signage will be attached to concrete blocks and placed on top of the ground. • Task 5 Light Blue Line – to establish a new access point in the car park area to the formal walkway. This will involve cutting a track into the mound (soil will remain on site), removing a piece of the barrier and replacing with a block chicane. • Green Areas – areas of saltmarsh community that will be restored due to the above works. 
Proposed Start Date & Work Period	September 2024 to September 2026
Work Equipment & Machinery	5.5 tonne excavator; 4.25 tonne posi-track; 10 tonne articulated front dumper; 2.5 tonne vibrating compacting roller; 6 tonne water cart.
Proposed work hours	Between 7.00 am and 6.00 pm Monday to Friday 8.00am and 1.00pm Saturday (Refer to Safeguards section)
Alternative proposals considered	The only alternative proposal is not to proceed with the works. This would mean that emergency vehicles will not have formal access to the site, particularly in times where there may be a bush fire risk/hazard. This will have impacts on assets, human health and safety, and the environment. It will also mean that motorbikes and 4WDs will be able to continue to access the site, and that smaller informal tracks and trails will still be used by the public, impacting on sensitive vegetation communities such as Coastal Floodplain Forests and Salt Marsh. Therefore, it is concluded that the proposal should proceed.

If the scope of works or works methods described in this report change significantly following the awarding of the works contract, additional EIA must be undertaken. Any revised EIA must be approved by Council's Environmental Project/Strategy Officer.

3. ENVIRONMENTAL SAFEGUARDS

Ensure at induction that the work crew are informed of the following site-specific environmental controls and monitor controls throughout the works.

Project Manager	**Prior to works, notification to Environment Project/Strategy Officer of exact start date and finish date.**

Environmental Awareness

- The work crew or contractor must have a copy of the REF on-site and be fully aware of the REF safeguards to be implemented.
- The work crew or contractor will undergo an induction prior to work commencing and complete the induction checklist. The induction should cover environmental constraints, sensitive areas, and incident responses. A register of inductions and induction checklist will be maintained and provided if requested.
- Before You Dig Australia (BYDA) as part of this scope preparation. It is expected that the contractor will organise their own BYDA.
- Site meetings may be frequently conducted to identify issues that arise during the works regarding environment, safety, community and production. A register of attendees will be maintained.
- An Environmental Audit may be conducted to assess compliance with the REF and provide feedback on ways to improve work practices.

Fire Trail Works

To effectively serve their purpose, fire trails must be designed, constructed and maintained to a standard that allows traffic by standard firefighting vehicles. They must also be built in such a way as to minimise environmental impacts such as those caused by soil erosion and sediment runoff.

The fire trail works at this site are to be constructed in accordance with the RFS NSW Fire Trail Standards Nov 2023 and the RFS Fire Trail Design, Construction and Maintenance Manual.

Design

- Fire trails must be located as far as practicably possible from any waterways.
- Soil and vegetation disturbance is to be kept to a minimum.
- Fire trails must be no wider than the minimum width required for the applicable fire trail category and associated emergency vehicles.
- Follow the natural contours of the land and avoid steep slopes where possible.
- Care must be taken to follow the planned course of the trail, taking special account of specific features like large trees (including potential damage to roots) or rocky outcrops that might necessitate diversion.
- Cut and fill is to be kept to the minimum required.
- Any passing and turning opportunities should be constructed as far from creeks, natural flowlines, swampy ground or waterways as practically possible.
- Passing of firefighting vehicles can often be accommodated with a modest extension of the formation width, using naturally occurring gaps between trees and or by modest vegetation management, using a slasher or tritter, exploiting naturally occurring gaps in the vegetation cover. The creation of bare mineral earth passing bays is not required or desirable from a soil conservation perspective and may trigger a more detailed EIA process.
- Effective surface drainage is required on fire trails to control runoff, preventing it from concentrating and reaching erosive speeds. Fire trails should have at least a slight grade to allow free surface drainage and to avoid excessive ponding in the wheel tracks.

- Fire trails should be well-crowned to assist with effective surface drainage.
- All work scopes must include controlling drainage from adjacent trails, even if these are dormant trails and not part of the fire trail network.
- The use of culverts for the fire trail should be avoided. Alternatives such as bed level crossings or rock armoured spoon drains should be used instead if required.
- Allow for unobstructed flow of watercourses and do not divert natural flow (unless in accordance with a relevant water authority approval).
- Maximise the distance of a fire trail from a stream to allow an effective vegetation buffer to contain any sediment flowing from the fire trail.
- Fire trails should be inspected following heavy traffic usage or exceptionally heavy rainfall to determine maintenance requirements.

Materials

- All imported material must be officially classified as Virgin Excavated Natural Material (VENM). Proof of this must be obtained and kept for record-keeping.
- If the fire trail requires material to be added to the trail surface, then the best materials for trail surfaces are a 100 mm minus or a 75 mm minus, graded, quarried rock- based material that contains plenty of large rock but also a high proportion of fine material.
- Gravel, stockpiles and materials are not to be stored on undisturbed areas or under the drip line of mature trees.
- All contaminants and waste are to be removed from the site and disposed of according to relevant regulations.

Construction Equipment and Operation

- Machine operators should be given a thorough briefing on the trail alignment, marking technique and preferably walk the line in advance of operations.
- Plant machinery must be cleaned thoroughly of dirt and debris both before arriving at a new site and on leaving a site. This will minimise any tracking of loose dirt clods during transport and minimise the potential for spread of weed seed or soil borne diseases.
- Road plant is to remain within the road formation and shall not park, traverse or turnaround on areas of native vegetation.

Vegetation Management

- No vegetation removal is permitted, only pruning. Pruning of native vegetation is to be kept to the minimum required for the applicable fire trail category and associated emergency vehicles.
- A minimum riparian vegetation buffer of 20m is required.
- Pruning is to be kept to a minimum in/adjacent to the riparian buffer zone.
- Herbicides are not to be used.
- There are to be no impacts on foreshore and aquatic/marine vegetation i.e. mangroves, saltmarsh, seagrass.
- Wherever practicable, stockpile topsoil and litter (free of timber debris) in a recoverable position for re-spreading over disturbed areas. This material contains valuable seed and nutrients which will greatly assist revegetation.

Sediment and Erosion Control

- Fire trails must be designed to minimise erosion and the movement of sediment into waterways.
- Earthworks should be kept to the minimum required.

- The fire trail must have effective surface drainage to reduce erosion damage and the need for frequent maintenance.
- Erosion and sediment controls must be implemented throughout the duration of the works. These must be regularly inspected and maintained to ensure they are functioning properly.
- Use the erosion control measures from the NSW RFS Fire Trail Design, Construction and Maintenance manual and see safeguards below.

Other

- Mark all sensitive areas in the field with flagging tape or similar high visibility markers and ensure the protection of these areas prior to carrying out any works, unless there is the possibility of malicious damage or vandalism.
- Activities should be restricted to periods of dry weather in order to minimise impact on soil disturbance and damage to ground that could exacerbate erosion.
- It is important to restrict unauthorised vehicle access where possible. These vehicles can cause damage, particularly in wet conditions.
- In the early years after construction, the trail should be regularly inspected.

Refer to the associated Fisheries Permit - all safeguards included in the Fisheries Permit must be implemented for the works. See Fisheries Permit PN24-417 ECM Doc Set ID 25180966.

Other Works – Walking Tracks, Concrete Blocks and Signage Walking Tracks

- No material (including Virgin Excavated Natural Material (VENM)) is to be placed in areas mapped as Key Fish Habitat (KFH).
- Outside of KFH, any imported material to be placed must be officially classified as Virgin Excavated Natural Material (VENM). Proof of this must be obtained and kept for record-keeping.
- No vegetation removal is permitted, only pruning. Pruning of native vegetation is to be kept to the minimum required.

Concrete Block Placement

- Concrete blocks should be placed in existing cleared locations to reduce impacts on native vegetation in the area.
- The placement of concrete blocks shall be on top of the surface and should not disturb the soil, to minimise sedimentation and erosion.
- Any concrete blocks placed in mapped KFH must not be placed in a manner that blocks the movement of water and fish passage. This can mean either placing blocks with spaces between and/or concrete blocks either side of an informal access/walking path with chain between.

Signage

- Identification, directional, community information or safety signs but not including roof-top signs or commercial advertising or signs associated with the use of road infrastructure (including signs associated with level crossings)
- Must be located wholly within property boundary or be attached to existing boundary fence and not projecting more than 100mm from fence.
- Surface area must not exceed 3.5m2.
- Obtrusive effects of outdoor lighting must be controlled in accordance with AS 4282–1997, Control of the obtrusive effects of outdoor lighting.

- Signage should be placed in existing cleared locations to reduce impacts on native vegetation in the area.
- The placement of signage should be done in a manner that reduces disturbance of the soil.
- Signage should be placed in key locations that identify vegetation rehabilitation areas and that these areas can't be accessed by the community.

Refer to the associated Fisheries Permit - all safeguards included in the Fisheries Permit must be implemented for the works. See Fisheries Permit PN24-417 ECM Doc Set ID 25180966.

Erosion & Sediment Control

The proposed works have the potential to create soil erosion and sediment pollution. Erosion and sediment controls must be in place prior to works commencing and implemented throughout the works.

Soil erosion and sediment control should be undertaken in line with Managing Urban Stormwater: Soils and construction – Volume 1, 4th Edition. These guidelines, commonly known as the 'Blue Book', provide support for councils and industry to reduce the impacts of land disturbance activities on waterways by better management of soil erosion and sediment control.

The basic principles of erosion and sediment control are summarised below:

- Assess likely soil and water implications at planning stage.
- Plan for erosion and sediment control concurrently with engineering and landscaping design.
- Install erosion and sediment control measures as a first step in the works program and maintain these in an effective condition throughout the construction phase.
- Concentrate on source controls.
- Control water flow. Divert upslope waters around works and limit slope length to 80m on disturbed lands if rainfall is expected.
- All works shall be undertaken in a manner that will minimise site disturbance and avoids or minimise erosion and sedimentation.
- Minimise onsite traffic movements.
- Vehicles and machinery shall use existing tracks wherever possible, avoid making new tracks and be kept out of swamps, wetlands, and drainage lines.
- Rehabilitate disturbed lands quickly.
- Maintain all sediment controls in an effective condition throughout the duration of works, and subsequently until the site has been stabilised and the risk of sediment/materials movement from the site is minimal.
- Weather forecasts (e.g. Bureau of Meteorology website) shall be regularly checked so that expected storm events can be taken into account in project planning and erosion and sediment management. After such conditions, access to the site shall be restricted until it is sufficiently dried out, to ensure that any saturated or disturbed areas are protected from damage.

It is essential that all erosion and sediment control requirements in the RFS Fire Trail Design, Construction and Maintenance Manual are implemented. Contact the NSW Soil Conservation Service if you are uncertain about the technique to be employed.

Water Quality

As the works are immediately adjacent to a waterway and within Coastal Wetland area, specific attention must be given to protection of water quality, and an Emergency Response Procedure must be in place for any spills that enter the waterway.

Works are to be carried out in accordance with the Incident Management Spills in Watercourses or Drains Procedure, or equivalent if works are being undertaken by a contractor (see Appendix G).

- At no time shall any material, soluble or non-soluble, be allowed to enter the waterway.
- Waste water is not allowed to enter any stormwater drain or waterway.
- Any waste water is to be contained and removed off site for disposal at an approved facility.
- A fully equipped spill kit is to be kept on site at all times and, if used, restock spill kit. (Refer to Incident Management Procedure in Appendix G)
- All chemicals and fuels will be stored in suitable bunded areas away from waterways and stormwater pits.
- Bunded area capacity will be at least 120% of the largest container within the storage area.
- The stored containers will be identified with appropriate labels.
- The relevant Material Safety Data Sheets (MSDS) will also be kept on site.
- Where possible compounds will be located on previously disturbed areas away from waterways.

Flora, Fauna & Ecosystems

The desktop study identified a number of threatened or endangered species and communities to occur within or in close proximity to the site (see Appendix D for the Threatened Flora and Fauna Assessment). The proposed works are not expected to impact on these species, so long as the following safeguards are applied:

Fauna Protection

- All native birds, reptiles, amphibians and mammals, except the dingo, are protected in NSW.
- Check hollow logs, rock crevices and burrows within the work site to prevent injury to fauna.
- If a trench/pit remains open overnight, check for fauna prior to commencing machinery the next morning to prevent injury.
- If fauna is present on site and there is the need to assess animal condition, obtain advice from Wires on 1300 094 737 or call a licensed wildlife operator.

Tree and Vegetation Pruning

- No tree removal is permitted for the works under this REF.
- Prior to tree pruning, inspect any dense foliage, bark and/or trunks of trees for bats/bird/reptiles/mammals. If fauna is present and should there be the need to assess animal condition, obtain advice from WIRES on 1300 094 737.
- When pruning vegetation, minimal vegetation/natural habitat to be disturbed other than vegetation specified for action.
- All native trees outside the work area are to be retained and must be protected from damage to trunks; root systems and soil build up around tree base with the provision of temporary protective fencing if necessary.
- Ensure when trimming vegetation that fauna is not injured.

Access within Vegetation

- All vehicular access to sites will be restricted to formed roads.
- Access route to avoid mature trees and be chosen to minimise vegetation and soil disturbance.
- All equipment and materials will be carried through the bushland from existing vehicular access tracks, by hand or trolley.

- Areas for parking and turning of vehicles and plant equipment shall be identified and clearly marked prior to commencement of works. These areas shall be located so that vegetation disturbance is minimised, and the dripline of trees avoided. Retained vegetation and trees shall be protected from accidental damage or encroachment.
- All vehicles, vessels and equipment transported to the site shall be free of contaminants such as weeds. Care shall also be taken to ensure all vehicles, vessels and equipment are free of aquatic weeds and their seeds before leaving the site.
- Where possible site compounds will be located on previously disturbed areas away from vegetation.

Threatened Species and Endangered Ecological Communities

- All activities by workers will be regularly checked and approved by the co-ordinator.
- All workers will be informed of any threatened species or endangered ecological communities known from the site which may occur in the area and the potential impacts of activities on these species/communities.
- Workers will be familiar with the identifying features of threatened flora that are known or likely to occur in the project area. Where threatened species known from the area are similar to weed species, the distinguishing features between these will be understood prior to commencing the work.
- Prior to any works being undertaken, the presence or absence of threatened flora will be determined by a thorough walking search of the area.
- All threatened flora will be tagged with highly visible flagging tape before work commences. If a number of individuals occur in a clump, the area should be marked out with flagging tape, unless there is the possibility of malicious damage or vandalism.
- If a threatened or protected species has been identified near the work activities, work will only recommence once the potential impact on the threatened or protected species has been assessed and appropriate permits or approvals are obtained and/or appropriate mitigation measures are provided.
- There shall be no disturbance of bushrock unless the bush regenerator can be certain there are no threatened species utilising the rock.
- Cutting or damaging of threatened flora will be avoided.
- All plants will be positively identified before they are removed.
- Weed removal within 2m of a threatened species will be undertaken by hand.
- The habitat and refuge potential of weeds and rubbish will be considered prior to removal.
- Disturbance to, and removal of rocks, logs and other potential refuge sites will be avoided.
- Care will be taken to minimise disturbance to shy or cryptic species.
- Care will be taken to minimise disturbance to the leaf litter layer.
- Care will be taken to ensure that mulch does not introduce weeds or impede natural regeneration at the site.
- Care will be taken to ensure that weeds and/or phytophthora are not introduced to a site from pots of cultivated plants.

Fish Habitat

- Works are within mapped Key Fish Habitat area. The works in this mapped area are restricted to the minimum required to establish the fire trail, formalise existing walking paths and to restrict 4WD and motorbike access.
- Any debris falling into a stream or waterbody shall be removed immediately, without damaging the bank or any adjacent native vegetation. All debris from control works shall be removed from flood-prone areas so that it cannot be swept into a drainage line or waterbody during a storm event or flood.
- If a fish kill or sick fish are observed, the site manager should immediately contact the Fishers Watch Hotline on 1800 043 536 to initiate a fish kill investigation by Fisheries NSW.
- **Refer to the associated Fisheries Permit - all safeguards included in the Fisheries Permit must be implemented for the works.** See Fisheries Permit PN24-417 ECM Doc Set ID 25180966.

Microbats

- Ideally inspect all bridge, headwalls or old culverts and pipes for microbat potential habitat. If microbats are sighted works should only be undertaken either between the months of late August and the end of September, or during April and May. This is to avoid the critical microbat life phases of breeding, birth, lactation and overwinter torpor.
- Induction may include if the site is relevant the following microbat inspection procedure to deal with unexpected finds of microbats:
- Immediately stop works in the vicinity of the find.
- Do not attempt to touch, capture or handle the microbat.
- Inform others in the area of the presence of the microbat.
- Inform the WCC representative(s) of the presence of the microbat.
- WCC representative is to contact an ecologist for advice on setting up an exclusion zone and giving approval for circumstances under which works can continue.
- Vehicle and machinery movement must be confined to established or designated access tracks and pathways.
- Lay down areas and set up sites are to be located on flat, cleared ground in a manner that minimises impacts on surrounding vegetation.

Green and Golden Bell Frog (GGBF)

- Within or near GGBF habitat, work should be done when frogs are active September-April.
- Breeding sites (ephemeral ponds) cannot have work done during breeding time (March - April).
- If a GGBF is found during the works, stop work and notify a Zoologist or Environmental Strategy Officer. Note there are other small green frogs species which are similar in appearance although they are much smaller (up to 5cm) than adult GGBF.
- When working within or near GGBF habitat, maintain a refuge along habitat corridor.
- Do not use herbicides or machinery within or near potential GGBF habitat; work is to be done by hand only.

Platypus

- A strong positive relationship exists between the amount of cover provided by shrubs, trees and low-growing plants on creek or river banks and the quality of platypus foraging and burrow habitats. Once

works is finished, consider re-planting the area with riparian vegetation to provide habitat and overhanging vegetation.

- Particular attention must be given to ensuring sediment plumes and contamination of water does not occur. Do not use sediment fences and boom within the watercourse, as platypus can get trapped and drown. Utilise erosion control mechanisms outside of the water course, before any sediment enters the waterway.
- Inspect for any platypus burrows upstream and downstream of the works for at least 20m in the embankment, prior to works. If a burrow is located, avoid the area, stop works and notify an Environment Officer immediately.
- To avoid damaging platypus burrows, use of heavy machinery within about 10-15 metres of the water's edge should be avoided whenever possible in platypus habitats. Special care should be taken not to disrupt banks or cause them to become compacted in spring and summer when females are raising their young.

Contaminated Land and In-Situ Waste Classification Summary

The desktop investigation has not identified any potential contamination at the site (IntraMaps – Contaminated Land; Landfill; Aerial Photographs; Previous Land Use).

All works are to be carried out in accordance with the following procedures (or equivalent if works being undertaken by a contractor):

- **City Works & Services Procedure for Waste Classification & Transportation**
- **Unexpected Finds Procedure – Council Owned Land/Worksites**

Potential contaminants or contamination indicators that should be monitored and reported include asbestos containing material; coal tar; oils; and other chemicals causing discolouration and/or emitting strong odours. **Refer to Appendix H for the Unexpected Finds Procedure.**

Material Removed Off-site / Waste Generation

In addition to the requirements of the Materials Handling Process, the following specific controls are applicable:

- After dewatering is completed, classify the materials and treat/remove as per classification.
- Any waste generated, including excavated materials, should be removed from the site and disposed of appropriately, according to waste classification.
- General waste (rubbish) is not to be allowed to lie or accumulate on the site. Provide appropriate receptacles (bins) to store all general wastes generated from the works. The receptacles are to be emptied immediately at works completion. Consideration is to be given to the source separation of recyclable and re-useable materials.
- Material/waste is not to be stored in any transit locations.
- **All dockets/receipts for waste management/disposal are to be kept and copies forwarded to the project manager and/or site coordinator as proof of disposal for environmental audit purposes.**

Imported Fill Material and Reuse on Site

- Only Virgin Excavated Natural Material (VENM) can be imported on site. VENM is natural material (clay, gravel, sand, soil or rock fines) that has been excavated or quarried from areas that are not contaminated. A Classification Docket with chemical assessment should be undertaken or requested from the supplier prior to importing the fill.
- Where excavated material cannot be classified as VENM it may be eligible for reuse on site if it is accompanied by appropriate documentation (from a qualified technician) confirming it does not contain any acid sulphate soils, asbestos and/or other potential contaminants.

- Documents/records of the transport and use of material imported onto site must be kept and submitted to the project manager and/or site coordinator as proof of correct waste management practices and for environmental auditing purposes.

Acid Sulfate Soils

The *Wollongong Local Environmental Plan 2009* Acid Sulfate Soils Map has identified that the work site may be affected by Classes 1, 2, 3 or 5 Acid Sulfate Soils (ASSs). An Acid Sulfate Soils Management Plan is not required as there will be no ground disturbance i.e. excavation, and no works are proposed where there are Class 1 Acid Sulfate Soils.

Acid Sulfate Soils contain iron sulfides which, when exposed to air due to drainage or disturbance, may produce sulfuric acid and release toxic quantities of iron, aluminium and heavy metals. The high acid levels can then contaminate water which results in poor water quality and fish kills. The Acid Sulfate Soils Map is an indication only and acid sulfate soils may be encountered during the excavation for the proposed development.

Class 1: Acid sulfate soils in a class 1 area are likely to be found on and below the natural ground surface. **Any** works will trigger the requirement for assessment and may require management.

Class 2: Acid sulfate soils in a class 2 area are likely to be found below the natural ground surface. Any works beneath the natural ground surface or works which are likely to lower the water table, will trigger the requirement for assessment and may require management.

Class 3: Acid sulfate soils in a class 3 area are likely to be found beyond 1 metre below the natural ground surface. Any works that extend beyond 1 metre below the natural ground surface or works which are likely to lower water table beyond 1 metre below the natural ground surface, will trigger the requirement for assessment and may require management.

Class 4: Acid sulfate soils in a class 4 area are likely to be found beyond 2 metres below the natural ground surface. Any works that extend beyond 2 metres below the natural ground surface or works which are likely to lower the water table beyond 2 metres below the natural ground surface, will trigger the requirement for assessment and may require management.

Class 5: Acid sulfate soils are not typically found in Class 5 areas. Areas classified as Class 5 are located within 500 metres on adjacent class 1, 2, 3 or 4 land. Works in a class 5 area that are likely to lower the water table below 1 metre AHD on adjacent class 1, 2, 3 or 4 land will trigger the requirement for assessment and may require management.

Site personnel need to be aware of this risk and implement the following safeguards. The basic principles for the management of acid sulfate soils are summarised below:

- Minimise the disturbance of acid sulfate soils.
- If soil needs to be excavated and stockpiled, manage the material so as to minimise the generation of acid sulfate soils. This may include covering of the stockpile and bunding around the stockpile.
- Runoff control measures to be implemented, no runoff from stockpiled material is to escape to waterways or the stormwater system.
- For any excavation on the site greater than 500mm below natural ground level an assessment of the presence of acid sulfate soils is required. In this case, a qualified Environmental Consultant is to collect soil samples and have them analysed by a NATA certified laboratory to determine its acid generation and acid neutralisation capacity. A copy of the report must be provided to Council's Environment Planning team – Environmental Project/Strategy Officer and Environmental Scientist for review, prior to works continuing.

- Any spoil material extracted or excavated from the foundation must be neutralized with commercial lime (calcium bicarbonate) by the addition of 10 kilograms of lime per 1 cubic metre of spoil material before it is disposed of or re-used on-site.
- Lime is to be added by evenly distributing over all exposed surface areas, any drilled piers and footing trenches on the site, prior to the pouring of any concrete.
- Techniques for the management of acid sulfate soils should be detailed in the Erosion and Sediment Control Plan.

Implement Best Practice Guidelines.
For sampling and identification on site refer to:
https://www.waterquality.gov.au/sites/default/files/documents/sampling-identification-methods_1.pdf

Traffic and Access

Appropriate traffic management plan should be implemented and available for audit, including:

- A traffic route for all site vehicles is to be nominated to ensure no impacts to vegetation (including tree roots) or soils.
- Public safety for access around the site is to be ensured.
- Well-defined work compound must be secured to prevent public access.
- Works site shed/portaloos to be located on hard-stand areas.

Air Quality & Energy

- The machinery chosen is to have been well maintained and is to be operated in a proper and efficient manner to minimise fumes and energy consumption.
- Adequate measures must be implemented to suppress dust and windblown debris.
- Where works will expose large areas of bare soil, methods shall be employed to ensure dust is minimised in times of strong wind. This may include the use of brush matting, jute matting, wetting etc.
- Machinery is to be switched off when not in use.

Visual Environment

- During the work period, the work site and site compound should be maintained in a neat and tidy condition.
- All working areas shall be maintained, kept free of rubbish, and cleaned up at the end of each working day.
- Equipment and materials shall be securely stored.

Noise & Vibration

- If there is to be any significant noise impacts, neighbouring residents are to be notified.
- The machinery chosen is to have been well maintained and is to be operated in a proper and efficient manner to minimise noise.
- If visible smoke is seen for longer than 10 seconds duration from any engine while working on the site, the machine shall be taken out of service and adequately tuned or repaired so that such extended smoke emission no longer occurs.
- Wherever possible, vehicles, plant and equipment shall be switched off when not in use.

Recommended Office of Environment and Heritage standard hours for construction work:

- Normal construction - Monday to Friday 7 am to 6 pm, Saturday 8 am to 1 pm.
- No work on Sundays or public holidays.
- Blasting - Monday to Friday 9 am to 5 pm, Saturday 9 am to 1 pm

- No blasting on Sundays or public holidays.

Works that may be undertaken outside the recommended standard hours are:

- The delivery of oversized plant or structures that police or other authorities determine require special arrangements to transport along public roads
- Emergency work to avoid the loss of life or damage to property, or to prevent environmental harm
- Maintenance and repair of public infrastructure where disruption to essential services and/or considerations of worker safety do not allow work within standard hours
- Public infrastructure works that shorten the length of the project and are supported by the affected community
- Works where a proponent demonstrates and justifies a need to operate outside the recommended standard hours.

Aboriginal Heritage

If any previously undetected archaeological site, object or artefact is uncovered or unearthed during the course of any works or activities associated with the proposal, works should cease in the vicinity of that site, object or artefact. Council's Heritage Advisor should be contacted immediately. See Appendix C for the Aboriginal Heritage Due Diligence Assessment.

European Heritage

- Work is not to impact upon heritage items; in particular, no work shall occur within the boundary or the curtilage of any heritage item or property, until all necessary consultations and approvals have been undertaken/obtained.
- Works to be carried out with care at or adjacent to an existing heritage monument when undertaking tree management works, as branches are not to be dropped on heritage monuments.

Heritage Unexpected Finds

What's an unexpected heritage find? - An 'unexpected heritage finds' can be defined as any unanticipated archaeological discovery that has not been identified during a previous assessment or is not covered by an existing permit under relevant legislation such as the NPW Act or Heritage Act. The find may have potential cultural heritage value, which may require some type of statutory cultural heritage permit or notification if any interference of the heritage item is proposed or anticipated.

The range of potential archaeological discoveries can include but are not limited to:

- Aboriginal stone artefacts, shell middens, burial sites, engraved rock art, scarred trees
- remains of rail infrastructure including buildings, footings, stations, signal boxes, rail lines, bridges and culverts
- remains of other infrastructure including sandstone or brick buildings, wells, cisterns, drainage services, conduits, old kerbing and pavement, former road surfaces, timber and stone culverts, bridge footings and retaining walls
- artefact scatters including clustering of broken and complete bottles, glass, ceramics, animal bones and clay pipes archaeological human skeletal remains.

In the event that an unexpected heritage finds (the 'find') is encountered on site, contact the following:

- The Contractor/Supervisor will Stop Work Immediately when an unexpected heritage find is encountered.
- The Contractor/Supervisor will cordon off area until Council's Heritage Officer advises that work can recommence.

- The Contractor's Environment Manager will:
  - Manage the process of identifying, protecting and mitigating impacts on the 'find'.
  - Liaise with Council Heritage Officer/Heritage advisor and maybe the relevant authorities on significance of the find, mitigation and regulatory requirements.
  - Complete incident report and review CEMP for any changes required. Propose amendments to the CEMP if any changes are required.
  - Advise Contractor/Supervisor to recommence work.
- Council's Heritage Officer/Heritage advisor will provide expert advice to the Contractor's Environment Manager on 'find' identification, significance, mitigation, legislative procedures and regulatory requirements.
- Contractor's Environment Manager will notify Council's ESO of 'find' and manage incident reporting once completed by Contractor's Environment Manager.
- The Department of Planning and Environment – Heritage NSW (for Aboriginal objects) will regulate the care, protection and management of Aboriginal objects and will issue Aboriginal heritage impact permits.

The Department of Planning and Environment - Heritage NSW (for relics) will regulate the care, protection and management of relics and will issue excavation permits.

Fisheries Permit Requirements

Refer to the associated Fisheries Permit - all safeguards included in the Fisheries Permit must be implemented for the works. See Fisheries Permit PN24-417 ECM Doc Set ID 25180966.

4. LEGISLATIVE REQUIREMENTS

The following legislative requirements have been assessed against the proposed works and under the SEPP (Transport and Infrastructure) 2021 the works do not require consent under **Chapter 2 Division 6 Emergency services facilities and bush fire hazard reduction, Chapter 2 Division 12 Parks and Other Reserves and Schedule 1 Exempt Development – Chapter 2.**

Legislation	Details
SEPP (Transport and Infrastructure) 2021	**2.7 Relationship to other environmental planning instruments** (3) Section 2.54 of this Chapter prevails over clauses 10 and 11 of State Environmental Planning Policy (Coastal Management) 2018 (now clauses 2.7 and 2.8 of the SEPP Resilience and Hazards 2021) to the extent of any inconsistency. **FIRE TRAIL** **Chapter 2 Division 6 – Emergency services facilities and bush fire hazard reduction** **2.54 Development on certain coastal wetlands land** (1) This section applies to land identified as "coastal wetlands" on the *Coastal Wetlands and Littoral Rainforests Area Map* within the meaning of *State Environmental Planning Policy (Coastal Management) 2018*. (3) Development for the purpose of maintaining a fire trail may be carried out by a public authority without consent on land to which this section applies if— (a) the development is consistent with the applicable bush fire management plan or any direction or agreement relating to the applicable fire trail, and (b) the development complies with the Fire Trail Standards, and (c) the development does not involve the use of fire, the widening of a fire trail, any clearing of vegetation (other than of regrowth on a fire trail) or any excavation. **WALKING TRACKS AND CONCRETE BLOCKS** **Division 12 Parks and Other Reserves** (3) Any of the following development may be carried out by or on behalf of a public authority without consent on land owned or controlled by the public authority— (a) development for any of the following purposes— **(i) roads, pedestrian pathways, cycleways, single storey car parks, ticketing facilities, viewing platforms and pedestrian bridges,** **(ii) recreation areas and recreation facilities (outdoor), but not including grandstands,** (iii) visitor information centres, information boards and other information facilities, (iv) lighting, if light spill and artificial sky glow is minimised in accordance with the Lighting for Roads and Public Spaces Standard, **(v) landscaping, including landscape structures or features (such as art work) and irrigation systems,**

	(vi) amenities for people using the reserve, including toilets and change rooms, (vii) food preparation and related facilities for people using the reserve, (viii) maintenance depots, (ix) portable lifeguard towers, **(b) environmental management works,** (c) demolition of buildings (other than any building that is, or is part of, a State or local heritage item or is within a heritage conservation area). **SIGNAGE** **Schedule 1 - Exempt development – General Provisions - Signs** Identification, directional, community information or safety signs but not including roof-top signs or commercial advertising or signs associated with the use of road infrastructure (including signs associated with level crossings) • Surface area must not exceed 3.5m2. • Must be located wholly within property boundary or be attached to existing boundary fence and not projecting more than 100mm from fence. • Obtrusive effects of outdoor lighting must be controlled in accordance with AS 4282–1997, Control of the obtrusive effects of outdoor lighting. **Comment:** The fire trail works are consistent with the direction of the RFS (see Appendix B for the meeting minutes) and will formalise the main existing track and two walking tracks, and close other informal tracks created by the public. The works will be in line with the Fire Trail Standards, and will not widen the existing tracks, and will only involve pruning vegetation that has regrown over the track. Walking paths, associated concrete blocks and signage will be in accordance with the above provisions.
Rural Fires Act 1997	***designated fire trail*** means a fire trail that is the subject of a direction under section 62L or an agreement under section 62M, that in each case provides for the establishment of a fire trail for the purposes of Part 3B, but does not include a registered fire trail. If the fire trail is not yet wholly or partly created, the fire trail is nevertheless taken to be a designated fire trail situated on the land concerned. **Part 3B Fire Trails, Division 3 Directions and agreements for fire trails** **62L Directions for fire trails on public land** (1) This section applies to public land. (2) The Commissioner may give a direction in writing that a fire trail be established and maintained on specified public land for the purposes of this Part. The direction must provide particulars of the fire trail including its location, and a copy is to be given to each owner and occupier (if any) of the land of whom the Commissioner is aware.

	(3) A direction for the establishment of a fire trail may apply to a new fire trail or an existing fire trail or a combination of both. (4) A direction for the establishment of a fire trail operates to establish the fire trail as a designated fire trail (even if the fire trail is not yet wholly or partly created). Note— Section 62N enables certification of an existing fire trail without the need for a direction under this section. (5) The Commissioner may revoke a direction for the establishment of a fire trail at any time before the fire trail is registered under this Part. (6) A designated fire trail ceases to be so designated when it is registered as a fire trail or the direction for its establishment is revoked before its registration. (7) A reference in this section to— (a) a new fire trail includes a reference to a new part of an existing fire trail, and (b) an existing fire trail includes a reference to a part of an existing fire trail. **Comment:** The fire trail works are consistent with the direction of the RFS (see Appendix B for the meeting minutes) and will formalise the main existing track. The works will be in line with the Fire Trail Standards, and will not widen the existing tracks, and will only involve pruning vegetation that has regrown over the track.
Local Government Act 1993	48 Responsibility for certain public reserves (1) Except as provided by section 2.22 of the *Crown Land Management Act 2016*, a council has the control of: (a) public reserves that are not under the control of any other body or lease from the Crown, (b) public reserves that the Governor, places under the control of the council. **Comment:** See the following section which details the Community Land Plan of Management 2022 that applies to this site.
Community Land Plan of Management 2022	This site is included in the Community Land Plan of Management 2022. The site is mapped as Community Land categories Sportsground and Natural Areas, subcategory Bushland. <u>Sportsground Objectives</u> • To encourage, promote and facilitate recreational pursuits in the community involving organised and informal sporting activities and games. • To ensure that such activities are managed having regard to any adverse impact on nearby residences. **Comment:** Although the works are not related to sporting activities and sportsgrounds, the establishment of a formal fire trail and walking tracks will allow for the public to use these tracks for compatible recreational

	purposes while reducing impacts on the surrounding bushland/coastal wetland areas. All Natural Areas Objectives • To conserve biodiversity and maintain ecosystem function in respect of the land, or the feature or habitat in respect of which the land is categorised as a natural area. • To maintain the land, or that feature or habitat, in its natural state and setting. • To provide for the restoration and regeneration of the land. • To provide for community use of and access to the land in such a manner as will minimise and mitigate any disturbance caused by human intrusion. • To assist in and facilitate the implementation of any provisions restricting the use and management of the land that are set out in a recovery plan or threat abatement plan prepared under the Threatened Species Conservation Act 1995 (Now the Biodiversity Conservation Act 2016) or the Fisheries Management Act 1994. (There are no recovery or abatement plans directly affecting land in the Wollongong LGA in 2020). **Comment:** The works will be restricted to the existing width of the fire trail and will only involve pruning of vegetation that has regrown over the track. Other informal tracks created by the public throughout the bushland area will be closed and access restricted through the use of concrete blocks. Concrete blocks will also be placed strategically to restricted 4WDs and motorbikes. This will protect the bushland/coastal wetland area. Restoration works are also occurring in this area to improve biodiversity at the site. The formalised tracks will allow for the public to access the natural bushland/coastal wetland area for compatible recreational purposes. Bushland Objectives • To ensure the ongoing ecological viability of the land by protecting the ecological biodiversity and habitat values of the land, the flora and fauna (including invertebrates, fungi and micro-organisms) of the land and other ecological values of the land. • To protect the aesthetic, heritage, recreational, educational, and scientific values of the land. • To promote the management of the land in a manner that protects and enhances the values and quality of the land and facilitates public enjoyment of the land, and to implement measures directed to minimising or mitigating any disturbance caused by human intrusion. • To restore degraded bushland. • To protect existing landforms such as natural drainage lines, watercourses and foreshores. • To retain bushland in parcels of a size and configuration that will enable the existing plant and animal communities to survive in the long term.

	• To protect bushland as a natural stabiliser of the soil surface. **Comment:** The works will formalise an existing fire trail and some walking tracks, while also closing off and restricting access to other informal tracks made by the public, and restricting 4WD and access throughout the site. This will help to protect the bushland/coastal wetland areas at the site. The formalised tracks will allow for the public to appropriately access this site for compatible recreational purposes.
State Environmental Planning Policy (Biodiversity and Conservation) 2021	**Note:** This Policy works with the *Biodiversity Conservation Act 2016* (BC Act) and the *Local Land Services Act 2013* (LLS Act) to create a regulatory framework for the clearing of native vegetation in NSW. Chapter 2 Vegetation in Non-Rural Areas (1) This Chapter applies to the following areas of the State (the non-rural areas of the State)— (a) land in the following local government areas— Bayside, City of Blacktown, Burwood, Camden, City of Campbelltown, Canterbury-Bankstown, Canada Bay, Cumberland, City of Fairfield, Georges River, City of Hawkesbury, Hornsby, Hunter's Hill, Georges River, Inner West, Ku-ring-gai, Lane Cove, City of Liverpool, Mosman, Newcastle, North Sydney, Northern Beaches, City of Parramatta, City of Penrith, City of Randwick, Rockdale, City of Ryde, Strathfield, Sutherland Shire, City of Sydney, The Hills Shire, Waverley, City of Willoughby, Woollahra. (b) land within the following zones under an environmental planning instrument— Zone RU5 Village, Zone R1 General Residential, Zone R2 Low Density Residential, Zone R3 Medium Density Residential, Zone R4 High Density Residential, Zone R5 Large Lot Residential, Zone B1 Neighbourhood Centre, Zone B2 Local Centre, Zone B3 Commercial Core, Zone B4 Mixed Use, Zone B5 Business Development, Zone B6 Enterprise Corridor, Zone B7 Business Park, Zone B8 Metropolitan Centre, Zone E1 Local Centre, Zone E2 Commercial Centre, Zone E3 Productivity Support, Zone E4 General Industrial, Zone E5 Heavy Industrial, Zone IN1 General Industrial, Zone IN2 Light Industrial, Zone IN3 Heavy Industrial, Zone IN4 Working Waterfront, Zone MU1 Mixed Use, Zone IN4 Working Waterfront, Zone SP1 Special Activities, Zone SP2 Infrastructure, Zone SP3 Tourist, Zone SP4 Enterprise, Zone SP5 Metropolitan Centre, Zone RE1 Public Recreation, Zone RE2 Private Recreation, **Zone C2 Environmental Conservation**, Zone C3 Environmental Management, Zone C4 Environmental Living, Zone W3 Working Waterways or Zone W4 Working Waterfront. **Part 2.2 Clearing vegetation in non-rural areas** **cl 2.7 Clearing that does not require permit or approval** (1) A permit or approval to clear vegetation is not required under this Chapter if it is clearing of a kind that is authorised under the *Local Land Services Act 2013*, section 60O or Part 5B. (See the Local Land Services Act 2013 section in this REF). Chapter 3 Koala habitat protection 2020 **3.3 Land to which Chapter applies** (1) This Chapter applies to land in the following land use zones, or an equivalent land use zone, in a local government area specified in Schedule

	2, but not if the local government area is marked with an * in that Schedule— (a) Zone RU1 Primary Production, (b) Zone RU2 Rural Landscape, (c) Zone RU3 Forestry. (1A) This Chapter does not apply to certified urban capable land within the meaning of Chapter 13. (2) In this section— ***equivalent land use zone*** has the same meaning as it has in Chapter 4. **Part 3.2 Development control of koala habitat** **3.5 Land to which this Part applies** This Part applies to land— (a) that is land to which this Chapter applies, and (b) that is land in relation to which a development application has been made, and (c) that, whether or not the development application applies to the whole, or only part, of the land— (i) has an area of more than 1 hectare, or (ii) has, together with adjoining land in the same ownership, an area of more than 1 hectare. <u>Chapter 4 Koala habitat protection 2021</u> **4.4 Land to which Chapter applies** (1) This Chapter applies to each local government area listed in Schedule 2. (2) The whole of each local government area is— (a) in the koala management area specified in Schedule 2 opposite the local government area, or (b) if more than 1 koala management area is specified, in each of those koala management areas. (3) Despite subsection (1), this Chapter does not apply to— (a) land dedicated or reserved under the *National Parks and Wildlife Act 1974*, or acquired under Part 11 of that Act, or (b) land dedicated under the *Forestry Act 2012* as a State forest or a flora reserve, or (c) land on which biodiversity certification has been conferred, and is in force, under Part 8 of the *Biodiversity Conservation Act 2016*, or (d) land in the following land use zones, or an equivalent land use zone, unless the zone is in a local government area marked with an * in Schedule 2— (i) Zone RU1 Primary Production, (ii) Zone RU2 Rural Landscape, (iii) Zone RU3 Forestry. **Comment:** Chapter 2 permits the clearing of vegetation in non-rural areas if it is authorised under cl. 60O of the *Local Land Services Act 2013*, which relates to Part 5 activities. This is a Part 5 activity; therefore vegetation removal is permitted. The works do not require the removal of any trees; only

	pruning will be undertaken on vegetation that has regrown in the area of the fire trail and walking paths and will not exceed any biodiversity offset scheme thresholds. The SEPP does not apply to Part 5 'activities'. The works do not require the removal of any Koala Use or Koala Feed tree species listed in Schedule 1 or Schedule 3 of the SEPP, and therefore does not require further assessment under the *EPBC Act*. The site is mapped on the Biodiversity Values map, however, Part 5 activities that will not significantly impact threatened species or communities do not trigger further assessment.
Local Land Services Act 2013	**60O Clearing authorised under other legislation** For the purposes of this Part, the clearing of native vegetation in a regulated rural area is authorised under other legislation in any of the following cases— (b) Other planning authorisation The clearing was— (i) a part of or ancillary to the carrying out of exempt development within the meaning of the *Environmental Planning and Assessment Act 1979*, or **(ii) an activity carried out by a determining authority within the meaning of Part 5 of that Act after compliance with that Part, or** (iii) authorised by an approval of a determining authority within the meaning of Part 5 of that Act granted after compliance with that Part. **Comment:** Vegetation removal is permitted for these works as they are a Part 5 activity. The works do not require the removal of any trees; only pruning will be undertaken on vegetation that has regrown in the area of the fire trail and walking paths.
State Environmental Planning Policy (Resilience and Hazards) 2021	**Chapter 2 Coastal Management** **2.4 Identification of coastal management areas** (a) **the coastal wetlands** and littoral rainforests area, (b) **the coastal vulnerability area**, (c) **the coastal environment area**, (d) **the coastal use area.** Comment - Works are within the (a) the coastal wetlands and proximity to wetlands area, (c) the coastal environment area, (d) the coastal use area. Refer to Appendix E for Coastal Management Assessment. **Part 2.2 Development controls for coastal management areas** **Division 1 Coastal wetlands and littoral rainforests area** **2.7 Development on certain land within coastal wetlands and littoral rainforests area** (1) The following may be carried out on land identified as "coastal wetlands" or "littoral rainforest" on the Coastal Wetlands and Littoral Rainforests Area Map only with development consent— (a) the clearing of native vegetation within the meaning of Part 5A of the Local Land Services Act 2013,

(b) the harm of marine vegetation within the meaning of Division 4 of Part 7 of the Fisheries Management Act 1994,

(c) the carrying out of any of the following—

(i) **earthworks (including the depositing of material on land)**,

(ii) constructing a levee,

(iii) draining the land,

(iv) **environmental protection works,**

(d) **any other development.**

Note—Clause 2.14 provides that, for the avoidance of doubt, nothing in this Part—

(a) permits the carrying out of development that is prohibited development under another environmental planning instrument, or

(b) permits the carrying out of development without development consent where another environmental planning instrument provides that the development may be carried out only with development consent.

(2) Development for which consent is required by subsection (1), other than development for the purpose of environmental protection works, is declared to be designated development for the purposes of the Act.

(3) Despite subsection (1), development for the purpose of environmental protection works on land identified as "coastal wetlands" or "littoral rainforest" on the Coastal Wetlands and Littoral Rainforests Area Map may be carried out by or on behalf of a public authority without development consent if the development is identified in—

(a) the relevant certified coastal management program, or

(b) a plan of management prepared and adopted under Division 2 of Part 2 of Chapter 6 of the Local Government Act 1993, or

(c) a plan of management under Division 3.6 of the Crown Land Management Act 2016.

(4) A consent authority must not grant consent for development referred to in subsection (1) unless the consent authority is satisfied that sufficient measures have been, or will be, taken to protect, and where possible enhance, the biophysical, hydrological and ecological integrity of the coastal wetland or littoral rainforest.

(5) Nothing in this section requires consent for the damage or removal of a priority weed within the meaning of clause 32 of Schedule 7 to the Biosecurity Act 2015.

(6) This section does not apply to the carrying out of development on land reserved under the National Parks and Wildlife Act 1974 if the proposed development is consistent with a plan of management prepared under that Act for the land concerned.

Division 2 Coastal vulnerability area

2.9 Development on land within the coastal vulnerability area

At the commencement of this Chapter, no Coastal Vulnerability Area Map was adopted and therefore no coastal vulnerability area has been identified.

Division 3 Coastal environment area

2.10 Development on land within the coastal environment area

(1) Development consent must not be granted to development on land that is within the coastal environment area unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the following—

(a) the integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment,
(b) coastal environmental values and natural coastal processes,
(c) the water quality of the marine estate (within the meaning of the *Marine Estate Management Act 2014*), in particular, the cumulative impacts of the proposed development on any of the sensitive coastal lakes identified in Schedule 1,
(d) marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms,
(e) existing public open space and safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,
(f) Aboriginal cultural heritage, practices and places,
(g) the use of the surf zone.

(2) Development consent must not be granted to development on land to which this section applies unless the consent authority is satisfied that—
(a) the development is designed, sited and will be managed to avoid an adverse impact referred to in subsection (1), or
(b) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or
(c) if that impact cannot be minimised—the development will be managed to mitigate that impact.

Division 4 Coastal use area

2.11 Development on land within the coastal use area

(1) Development consent must not be granted to development on land that is within the coastal use area unless the consent authority—
(a) has considered whether the proposed development is likely to cause an adverse impact on the following—
(i) existing, safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,
(ii) overshadowing, wind funnelling and the loss of views from public places to foreshores,
(iii) the visual amenity and scenic qualities of the coast, including coastal headlands,
(iv) Aboriginal cultural heritage, practices and places,
(v) cultural and built environment heritage, and
(b) is satisfied that—
(i) the development is designed, sited and will be managed to avoid an adverse impact referred to in paragraph (a), or
(ii) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or
(iii) if that impact cannot be minimised—the development will be managed to mitigate that impact, and
(c) has taken into account the surrounding coastal and built environment, and the bulk, scale and size of the proposed development.

Division 5 General

2.12 Development in coastal zone generally—development not to increase risk of coastal hazards

Development consent must not be granted to development on land within the coastal zone unless the consent authority is satisfied that the proposed development is not likely to cause increased risk of coastal hazards on that land or other land.

2.13 Development in coastal zone generally – coastal management programs to be considered

Development consent must not be granted to development on land within the coastal zone unless the consent authority has taken into consideration the relevant provisions of any certified coastal management program that applies to the land.

Comment:
Refer to Appendix E for Coastal Management Assessment

- Coastal Wetlands –
  - The fire trail works are partially on land identified as "coastal wetlands" or "littoral rainforest" on the Coastal Wetlands and Littoral Rainforests Area Map. While development in wetlands usually require development consent, clause 2.7 of the SEPP (Transport and Infrastructure) 2021 indicates that that clause 2.54 of the SEPP (Transport and Infrastructure) prevails over clauses 10 and 11 (now clauses 2.7 and 2.8) of the SEPP (Resilience and Hazards) 2021. As **applicable fire trails** are permitted without consent in clause 2.54 or the SEPP (Transport and Infrastructure), the works can proceed without consent. This assessment found that works in the coastal wetlands can proceed if the safeguards in this REF are strictly applied. See Appendix B for RFS approval of the fire trail.
  - The remainder of the works are aiming to protect and enhance sensitive coastal wetland area and vegetation through closing off informal tracks and trails, provide designated walking tracks for the public, and to reduce 4WD and motorbike access, which can be considered **environmental protection works**. Actions within the Lake Illawarra Coastal Management Program covering these works include PM3 - Develop and implement a community engagement and participation strategy (interpretive signage at key locations to promote specific lake values/habitats); EV1 - Rehabilitate vegetation and manage public access along foreshores and banks of the Lake, its tributaries, islands and broader low-lying areas (fencing and access restrictions for sensitive areas with educational signage to explain activities and damage caused by informal access, mowing, tree lopping etc.; and permanent public access arrangements i.e. provision of new/repaired access ways, boardwalks, shared cycleways etc., designed to limit damage to sensitive areas, which may include keeping people on paths); EV2 - undertake targeted action to control damage to foreshore and lake vegetation, including

	seagrasses caused by: 4WDs and other vehicles, bikes (including BMX), pedestrians etc (actions may include Bollards/fencing/gates etc. to restrict illegal access (provided they are lowkey from a visual perspective); signs to explain estuarine habitat values). This assessment found that works in the coastal wetlands can proceed if the safeguards in this REF are strictly applied. • Coastal Use - this assessment found that works in the coastal use area can proceed if the safeguards in this REF are strictly applied. • Coastal Environment - This assessment found that works in coastal environment area can proceed if the safeguards in this REF are strictly applied. • Coastal Vulnerability - At the commencement of this Chapter, no Coastal Vulnerability Area Map was adopted and therefore no coastal vulnerability area has been identified.
Biodiversity Conservation Act 2016 (BC Act)	The BC Act seeks to conserve biological diversity, to maintain the diversity and quality of ecosystems and enhance their capacity to adapt to change; to assess the extinction risk of species and ecological communities and identify key threatening processes; and to establish a framework to avoid, minimise and offset the impacts of proposed development and land use change on biodiversity. The test for significant impact is described in section 7.3 of the Act. A significant impact also occurs if the activity is carried out in an area of outstanding biodiversity value. If a significant impact is likely to occur, the proponent of the activity must prepare a Species Impact Statement in accordance with section 7.20 or a Biodiversity Development Assessment Report. **Comment:** An Intramaps search and BioNet atlas search, within and surrounding the study area, identified threatened species, see the Threatened Flora and Fauna in Appendix D. Provided the safeguards identified in this REF are implemented, the proposed works are not likely to significantly affect any threatened species, populations or ecological communities listed under the *BC Act* and the preparation of a Species Impact Statement is not warranted. The site is mapped on the Biodiversity Values map, however, Part 5 activities that will not significantly impact threatened species or communities do not trigger further assessment.
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	The EPBC Act protects matters of National Environmental Significance (NES), such as threatened species and ecological communities, migratory species (protected under international agreements), and National Heritage places (among others). Any actions that will or are likely to have a significant impact on the matters of NES require referral and approval from the Australian Government Environment Minister. Significant impacts are defined by the Commonwealth (ref: http://www.environment.gov.au/epbc/guidelines-policies.html) for matters of NES. **Comment:** Matters of NES have been reviewed within and surrounding the study area. A Protected Matters search has been undertaken and factored into

	the Threatened Flora and Fauna Assessment in Appendix D, including any significance assessments required. The works are not likely to impact on any of the matters identified, therefore no referral to the Commonwealth Department of the Environment is required.
National Parks and Wildlife Act 1974 (NPW Act)	The NPW Act is administered by the Director-General of the National Parks and Wildlife Services (NPWS), who is responsible for the control and management of all national parks, historic sites, nature reserves, and Aboriginal areas (among others). The Act aims to conserve the natural and cultural heritage of NSW. If there is known impact to Aboriginal heritage, Wollongong City Council must apply to Heritage NSW under section 90A of the *National Parks and Wildlife Act 1974* (NPW Act) for an Aboriginal Heritage Impact Permit (AHIP). Aboriginal community consultation must also be conducted in accordance with clause 60 of the *National Parks and Wildlife Regulation 2019* and the relevant Heritage NSW guidelines. **Comment:** A search of the AHIMS database identified no items of Aboriginal Heritage in the region surrounding the study area (Appendix C). Council has considered the requirements under the NPWA in relation to Aboriginal Cultural Heritage. An Aboriginal Heritage Impact Permit (AHIP) is not required under the Act, as the Due Diligence Code of Practice for the Protection of Aboriginal Objects (2010) has been followed and documented.
***Fisheries Management Act 1994* (NSW)**	Part 7 and 7A of the FM Act outlines the various requirements of protecting aquatic habitats and threatened species. **Comment:** See Fisheries Permit PN24-417 ECM Doc Set ID 25180966. **Refer to the associated Fisheries Permit - all safeguards included in the Fisheries Permit must be implemented for the works.**
Aboriginal Land Rights Act 1983	Pursuant to s.36 of the *Aboriginal Land Rights Act 1983*, multiple Aboriginal Land Claims have been lodged over land within the Wollongong LGA. As the claims are currently undetermined, Wollongong City Council has implemented a risk of transfer assessment for Crown Reserves upon which significant capital works are proposed. **Comment:** The works under this REF are located on Council Land (Community Land) and are not on Crown Land.
***Native Title Act 1993* (NT Act)**	The object of this Act is to participate in the national scheme established by the Commonwealth Government and to validate any past State acts invalidated because of the existence of native title. **Comment:** The works under this REF are located on Council Land (Community Land) and are not on Crown Land.
Heritage Act 1977	This Act provides for the identification and registration of items of State Heritage significance. The Act seeks to protect and conserve items of State

	Heritage significance through the operation and establishment of the Heritage Council of NSW and its associated functions. **Comment:** There are no State Heritage items listed on the State Heritage Inventory at or in close proximity to this site.
Protection of the Environment Operations Act 1997 (POEO)	Is the principal environmental protection legislation for NSW that defines 'waste' for regulatory purposes and establishes management and licensing requirements for waste. It defines offences relating to waste and sets penalties. The POEO Act also establishes the ability to set various waste management requirements via the POEO (Waste) Regulation. Should it be necessary to remove any material from the work site (including sediment), it is considered waste, and must be classified by an appropriate officer, as per *Division 1 Waste Classifications of the* NSW *Protection of the Environment Operations Act 1997* (POEO). Waste may be classified as: • Special waste • Liquid waste • Hazardous waste • Restricted solid waste • General solid waste (putrescible) • General solid waste (non-putrescible) If it's not possible to separate wastes, the whole waste must be classified according to the highest class of waste. All Waste must be disposed of at an appropriately licenced waste facility as landfill. The Act 1997 defines VENM as: 'natural material (such as clay, gravel, sand, soil or rock fines): • that has been excavated or quarried from areas that are not contaminated with manufactured chemicals or process residues, as a result of industrial, commercial, mining or agricultural activities, and • that does not contain any sulfidic ores or soils or any other waste.' No other criteria for VENM have been approved. **VENM cannot be 'made' from processed soils. Excavated material that has been stored or processed in any way cannot be classified as VENM.** **Comment:**
Part 7.3 of the Protection of the Environment Operations Act 1997	Appropriate documentation is to be maintained on the type and transport of material / waste.
Waste Avoidance and Resource Recovery Act 2001 (WARR Act)	The Act promotes waste reduction and better use of our resources in NSW and the NSW Waste and Resource Recovery Strategy 2014-21 was released in December 2014. Reducing waste generation and keeping materials circulating within the economy are priorities for NSW. To meet this challenge, the EPA prepares a new WARR Strategy every five years.
Protection of the Environment Operations (Waste) Regulation 2014	Provides for contributions to be paid by occupiers of scheduled waste facilities for each tonne of waste received at the facility or generated in a particular area; exempts certain occupiers or types of waste from these

	contributions; and allows deductions to be claimed in relation to certain types of waste. It also sets out provisions covering: • the proximity principle • record-keeping requirements, measurement of waste and monitoring for waste facilities • tracking of certain waste • reporting • transportation of waste • transportation and management of asbestos waste • recycling of consumer packaging • classification of waste containing immobilised contaminants • miscellaneous topics.
Department of Environment & Climate Change NSW Fact Sheet: Virgin Excavated Natural Material	Only material excavated from site and classified as VENM may be stored on site for re-use or taken to another construction site for reuse.
Resource Recovery Exemption under Part 9, Clauses 91 and 92 of the Protection of the Environment Operations (Waste) Regulation 2014 – The Excavated Natural Material Order 2014	Where material cannot be classified as VENM and is proposed for re-use on a site, it must be accompanied by appropriate documentation confirming it does not contain acid sulphate soils or other contaminants.
Resource Recovery Exemption under Part 9, Clauses 91 and 92 of the Protection of the Environment Operations (Waste) Regulation 2014 – The Excavated Public Road Material Exemption 2014	Applies to excavated public road material that will be applied/reused to land within the road corridor for road related activities such as construction, maintenance and installation of road infrastructure facilities.

5. ENVIRONMENTAL FACTORS IDENTIFIED AND EVALUATED

The following table has been completed following an interrogation of Council's IntraMaps system and other searches.

ENVIRONMENTAL FACTOR	Impact L/M/H	Extent, Duration, Type Comment
Heritage		
Is there any Aboriginal Heritage within or close proximity to the worksite? (Refer to **AHIMS**)	**Overall impact – LOW**	No – a search of AHIMS determined that there is no Aboriginal heritage at or within 200m of the site. See Appendix C for AHIMS results and Due Diligence. **Ensure safeguards relating to Aboriginal Heritage and Unexpected Finds are strictly applied. Refer to Appendix H for the Unexpected Finds Procedure.**
Does the site have landscape features that are likely to indicate presence of Aboriginal objects? If the proposed activity is: i. within 200m of waters ii. located within a sand dune system iii. located on a ridge top iv. ridge line or headland v. located within 200m below or above a cliff face vi. within 20m of or in a cave, rock shelter, or a cave mouth vii. is on land that is not disturbed land particularly at any of the above locations		Yes – the site is located in close proximity to waters. A search of AHIMS determined that there is no Aboriginal heritage at or within 200m of the site. See Appendix C for AHIMS results and Due Diligence. **Ensure safeguards relating to Aboriginal Heritage and Unexpected Finds are strictly applied. Refer to Appendix H for the Unexpected Finds Procedure.**
Is there any European Heritage listed on the current LEP?		No – no results on Intramaps or the State Heritage Inventory.
Will these Heritage Items be impacted by the project?		N/A
Water Quality/Erosion & Sedimentation/Demand on Resources/Waste Disposal		
Are the works likely to disturb any acid sulfate soils listed on the Current LEP?	**Overall impact – LOW**	Potentially – Class 1 and 2 identified at site, and Class 3 and 5 identified adjacent to site. No excavation is proposed for the works. **Ensure safeguards relating to Acid Sulfate Soils are strictly applied. Refer to the Unexpected Finds Protocol in Appendix H.**
Are the works to be conducted within 40m of watercourses or any other type of natural water body?		Yes – the works will be undertaken directly adjacent to Hooka Creek, Lake Illawarra and Mullet Creek Tank Trap.

ENVIRONMENTAL FACTOR	Impact L/M/H	Extent, Duration, Type Comment
		Hooka Creek is mapped as a Category 2 watercourse. Mullet Creek Tank Trap is mapped as a Category 1 watercourse. There is a Category 2 watercourse also mapped along the north end of the site. However, after review of historical imagery, this appears to be a man-made channel. **Ensure safeguards relating to Fire Trail Works, Other Works, Water Quality, Fisheries Permit, and Erosion and Sediment Control are strictly applied. Refer to the associated Fisheries Permit - all safeguards included in the Fisheries Permit must be implemented for the works.** See Fisheries Permit PN24-417 ECM Doc Set ID 25180966.
Will the works result in changes to water flow in any way?		No – it is not expected that the works will alter any water flows. **Ensure safeguards relating to Fire Trail Works, Other Works and Fisheries Permit are strictly applied. Refer to the associated Fisheries Permit - all safeguards included in the Fisheries Permit must be implemented for the works** - see above.
Are the works within a flood affected zone?		Yes – However, the proposal does not represent an increased risk to life or property in regard to flooding.
Do the works involve the use or storage within the work areas of fuels or other chemicals (other than fuels contained within the work vehicles)?		No – no herbicides will be used for the works.
Will the works create areas of unprotected soil or loose surface for more than 24 hours?		Yes – the works involve earthworks to establish formal access tracks. **Ensure safeguards relating to Fire Trail Works, Other Works and Erosion and Sediment Control are strictly applied.**
Could the works result in disturbance of contaminated land or contaminated material listed under WCC IntraMaps?		No – the site is not mapped as contaminated land on Intramaps. Council's land information system does not indicate previous uses or constraints that give rise to concerns or the need for further investigation regarding land contamination.

ENVIRONMENTAL FACTOR	Impact L/M/H	Extent, Duration, Type Comment
		Ensure safeguards relating to Unexpected Finds are strictly applied. Refer to Appendix H for the Unexpected Finds Protocol.
Will the waste generated by the works include hazardous substances (such as lead, asbestos or other substances designated as hazardous by the National Occupational Health and Safety Commission)? Refer to Council's ARO		Not likely – the works do not involve any excavation. **Ensure safeguards relating to Unexpected Finds are strictly applied. Refer to Appendix H for the Unexpected Finds Protocol.**
Are the works a Coastal Geotechnical risk under Coastal Zone Study under WCC IntraMaps?		No.
Are the works subject to the *Wollongong Coastal Zone Management Plan 2017*?		No.
Flora & Fauna/Tree Protection/Access/Community Environmental Impacts		
Is any vegetation required to be removed?	**Overall impact – LOW**	Yes – the works will involve vegetation pruning, but no vegetation/trees will be removed. **Ensure safeguards relating to Fire Trail Works, Other Works, and Flora, Fauna and Ecosystems are strictly applied. Refer to the associated Fisheries Permit - all safeguards included in the Fisheries Permit must be implemented for the works.** See FP ECM Doc Set ID 25180966.
SEPP (Biodiversity and Conservation) 2021 **Chapter 3 and Chapter 4 – Koala Habitat Protection** **Chapter 6 – Water catchments** **Part 6.5 Sydney Drinking Water Catchment**		No – Wollongong LGA is mapped under the Koala Management Area; however, Chapters 3 and 4 relate to development assessment which require consent from Council. There are no trees for removal. As such, no assessment for koalas under the EPBC Act is required. The site is not within the Sydney Drinking Water Catchment.
Is the area within a Vegetation Community identified in NP-PCT Vegetation Layer – Escarpment and Coastal under WCC IntraMaps Constraints?		Yes – the following PCT are mapped at/adjacent to the site: • MU24 – Lowland Woollybutt-Melaleuca Forest • MU36 – Coastal Swamp Oak Forest • MU52 – Saltmarsh • MU53 – Estuarine Alluvial Wetland

ENVIRONMENTAL FACTOR	Impact L/M/H	Extent, Duration, Type Comment
		• MU54 – Floodplain Wetland • MU55a – Seagrass Meadows and Estuarine Flats • MU56a – Acacia Scrub • MU56c – Weeds and Exotics • MU56d – Cleared • MU57e – Estuarine Lagoons and Channels • MU57i – Water **Ensure safeguards relating to Fire Trail Works, Other Works, and Flora, Fauna and Ecosystems are strictly applied. Refer to Appendix F for the Tree Protection Procedures.**
Is the area within a Vegetation Community identified in NP-PCT Vegetation Layer – SVTMvC2M2 under WCC IntraMaps Constraints?		Yes – the following PCT are mapped at/adjacent to the site: • 3330 – South Coast Lowland Woollybutt Grassy Forest • 3962 – Coastal Floodplain Phragmites Reedland • 4027 – Estuarine Swamp Oak-Mangrove Forest • 4028 – Estuarine Swamp Oak Twig-Rush Forest • 4097 – Samphire Saltmarsh • 4103 – *Sporobolus virginicus* Saltmarsh
Are the works located on land identified as the Escarpment Management Plan Area under WCC IntraMaps Constraints? Illawarra Escarpment State Conservation Area plan of management (nsw.gov.au)		No.
Are the works located on land identified as LEP 2009 Natural Resource Sensitivity – Biodiversity under WCC Intramaps Wollongong LEP 2009?		Yes – this is mapped across majority of the site. Only pruning will be occurring, no tree/vegetation removal. **Ensure safeguards relating to Fire Trail Works, Other Works, Coastal Wetlands, and Flora, Fauna and Ecosystems are strictly applied.**
Are the works located on land identified on the NSW Government Biodiversity Values Map? Biodiversity Values Map and Threshold tool (nsw.gov.au)		Yes – this is mapped across majority of the site. Only pruning will be occurring, no tree/vegetation removal. Part 5 activities that will not significantly impact threatened species or communities do not trigger further

ENVIRONMENTAL FACTOR	Impact L/M/H	Extent, Duration, Type Comment
		assessment. Refer to the Threatened Flora and Fauna Assessment in Appendix D. **Ensure safeguards relating to Fire Trail Works, Coastal Wetlands and Flora, Fauna and Ecosystems are strictly applied.**
Is the area within a Habitat Model in WCC IntraMaps Constraints?		Yes – the following habitat models are recorded at/adjacent to the site: • Black Bittern • Green and Golden Bell Frog **Ensure safeguards relating to Flora, Fauna and Ecosystems are strictly applied.**
Do the works occur within Key Fish Habitat? Refer to Threatened Fish Species List.		Yes – KFH is mapped along Hooka Creek. **Ensure safeguards relating to Fisheries Permit, Water Quality, Erosion and Sediment Control, and Flora, Fauna and Ecosystems are strictly applied. Refer to the associated Fisheries Permit - all safeguards included in the Fisheries Permit must be implemented for the works.** See FP ECM Doc Set ID 25180966.
Are the works to be conducted within a Natural Area Asset? (Refer to the WCC IntraMaps Environmental Restoration layer)		Yes – proposed works are within Natural Area Asset 261. Works are consistent with the Natural Area Management program at the site.
Are the works near a seed collection point on the WCC IntraMaps Environmental Restoration layer?		No.
Is there any Bush Care or other Environmental Restoration undertaken at the site?		Yes – the whole site is mapped as a Bushcare and Bush Restoration site. Works are consistent with the Natural Area Management program at the site.
Is the worksite listed as Bushfire Prone Land under the WCC IntraMaps Planning DCP layer?		No.
Are there any Endangered Ecological Communities or potential habitat for threatened species as listed on the Planning DCP layer or on the BC Act BioNet or the EPBC Act SPRAT on or adjacent to the work site?		Yes – the following EECs are mapped on and/or adjacent to the site: • MU4 – Lowland Dry-Subtropical Rainforest (BC Act: Illawarra Subtropical Rainforest in the Sydney Basin Bioregion; EPBC Act: Illawarra-Shoalhaven

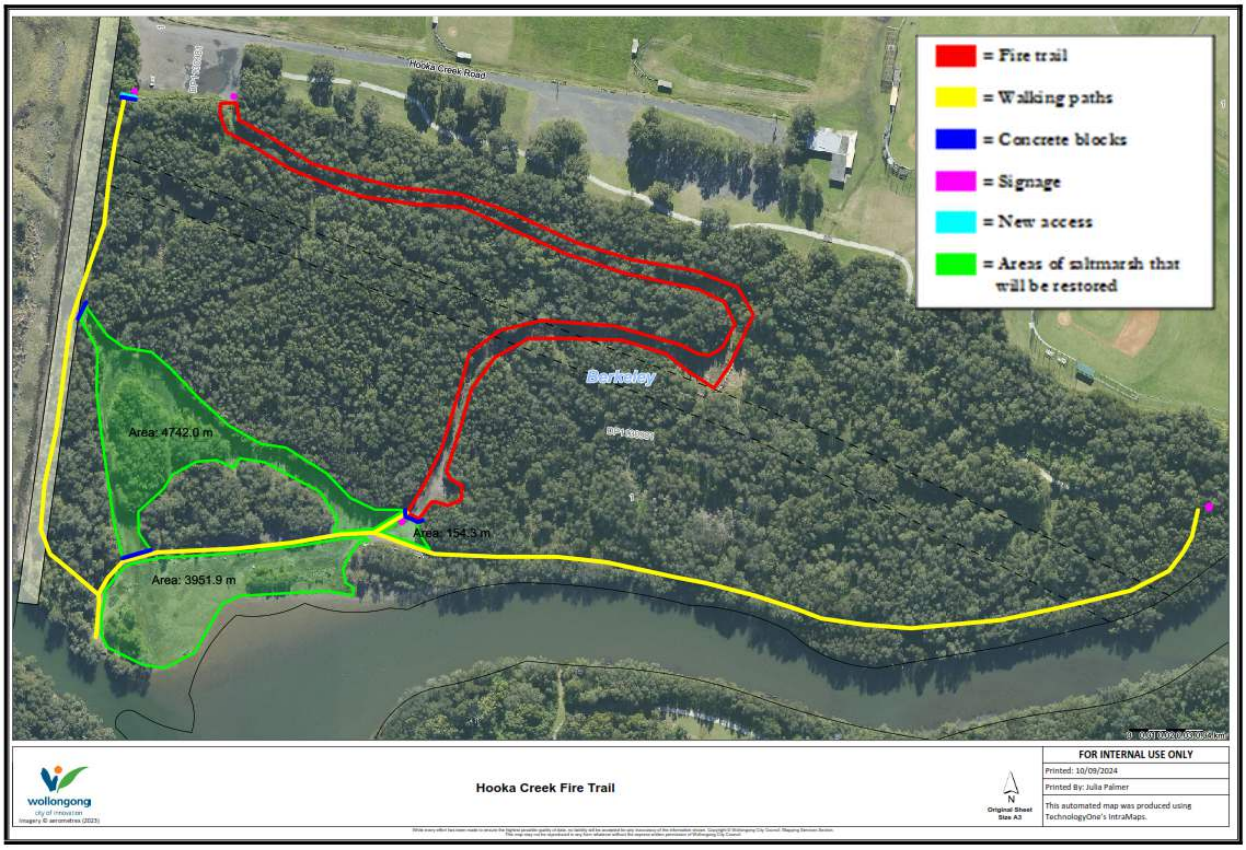
ENVIRONMENTAL FACTOR	Impact L/M/H	Extent, Duration, Type Comment
		Subtropical Rainforest of the Sydney Basin Bioregion) • MU24 – Lowland Woollybutt-Melaleuca Forest (BC Act: Illawarra Lowlands Grassy Woodland in the Sydney Basin Bioregion; EPBC Act: Illawarra and South Coast Lowland Forest and Woodland Ecological Community; River-Flat Eucalypt Forest on coastal floodplains of southern New South Wales and eastern Victoria) • MU36 – Coastal Swamp Oak Forest (BC Act: Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions; EPBC Act: Coastal Swamp Oak (Casuarina glauca) Forest of NSW and South East Queensland; River-Flat Eucalypt Forest On Coastal Floodplains Of Southern New South Wales And Eastern Victoria) • MU52 – Saltmarsh (BC Act: Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions; EPBC Act: Subtropical and Temperate Coastal Saltmarsh) • MU53 – Estuarine Alluvial Wetland (BC Act: Sydney Freshwater Wetlands in the Sydney Basin Bioregion) • MU54 – Floodplain Wetland (BC Act: Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions) **Ensure safeguards relating to Fire Trail Works, and Flora, Fauna and Ecosystems are strictly applied. Refer to Appendix D for the Threatened Flora and Fauna Assessment and Appendix F for the Tree Protection Procedure.**
Amenity / Noise		
Are the works located on land identified as Community Land, on the WCC IntraMaps LEP Community Land Maps?	**Overall impact – LOW**	Yes – Identified as Natural Area Bushland and Sportsground. Works are consistent with the Plan of Management Objectives for these community land types.
Will the works result in a reduction of the aesthetic and/or recreational qualities of the area		No – the works will ensure that emergency vehicles can access the site, and the works will

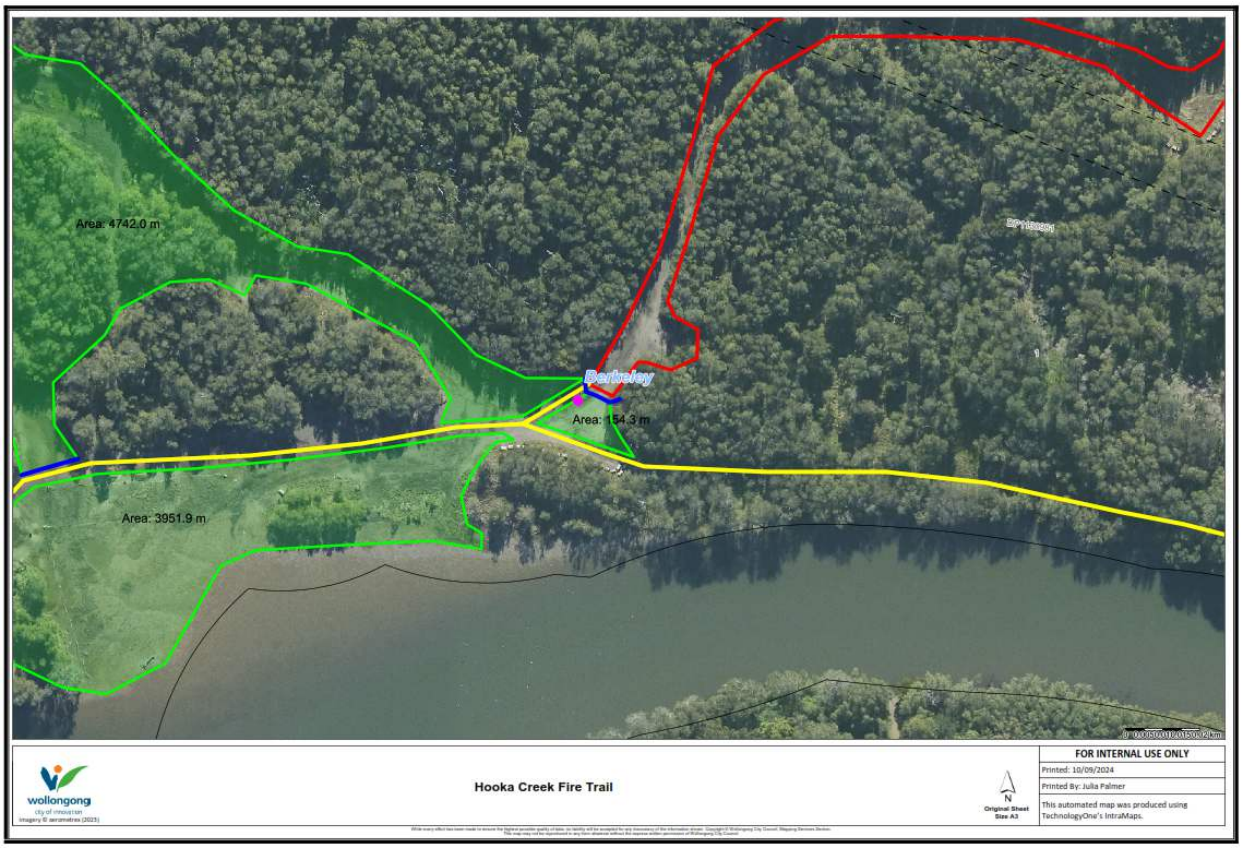
ENVIRONMENTAL FACTOR	Impact L/M/H	Extent, Duration, Type Comment
or restrict the beneficial uses of the area in the future? Refer to Point of Interest in features on the Base Map Information		reduce the negative impacts of 4WDs and motorbikes on the sensitive vegetation communities at the site. The formalisation of particular tracks will be able to be used by the public for walking etc.
Will the works cause excess noise?		Potentially – machinery used for construction of the fire trails/walking tracks, vegetation pruning and/or placement of boulders may cause excessive noise. **Ensure safeguards relating to Noise and Vibration are strictly applied.**
Are the works within the management areas defined by SEPP (Resilience and Hazards) 2021. Chapter 2 - Coastal Management? Refer to https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address		Yes – the site is within the following coastal zones: • Coastal Use Area • Coastal Environment Area • Coastal Wetland • Coastal Wetland Buffer Refer to Appendix E for the Coastal Assessment. **Ensure safeguards relating to Flora, Fauna and Ecosystems are strictly applied.**
Any transformation of a locality? Human and non-human environment?		Minor – the site already has informal tracks running throughout the area. The works will formalise those that are to be used and will stop other tracks created by the public from being used within sensitive vegetation.
Do the works fall under SEPP (Transport and Infrastructure) 2021?		Yes – • Chapter 2 Division 6 Emergency services facilities and bush fire hazard reduction – Fire Trail • Chapter 2 Division 12 Parks and Other Reserves – Walking Tracks and Concrete Blocks • Schedule 1 Exempt Development – Chapter 2 – Signage **Ensure safeguards relating to Fire Trail Works and Other Works are strictly applied.**
Cumulative Impact Assessment - existing or future?		No – no cumulative impacts will occur as a result of the interaction of this project with others. The proposed work will not impact on the existing restoration works occurring in the area.

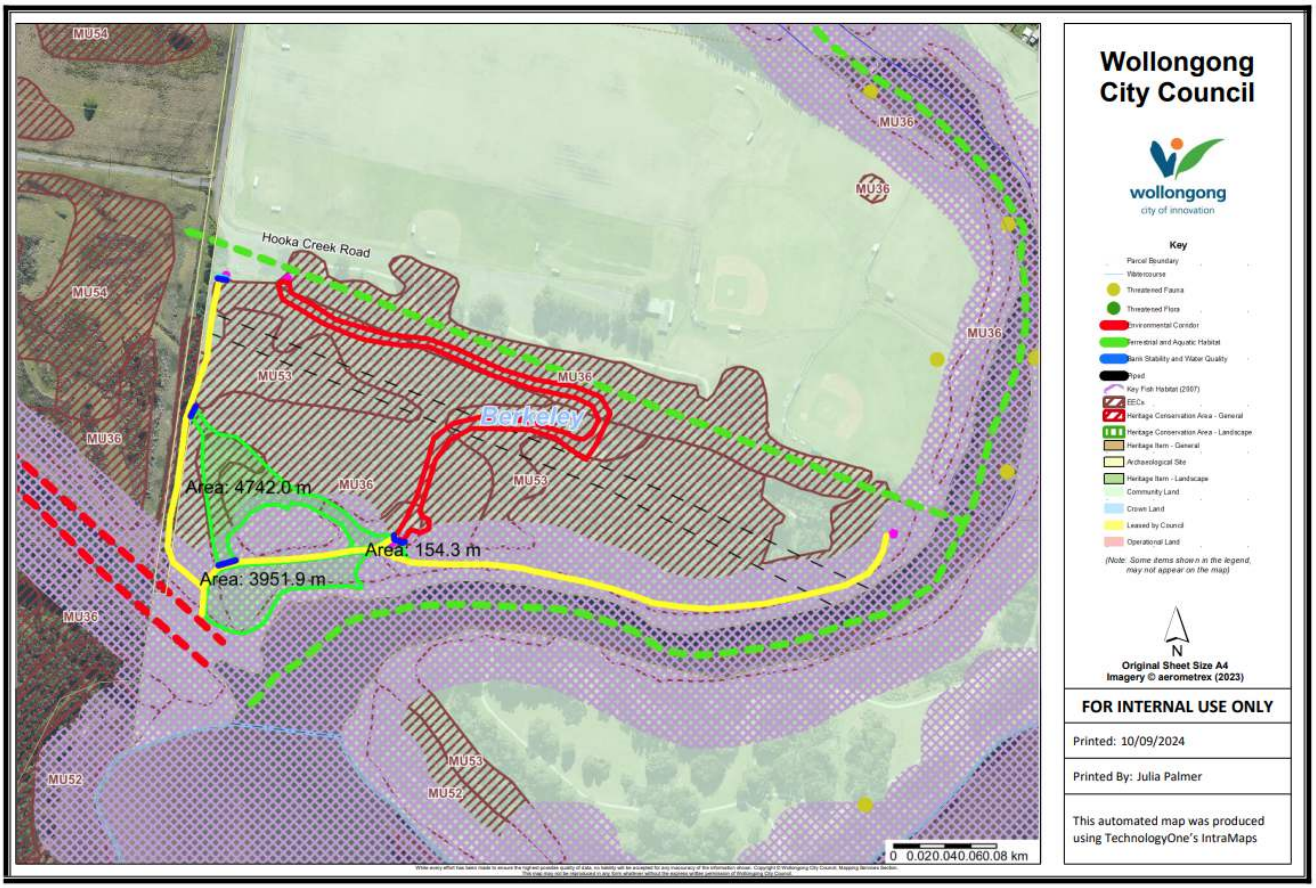
ENVIRONMENTAL FACTOR	Impact L/M/H	Extent, Duration, Type Comment
Any applicable local strategic planning statement, regional strategic plan or district strategic plan made under Division 3.1 of the Act. Issues, objectives, policies and actions identified in local, district and regional plans **Goals** We value and protect our environment We have an innovative and sustainable economy Wollongong is a creative, vibrant city We are a connected and engaged community We have a healthy community in a liveable city We have affordable and accessible transport		Yes – The proposal is consistent with the objectives and vision of 'Our Wollongong Our Future 2032: Community Strategic Plan' for the LGA. *'From the mountains to the sea, we value and protect our natural environment and we will be leaders in building an educated, creative and connected community.'* The fire trail works are to be in accordance with the RFS approved fire trail requirements at this site and the future FAFT amendment for this fire trail.

Wollongong City Council's requirements are considered to have been satisfied through the identification and assessment of environmental issues and risks undertaken in this report. Provided there are no changes to the scope of works identified in this report, no further EIA is required.

Appendix A: Site Maps and Environmental Constraints Map







Appendix B: Rural Fire Service Meeting Minutes – Approval of Hooka Creek Fire Trail

DOC24/117147

MINUTES

ILLAWARRA BUSHFIRE MANAGEMENT COMMITTEE

Meeting:	2 / 2024
Convened by:	John Gordon – NSW RFS
Location:	Training Room, Illawarra Fire Control Centre, 37 Airport Road, Albion Park Rail
Date and time:	Thursday, 13 June 2024 @ 12:00pm
Minutes by:	Nathan Musson and Tim Ball (NSW RFS)

Table 1: Attendance Record

Members	Organisation	Present	Apology	Absent
Brooke Picker	NSW RFS	✓		
Phill Rook	NSW RFS	✓		
Sean Cavanagh	NSW RFS	✓		
Peter Church	FRNSW	✓		
Paul Evert	Wollongong Coal	✓		
Damien Dubrowin	NPWS	✓		
Andrew Wall	NPWS	✓		
Patrick Denham	NCC	✓		
Alice McDowell	Wollongong Council	✓		
Alycia Clifford	Wollongong Council	✓		
Bronwyn Anderson	Shellharbour Council	✓		
Luke Fox	Crown Lands	✓		
John Gordon	NSW RFS	✓		
David Bartlett	NSW RFS	✓		
Tony Kondek (Teams)	Water NSW	✓		
Gareth Neil (Teams)	TfNSW	✓		
Rod Thew (Teams)		✓		

DOC24/117147

Members	Organisation	Present	Apology	Absent
Paul Gamosh	Sydney Water		✓	
Martin Surrey	NSW RFS		✓	
Luis Alfonso	South 32		✓	
Clare Robinson	LEMO		✓	
Peter Gill	Kiama Council		✓	
Andrew Sweeney	NSW RFS		✓	
Jeff Arthur	Shellharbour Council		✓	
Kellie Marsh	Shellharbour Council		✓	
Greg Fikkers	Wollongong Council		✓	

Table 2: Documents Referred to in the Meeting

Document title	Author	Date

Minutes

Item 1	Welcome/Acknowledgement to Country	Chair

Item 2	Apologies	Chair

- As outlined above

Item 3	Disclosure of Interests	Chair

- Nil

Item 4	Confirmation of Minutes of 01/2024	Chair

- Not currently available
- Previous minutes not currently available due to technical issues

Item 5	Action Items from Last Meeting	Chair

Illawarra TMP/TGS for hazard reduction 25F/Y	RFS	Sean Cavanagh	8/1/2024		In progress

New BFRMP Workshop 3	RFS	David Bartlett	TBA	Waiting for advice on proposed dates from GSAC	On Hold
AWP updates by all agencies for FY25	ALL	David Bartlett	6/1/2024	Agencies to advise when completed	In progress
Darkes Forest NSP proposal	RFS	David Bartlett		Proposal with NSP coordinator for approval from NSW LAC	On Hold
Hooka Creek Berkely Fire Trail (access) approval	ALL	Alycia Clifford		Feedback received. FT approved by Committee meeting 2/24	Complete
Carrington Falls NSP Proposal	RFS	David Bartlett		Proposal with NSP coordinator for further investigation	In progress
Middle Heights Estate CPP	FRNSW/RFS	Phill Rook	9/11/2024	Public consultation being reviewed by FRNSW.	In progress
Approval of Garrawarra CPP	RFS	David Bartlett		Pending David Croft NPWS approval	In progress

Item 6 Correspondence Chair

- A revision of Workshop 1 & 2 and what is to come with Workshop 3
- AWP and Funding Deadlines
- Endorsed Plan of Operations
- FY 2025 Funding Guidelines
- Update to BFMC Workshop 3
- Bush Fire Preparation Map Garrawarra 2024 Update
- Bush Fire Preparation Map Otford

Item 7 Report from BFMC Subcommittee Chair

- Hazard Reductions
- FAFT
- Community Engagement

- Hooka Creek FT, access trail
- HR program for all agencies
- NPWS work on own trails in Boomerang, Upper Escarpment and Lower Escarpment
- Dharrawal completed
- Keys and access into NPWS
- Garrawarra FT washed out and closed
- Budderoo FT, further discussion re: current status
- Puckeys FT, potential downgrade
- Shape files for fire trails available if required
- Follow up re: fire trails with bridges and culverts re: engineering requirements
- CPPs for Garrawarra and Otford

- NSPs for Carrington Falls and Darkes Forest
- Annual works plans

Item 8	BFMC Member Reports	Each Agency

CROWN LANDS

- All APZ treatments complete for 2023/2024
- Scope and quotes received for next year's proposals
- Investigating APZ enhancement in Helensburgh
- Liaising with RFS re: outstanding hazard complaints in Helensburgh
- Make safe work at Budderoo FT
- Garrawarra FT, comms lines exposed, closed

SHELLHARBOUR COUNCIL

- APZ works completed
- Submitted for next round of funding

WOLLONGONG COUNCIL

- APZ works completed and funding expended
- Next year planning
- Small HRs planned pending suitable weather

NCC

- Nil

NPWS

- All APZs treated for the year, starting again in spring
- No burning done in IL area, all burns will be carried over
- All fire trails have been upgraded, certification pending
- Starting for preparedness for next season
- Andrew new area manager for Illawarra and Highlands

WOLLONGONG RESOURCES (COAL)

- Mine currently in non-production, reduced funding
- Tender for APZs for Wongawilli and Russell Vale

FRSNW

- As per submitted report
- Consultation with Middle Heights re: CPP and HRs

WATER NSW

- As per written report, to be submitted
- HR program
- Due to weather, no HRs completed in IL BFMC area of responsibility
- APZ burns around assets in Wollondilly
- 2023/2024 slashing program completed
- Planning for 2024/2025 season and works commencing in spring
- Pre-season fire day August 6 re: medical examinations and vehicle inspections
- Block 67 delayed due to rubbish i.e. tyre dumping, under investigation by EPA
- No issues with Garrawarra and Otford CPPs

- Stuart Chadwick and Ash Frank – member and alternate

TRANSPORT

- Nil returns, as per report

RFS

- All programs for HRs will be carried over to next FY
- 5-year plan for Illawarra currently drafted
- Starting works on TMP for BFMC, all agencies to provide proposals, then work on TGSs
- Operation Interface ongoing around Helensburgh, Stanwell Park, Mt Kembla and Mt Keira
- Comm. Engagement very busy, KidsFest, Figtree High School cadets, looking at Bulli High School for term 3
- A lot of work on private fire trails, Calderwood, Albion Park and Jamberoo areas
- Fire trail signs being upgraded
- Finalising funding for Upper Escarpment and Boomerang FTs
- Starting works on PIPs as identified by the BFRMP
- Dapto training center currently being upgraded with hot fire training facilities
- Technology recently upgraded in EOC and Ops room
- NSPs at Darkes Forest and Carrington Falls
- Additional NSP signage installed at Austinmer and Balgownie
- Electronic fire danger signs still being rolled out, currently Jamberoo, Carrington Falls and Gerringong
- Still awaiting Workshop 3

Item 9 Annual Works Plan

- As per discussions under Item 8

Item 10 Grant Funding

- Funding guidelines distributed previously
- Due back by 9 June

Item 11 Seasonal Outlook

- As per report
- Original forecast was for dry winter, has not eventuated
- Climate being driven by El Nino
- Seasonal weather and ocean currents unseen in historical trends, reliable long-term forecasts unable to be determined
- Behind in HR program due to inclement weather over the past months
- Concentrating in mechanical works in the absence of burning activities

Item 12 General Business

- Draft 2024 Otford CPP
- Draft 2024 Garrawarra CPP

- Motion moved by David Bartlett that the plans are accepted pending input from NPWS Royal, approved

- Motion carried

- Motion moved by Alicia, Wollongong Council to include Hooka Creek trail as an access trail
- Motion carried

- Updates to existing CPP completed back in 2013/2014, reflective of current requirements

NPWS

- New PSN tower at Garrawarra Farm, built and activated, issues around testing, tower now on and operational

Item 13 Next Meeting Dates

- Thursday 12th September, Illawarra Fire Control Centre
- Thursday 5th December, Illawarra Fire Control Centre

Item 14 Close

- Meeting Closed 14:30

Appendix C: Aboriginal Heritage Due Diligence Assessment

Council's IntraMaps records indicated that there may be a possible presence of an Aboriginal heritage item within the vicinity of the proposed works. A NSW Heritage (former OEH) Aboriginal Heritage Information Management System (AHIMS) search was undertaken to confirm the presence of Aboriginal heritage within or close to the works site. **The AHIMS search identifies 0 Aboriginal sites or places recorded in within 200m of the proposed works.**

As a precautionary approach, the Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW (DECCW) was followed. It was determined that the proposed activity would not harm any Aboriginal heritage due to the following:

- Although the proposed works may disturb the ground surface, the works are a low impact activity on land that has already been disturbed;
- Vegetation will need to be removed but this will only involve pruning and all other trees will be protected on site;
- There are no Aboriginal objects located within or close to the site (AHIMS confirmation);
- A REF has been prepared and identifies that if during the course of the works any unknown Aboriginal objects are found, works must cease immediately.

As such, an **Aboriginal Heritage Impact Permit (AHIP) is not required.**

AHIMS Web Services (AWS)
Search Result

Your Ref/PO Number : EP REF-2024/3
Client Service ID : 884500

Wollongong City Council

Date: 17 April 2024

Locked Bag 8821
Wollongong DC New South Wales 2500

Attention: Julia Palmer

Email: jpalmer@wollongong.nsw.gov.au

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lot : 1, DP:DP1130981, Section : - with a Buffer of 200 meters, conducted by Julia Palmer on 17 April 2024.

The context area of your search is shown in the map below. Please note that the map does not accurately display the exact boundaries of the search as defined in the paragraph above. The map is to be used for general reference purposes only.

A search of Heritage NSW AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

0	Aboriginal sites are recorded in or near the above location.
0	Aboriginal places have been declared in or near the above location. *

Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales, Environment, Climate Change & Water (2010):

TABLE 1 - DO YOU NEED TO USE THIS DUE DILIGENCE CODE?

No	Section	Questions	Response
1	1.0	Is the activity a Part 3A project declared under s.75B of the EP&A Act?	No
2		Is the activity exempt from NPW Act or NPW Regulation?	No
3		Will the activity involve harm that is trivial or negligible? (See section 7.)	No
4		Do either or both of these apply: Is the activity in an Aboriginal Place? Have previous investigations that meet the requirements of this code identified Aboriginal objects?	 No No
5		Is the activity a low impact one for which there is a defence in the NPW Regulation? **Refer to Table 2 for section 7.5 of the Code of Practice.**	Yes
6		Do you want to use an industry specific code of practice, adopted by the NPW Regulation or other due diligence process?	No

If your activity is included in this list you are not required to go through the due diligence process. Proceed with caution, and if Aboriginal objects are later found when you are carrying out your activity, you must stop work, notify DECCW and apply for an AHIP if you intend to harm those known objects.

TABLE 2 - IS THE ACTIVITY A LOW IMPACT ACTIVITY FOR WHICH THERE IS A DEFENCE IN THE REGULATION?

No	Section	Questions	Response
	7.5	The following low impact activities are prescribed in the NPW Regulation as a defence against the strict liability s86 (2) offence. As a result, you are not required to follow this code or any other due diligence process if your activity is listed below. Refer to the Clause 80B Defence of carrying out certain low impact activities: section 87 (4)	
(1)		It is a defence to a prosecution for an offence under section 86 (2) of the Act, if the defendant establishes that the act or omission concerned: (a) was maintenance work of the following kind on land that has been disturbed: (i) maintenance of existing roads, fire and other trails and tracks, (ii) maintenance of existing utilities and other similar services (such as above or below ground electrical infrastructure, water or sewerage pipelines), or	 **Yes** No
		(b) was farming and land management work of the following kind on land that has been disturbed : (i) cropping and leaving paddocks fallow, (ii) the construction of water storage works (such as farm dams or water tanks), (iii) the construction of fences, (iv) the construction of irrigation infrastructure, ground water bores or flood mitigation works, (v) the construction of erosion control or soil conservation works (such as contour banks), or	 No No No No No
		(c) was farming and land management work that involved the maintenance of the following existing infrastructure: (i) grain, fibre or fertiliser storage areas,	 No

		(ii) water storage works (such as farm dams or water tanks),	No
		(iii) irrigation infrastructure, ground water bores or flood mitigation works,	No
		(iv) fences,	No
		(v) erosion control or soil conservation works (such as contour banks), or	
		(d) was the grazing of animals, or	No
		(e) was an activity on land that has been disturbed that comprises exempt development or was the subject of a complying development certificate issued under the Environmental Planning and Assessment Act 1979, or	No
		(f) was mining exploration work of the following kind on land that has been disturbed:	
		(i) costeaning,	No
		(ii) bulk sampling,	No
		(iii) drilling, or	No
		(g) was work of the following kind:	
		(i) geological mapping,	No
		(ii) surface geophysical surveys (including gravity surveys, radiometric surveys, magnetic surveys and electrical surveys), but not including seismic surveys,	No
		(iii) sub-surface geophysical surveys that involve downhole logging,	No
		(iv) sampling and coring using hand-held equipment, except where carried out as part of an archaeological investigation, or	No
		(h) was the removal of isolated, dead or dying vegetation, but only if there is minimal disturbance to the surrounding ground surface, or	No
		(i) was work of the following kind on land that has been disturbed:	
		(i) seismic surveying,	No
		(ii) the construction and maintenance of ground water monitoring bores, or	No
		(j) was environmental rehabilitation work including temporary silt fencing, tree planting, bush regeneration and weed removal, but not including erosion control or soil conservation works (such as contour banks).	No
(2)		Subclause (1) does not apply in relation to harm to an Aboriginal culturally modified tree.	
(3)		In this clause, Aboriginal culturally modified tree means a tree that, before or concurrent with (or both) the occupation of the area in which the tree is located by persons of non-Aboriginal extraction, has been scarred, carved, or modified by an Aboriginal person by:	
		a) the deliberate removal, by traditional methods, of bark or wood from the tree, or	No
		b) the deliberate modification, by traditional methods, of the wood of the tree.	No
(4)		For the purposes of this clause, land is disturbed if it has been the subject of human activity that has changed the land's surface, being changes that remain clear and observable.	
		Note: Examples of activities that may have disturbed land include the following:	
		a) soil ploughing,	No
		b) construction of rural infrastructure (such as dams and fences),	No
		c) construction of roads, trails and tracks (including fire trails and tracks and walking tracks),	**Yes**

		d) clearing of vegetation, e) construction of buildings and the erection of other structures, f) construction or installation of utilities and other similar services (such as above or below ground electrical infrastructure, water or sewerage pipelines, stormwater drainage and other similar infrastructure), g) substantial grazing involving the construction of rural infrastructure, h) construction of earthworks associated with anything referred to in paragraphs (a)-(g).	**Yes** No No No **Yes**
		No AHIP necessary and proceed with caution.	

Appendix D: Threatened Flora and Fauna Assessment

All threatened species and endangered ecological communities listed under the NSW *Biodiversity Conservation Act* 2016 and Commonwealth *Environmental Protection & Biodiversity Conservation (EPBC) Act 1999*, within a 2 km radius of the site have been identified by the threatened fauna & flora and EECs layers in IntraMaps. The results of BioNet and Protected Matters searches are also factored into the tables below. The table also considers the potential habitat at the site for native fauna by using the Habitat Model layer and Key Fish Habitat layer. All native birds, reptiles, amphibians and mammals, except the dingo, are protected in NSW.

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
Amphibians					
Litoria aurea 	Green and Golden Bell Frog	Endangered	Vulnerable	Marshes, dams, streamsides, particularly those containing bulrushes *Typha* spp. or spikerushes *Eleocharis* spp. Optimum habitat includes water bodies which are unshaded, free of predatory fish *Gambusia holbrooki*, have a grassy area nearby and diurnal sheltering sites available such as vegetation and/or rocks.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Heleioporus australiacus 	Giant Burrowing Frog	Vulnerable	Vulnerable	Preference for sandstone ridge top habitat and broader upland valleys. Associated with small headwater creek lines and slow flowing to intermittent creek lines. Vegetation is typically woodland, open woodland and heath. Has also been observed in artificial pond structures that have naturalised over time and are still surrounded by other undisturbed habitat. The frog occurs generally within the escarpment area.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
Mixophyes balbus 	Stuttering Frog	Endangered	Vulnerable	Inhabits rainforest, Antarctic beech and wet sclerophyll forests. Depends on freshwater streams and riparian vegetation for breeding and habitation. No records are known from riparian habitat that has been disturbed.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Reptiles					
Caretta–Caretta 	Loggerhead Turtle	Endangered	Endangered	Loggerhead Turtles are ocean dwellers, foraging in deeper water for fish, jellyfish and bottom-dwelling animals. The female comes ashore to lay her eggs in a hole dug on the beach in tropical regions during the warmer months.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Chelonia mydas 	Green Turtle	Vulnerable	Vulnerable	Ocean dwelling species spending most of its life at sea. Carnivorous when young but as adults they feed only on marine plant material. Eggs laid in holes dug in beaches throughout their range and scattered nesting records along the NSW coast.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
					is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Dermochelys coriacea 	Leatherback Turtle/Leathery Turtle	Endangered	Endangered	A very large sea turtle up to 3 m long with heavy paddle-shaped limbs lacking claws. Occurs in inshore and offshore marine waters. Feed on jellyfish. Number of sightings in southern waters suggests species actively seeks temperate feeding grounds, rather than occurring only as stray vagrants. Nesting occurs in eastern Australia in summer between December and January	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Eretmochelys imbricata 	Hawksbill Turtle		Vulnerable	A pelagic species, the Hawksbill Turtle migrates up to 2400 km between foraging areas and nesting beaches. The Illawarra is not a listed breeding site for this species.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Hoplocephalus bungaroides 	Broad-Headed Snake	Endangered	Endangered	Exposed sandstone outcrops and benching, the vegetation is mainly woodland, open woodland and/or heath in these areas. The snakes utilise rock crevices during the cooler months and tree hollows during summer.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
					motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Natator depressus 	Flatback turtle		Vulnerable Marine Migratory	The Flatback Turtle has a low domed, fleshy carapace (shell) with reflexed margins and is grey, pale grey-green or olive in colour (Bustard 1972; Cogger 1996, 2000; Limpus 1971). The Flatback Turtle is found only in the tropical waters of northern Australia, Papua New Guinea and Irian Jaya (Spring 1982; Zangerl et al. 1988). (DCCEEW)	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Fish					
Epinephelus daemelii	Black Rockcod, Black Cod, Saddled Rockcod		Vulnerable	Adult Black Rockcod can grow to 2 m in length, and are highly variable in colour depending on the environment. Fish in coastal reefs are usually banded and mottled in colour, while those in estuaries are uniformly dark, sometimes black. The species is found in warm temperate and subtropical parts of the south-western Pacific. In NSW, it occurs along the coast, including Lord Howe Island.The Black Rockcod is a territorial species that inhabits caves, gutters and crevices. They are usually found in depths up to 50 m, although individuals have been collected from below 100 m. (DPI)	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
					will be impacted by the works.
Prototroctes maraena	Australian Grayling		Vulnerable	The Australian Grayling is a slender fish varying in colour from silvery with an olive-grey back and whitish belly, to olive green or brownish in the back with a darker mid-lateral streak and greyish fins. The species has large eyes, which are usually bright yellow, a rounded snout and a small head (Barnham 1998; DPI 2006). Currently, the Australian Grayling occurs in streams and rivers on the eastern and southern flanks of the Great Dividing Range, from Sydney, southwards to the Otway Ranges of Victoria and in Tasmania. The species is found in fresh and brackish waters of coastal lagoons (Cadwallader & Backhouse 1983; DPI 2006; Jenkins et al. 2009). (DCCEEW)	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Sphyrna lewini	Scalloped Hammerhead		Conservation Dependent	The Scalloped Hammerhead Shark can be distinguished by their large flattened 'hammer-like' head, with wide set eyes and prominent central scallop-like indentation in the front margin of the head. The Scalloped Hammerhead Shark is light brown, bronze or olive colouring on the dorsal surfaces, fading to white below. Scalloped Hammerheads may be found throughout the seas around northern Australia as far south as Sydney, NSW (34°S) and Geographe Bay WA (33°S). (DPI)	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Lamna nasus	Porbeagle, Mackerel Shark		Migratory	The Porbeagle is a stout-bodied, thermo-regulating shark that grows to more than 200 cm long and up to 230 kg. The species is dark on the upper half of the body and white/light on the lower half (Last & Stevens 2009). The species has a very large dorsal fin and long, narrow pectoral fins. In Australia, the species occurs in waters from southern Queensland to south-west Australia (Last & Stevens 2009). Animals typically occur in oceanic waters off the continental shelf, although they	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
				occasionally enter coastal waters (Francis et al. 2002). (DCCEEW)	tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Mobula birostris/Manta birostris	Giant Manta Ray		Migratory	The Giant Manta Ray is the largest type of ray in the world. The average size commonly observed is 4.5 m (15 ft) and is dorsoventrally flattened and has large, triangular pectoral fins on either side. The colouring of the upper surface is black, dark brown, or steely blue, sometimes with a few pale spots and usually with a pale edge. The ventral surface is white, sometimes with dark spots and blotches. It is circumglobal and is typically found in tropical and subtropical waters but can also be found in temperate waters. In Australia it is recorded from south-western Western Australia, around the tropical north of the country and south to the southern coast of New South Wales. (Atlas of Living Australia and Australian Museum)	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Mammals					
Phascolarctos cinereus 	Koala	Endangered	Endangered	In coastal areas, Koalas feed on the leaves of Tallowwood *Eucalyptus microcorys* and Swamp Mahogany *Eucalyptus robusta.* Also feed on the leaves of Forest Red Gum *Eucalyptus tereticornis*, Grey Gum *Eucalyptus punctata*, Monkey Gum *Eucalyptus cypellocarpa* and Ribbon Gum *Eucalyptus viminalis.*	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
Cercartetus nanus 	Eastern pygmy possum	Vulnerable		Found in a broad range of habitats from rainforest through Sclerophyll (including Box Ironbark) forest and woodland to heath, but in most areas woodlands and heath appear to be preferred. Feeds mostly on the pollen and nectar from Banksias, Eucalypts, Bottlebrushes and understorey plants. Also soft fruits and insects. Nests in tree hollows, under bark of Eucalypts and abandoned bird nests.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Petaurus norfolkensis 	Squirrel Glider	Vulnerable		Two sightings reported in the Cataract and Avon catchments, Royal National Parks and recent records from the Wedderburn area. This species is often difficult to identify from the common Sugar Glider so it may exist in small numbers above the escarpment.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Petauroides volans 	Southern Greater Glider	Endangered	Endangered	Found in a variety of Eucalypt forests and utilises the tree hollows of these mature forests. The Southern Greater Glider, the Final Determination discusses that recent taxonomic work has spilt what was previously described as the one species in the genus ie Greater Glider Petauroides volans into two species with the Southern Greater Glider 'the only Greater Glider species that occurs in NSW'. Most records of the species in Wollongong LGA are in the water catchment and NPWS estate on the Woronora Plateau,	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
				with scattering of records on the Illawarra Escarpment foothills. The most recent record is from 2021 around Dombarton/Kembla Grange Estate.	nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Petaurus australis 	Yellow Bellied Glider	Vulnerable	Vulnerable	Preferred habitats are productive, tall open Sclerophyll forests where mature trees provide shelter and nesting hollows, and year-round food resources are available from a mixture of Eucalypt species.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Petrogale penicillata 	Brush-tailed rock-wallaby	Endangered	Vulnerable	Occurs on rocky outcrops with numerous ledges, caves, overhangs and crevices as these provide a variety of shelter and rest sites. Sunny, north facing sites are also preferred.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Potorous tridactylus 	Long-nosed Potoroo	Vulnerable	Vulnerable	It is recorded in a wide variety of habitats, but generally requires a dense understorey of ferns, grasses or shrubs and a sandy loam substrate.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
					protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Pseudomys novaehollandiae 	New Holland Mouse		Vulnerable	A small, burrowing native rodent, a social animal, living predominantly in burrows. It is known to inhabit open heathland, open woodlands with a heathland understorey, and vegetated sand dunes.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Dasyurus maculates 	Spotted Tailed Quoll	Vulnerable	Endangered	Inhabits sclerophyll forest and woodlands, coastal heathlands and rainforests. Habitat requirements include den sites (i.e. Hollow logs, tree hollows, rock outcrops or caves) and an abundance of birds, small mammals and large areas of intact vegetation. Breeding between April and July.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
Isoodon obesulus obesulus 	Southern Brown Bandicoot (Eastern)	Endangered	Endangered	Occurs in a variety of habitats including heathland, shrub land, dry Sclerophyll forest with healthy understorey, sedge land and woodland. Lives in areas of sandy soil with low vegetation that is uses as cover.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Notamacropus parma	Parma Wallaby	Vulnerable	Vulnerable	A small wallaby, with a head and body length up to 52 cm. Fur is a uniform greyish-brown on the back and shoulders with a dark stripe along the spine ending mid-back. It has a white stripe on the cheek and upper lip and a white belly. Their range is now confined to the coast and ranges of central and northern NSW from the Gosford district to south of the Bruxner Highway between Tenterfield and Casino. Preferred habitat is moist eucalypt forest with thick, shrubby understorey, often with nearby grassy areas, rainforest margins and occasionally drier eucalypt forest. (NSW OEH)	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Pteropus poliocephalus 	Grey-headed flying-fox	Vulnerable	Vulnerable	The Grey-Headed Flying-Fox has a variety of habitats including rainforests, tall sclerophyll forests and woodlands, heaths and swamps. Urban gardens with cultivated fruit crops also provide habitat for this species. The species feeds on flowers from *the Eucalyptus, gummifera, E. muellerana, E. globoidea and E. botryoides*, and fruits from a wide range of rainforest trees, including Fig.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
					nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Falsistrellus tasmaniensis 	Eastern False Pipistrelle	Vulnerable		This bat is relatively large with a reddish-brown back and paler grey underside. It has long slender ears set well back on the head with some sparse hair on the nose. It prefers moist habitats with trees taller than 20m and roosts in eucalypt hollows or under loose bark on trees or in buildings. Hunts insects just below the tree canopy.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Myotis macropus (formally Myotis adversus) 	Southern myotis (formerly Large footed myotis)	Vulnerable		The Large-footed myotis tend to roost in caves, tree hollows, under bridges, in mines, road culverts and stormwater drains near permanent water. They prefer vegetated low lying, undulating land. Colonies are usually less than 15 in number. This species feed on small fish, prawns and aquatic macro-invertebrates like water boatman, backswimmers and whirligig beetles. They fly 15-100 cm above the water and trawl through the water with their feet. They will also hunt flying insects that congregate around water. Dominant males form a harem in the colony with 1 male and up to 12 females. Known to born up to two young per year, one in October and the other in January.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Scoteanax rueppeli 	Greater Broad-nosed Bat	Vulnerable		Usually found in gullies draining east, where it utilises creeks and clearings for hunting. It usually roosts in tree hollows, though it may also utilise old buildings to roost. It may occur in small numbers in forested areas above the escarpment. Creeks and small rivers are favoured	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
				corridors where the species hunts for prey, sometimes within 1 m of water. It also hunts at forest edges.	protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Miniopterus schreibersii oceanensis Or *Miniopterus orianae oceanensis* 	Eastern Bentwing-bat or Large Bent-winged Bat	Vulnerable		Usually roosts in caves, mines and road culverts, tunnels, buildings and other man-made structures on or above the escarpment. Individuals often use numerous roosts, it congregates in large numbers at a small number of caves to breed and hibernate. These bats are known to forage for flies, cockroaches and beetles. Females will congregate in maternity colonies in October, where they will give birth to one in December.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Chalinolobus dwyeri 	Large-eared Pied Bat	Vulnerable	Endangered	Fourteen sightings found in a wide range of habitats, including wet and dry Eucalypt forest, Cypress (*Callitris*) forest and sub-alpine woodland. It is a cave-roosting species, though it has also been detected roosting in disused mine shafts, overhangs. It seems to prefer the 'twilight' areas of caves, and may dependent on sandstone outcrops.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.

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Miniopterus australis 	Little Bent Wing Bat	Vulnerable		Moist eucalypt forest, rainforest, vine thicket, wet and dry sclerophyll forest, *Melaleuca* swamps, dense coastal forests and banksia scrub. Generally found in well-timbered areas. Little Bentwing-bats roost in caves, tunnels, tree hollows, abandoned mines, stormwater drains, culverts, bridges and sometimes buildings during the day, and at night forage for small insects beneath the canopy of densely vegetated habitats. Their diet consists primarily of beetles, moths, flies and even spiders. They congregate in maternity colonies during summer. Females congregate in maternity colonies with the eastern bent-wing bat from August. Young are born in December.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Micronomus norfolkensis 	Eastern Coastal Free-tailed Bat	Vulnerable		This bat has dark brown to reddish brown fur on the back and slightly paler below. Roost mainly in tree hollows but will also roost under bark or in man-made structures. Usually solitary but also recorded roosting communally, probably insectivorous.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Birds					
Stictonetta naevosa. 	Freckled Duck	Vulnerable		Utilises large, well vegetated swamps; in dry periods moves to open lakes. Several records around Dapto/ Albion Park, usually during inland droughts.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
					is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Oxyura australis 	Blue-billed Duck	Vulnerable		It is generally only during summer or in drier years that they are seen in coastal areas. It prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation. The species is completely aquatic, swimming low in the water along the edge of dense cover.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Apus pacificus 	Fork-tailed Swift		Marine Migratory	In NSW, the Fork-tailed Swift is recorded in all regions. Many records occur east of the Great Divide, however, a few populations have been found west of the Great Divide. The Fork-tailed Swift is almost exclusively aerial, flying from less then 1 m to at least 300 m above ground and probably much higher. The Fork-tailed Swift usually arrives in Australia around October; some arrive early in September, however, this is rare.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Hirundapus caudacutus 	White-throated Needletail	Vulnerable	Vulnerable Marine Migratory	This species is a large (20 cm in length) swift with a thickset, cigar-shaped body, stubby tail and long pointed wings. It is widespread in eastern and south-eastern Australia. Most species spend the non-breeding season in Australasia. In	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
				Australia, the species is almost exclusively aerial, from heights of less than 1 m up to more than 1000 m above the ground.	motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Ardenna pacifica 	Wedge-tailed Shearwater		Marine Migratory	A coastal and pelagic species found in tropical and sub-tropical waters covering the Indian and Pacific Oceans. Breeds on island and the birds return in mid-August to early September when they establish pair bonds, dig out, prepare and defend potential nesting burrows.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Puffinus tenuirostris 	Short-tailed Shearwater		Marine Migratory	The shearwater is the most abundant Australian seabird. Their colonies are usually found on headlands and islands covered with tussocks and succulent vegetation such as pigface and ice plant. Headlands allow for easy take-off and landing.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.

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Puffinus assimilus. 	Little Shearwater	Vulnerable	Marine Migratory	Migratory marine bird of subtropical and occasionally tropical waters. Feeds in continental shelf waters and breeds on subtropical and sub-Antarctic islands. Nests in burrows in tussock grassland, shrub land, woodland and under mats of succulents.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Ardenna grisea	Sooty Shearwater		Vulnerable Marine Migratory	The Sooty Shearwater is a large, robust sea bird, with a wingspan up to 105 cm and a weight of up to 1 kg. The head, upper body, upper wing and tail of the Sooty Shearwater are uniformly dark brown-grey. It often appears all dark at sea, except for the under-wing. In Australia, the Sooty Shearwater breeds on islands off New South Wales (NSW) and Tasmania. In Australian waters, the Sooty Shearwater has been recorded in areas with sea surface-temperatures of 8.7-22.0° C (Reid et al. 2002). (DCCEEW)	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Calonectris leucomelas 	Streaked Shearwater		Marine Migratory	This species occurs in inshore waters in the Pacific Ocean. It migrates towards southern Australia and mainly feeds on fish and squid.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal

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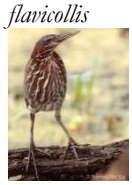
					is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Macronectes giganteus. 	Southern Giant Petrel	Endangered	Endangered Marine Migratory	Migratory marine bird. The Southern Giant Petrel is a common visitor off the coast NSW. It is an opportunistic scavenger and predator, and scavenges from fishing vessels and animal carcasses on land. It is also an active predator of cephalopods and Euphausiids, as well as smaller birds (particularly penguins) both at land and at sea.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Macronectes halli. 	Northern Giant Petrel	Vulnerable	Vulnerable Marine Migratory	The Northern Giant Petrel visits areas off the Australian mainland mainly during the winter months (from May to October). Immature and some adult birds are commonly seen during this period in offshore and inshore waters on the east coast. The Northern Giant Petrel eats seal, whale, and penguin carrion, and seal placenta. Kelp is also recorded in its diet.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Pterodroma cervicalis	White-necked Petrel		Marine	A large pelagic petrel with long wings and a long, thick bill. The dark "M" pattern on the wings contrasts with the gray back. The underwings are mostly white (eBird).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
				Ranges over subtropical and tropical waters of the South Pacific.	restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Ephippiorhynchus asiaticus 	Black-necked Stork	Endangered		Inhabits permanent freshwater wetlands including margins of billabongs, swamps, shallow floodwaters, and adjacent grasslands and savannah woodlands. Black Necked Storks can also be found occasionally on inter tidal shorelines, mangrove margins and estuaries. Feeds in shallow, still water on a variety of prey including fish, frogs, eels, turtles, crabs and snakes.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Botaurus poiciloptilus 	Australasian Bittern (Also known as Brown Bittern)	Endangered	Endangered	Frequents reed beds, and other vegetation in water such as cumbungi, lignum and sedges. The Australasian bittern is a secretive, stocky, heron-like bird, living in wetlands where it forages. Bitterns are very well camouflaged and can be difficult to spot in the reeds and rushes. On occasion they will even sway in time with reeds to blend into their surroundings. The distinctive booming call of males gives them away.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
					will be impacted by the works.
Ixobrychus flavicollis 	Black Bittern	Vulnerable		The Black Bittern inhabits terrestrial and estuarine wetlands, generally where there is permanent fresh water. It also prefers wetlands with dense vegetation including sledges, rushes, and reeds though it may also occur in similar habitats in estuarine situations with either swamp (*Casuarina glauca*) or River Oak (*Casuarina cunninghamiana subspecies cunninghamiana*).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Haliaeetus leucogaster 	White Bellied Sea Eagle	Vulnerable	Marine	Birds have been recorded at or in the vicinity of freshwater swamps, lakes, reservoirs, billabongs, salt marsh and sewage ponds. They also occur at sites near the sea or seashore, such as around bays and inlets, beaches, reefs, lagoons, estuaries and mangroves. Terrestrial habitats include coastal dunes, tidal flats, grassland, heathland, woodland, forest (including rainforest) and even urban areas. Breeding territories are located close to water, and mainly in tall open forest or woodland, although nests are sometimes located in other habitats such as dense forest (including rainforest), closed scrub or in remnant trees on cleared land. Given the widespread distribution of the species, it is possible that the sea-eagle may occur in one or more of the threatened communities listed under the EPBC Act 1999.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Hieraaetus mo rphnoides 	Little Eagle	Vulnerable		The Little Eagle is found throughout the Australian mainland excepting the most densely forested parts of the Dividing Range escarpment. It occurs as a single population throughout NSW. Occupies open eucalypt forest, woodland or open woodland. There have been eight	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
				sightings of this species within Wollongong LGA.	and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Pandion cristatus 	Eastern Osprey	Vulnerable		The Eastern Osprey has contracted in south-eastern Australia since settlement. There is a single historical breeding report from Saint Georges Basin in NSW (North 1912). Favour coastal areas, especially the mouths of large rivers, lagoons and lakes. (NSW Gov OEH)	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Pandion haliaetus	Osprey		Marine Migratory	The Eastern Osprey is a medium-sized raptor. Adults are mainly dark-brown to blackish-brown above and white below with a white head and neck, streaked blackish-brown; a black stripe across the eye and ear; a black bill; and white to pale grey legs and feet (Johnstone & Storr 1998; Marchant & Higgins 1993). The breeding range of the Eastern Osprey extends around the northern coast of Australia (including many offshore islands) from Albany in Western Australia to Lake Macquarie in NSW (Abbott 1982; Barrett et al. 2003; Bischoff 2001; Blakers et al. 1984; Clancy 1991; Condon 1969; Dennis 2007a; Johnstone & Storr 1998; Marchant & Higgins 1993). Eastern Ospreys occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. They are mostly found in coastal areas but occasionally travel inland along major	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.

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				rivers, particularly in northern Australia (Johnstone & Storr 1998; Marchant & Higgins 1993; Olsen 1995)	
Lophoictinia isura. 	Square-tailed kite	Vulnerable		The Square-tailed Kite typically inhabits the coastal forested and wooded lands dominated by Woollybutt *Eucalyptus longifloria,* Spotted Gum *E. maculata* or Peppermint Gum *E. elata*, *E. smithii.* The species has also been sighted in forests containing *Angophora spp. and Callitris spp.* with a shrubby understorey and Box-Ironbark woodland (Debus & Czechura 1989). This specialist hunter prefers passerines, especially honeyeaters, and insects in the tree canopy, picking most prey items from the outer foliage. Breeding season is from July to February. Nesting sites are generally located along or near watercourses, in the fork or on a large, horizontal limb of *Angophora spp.or Eucalypt spp.* (Cameron 1992; Jolly 1989).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Diomedea exulans 	Wandering Albatross	Endangered	Vulnerable Marine Migratory	The Wandering Albatross is marine, pelagic and aerial. In the Australasian region, it occurs inshore, offshore and in pelagic waters. It flies within 15 m of the sea surface, using the updraft from wave fronts for lift. It breeds on islands. (DOE)	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Thalassarche melanophris	Black-browed Albatross	Vulnerable	Vulnerable Marine Migratory	The black-browed albatross is circumpolar in the southern oceans, and it breeds on 12 islands throughout that range. The black-browed albatross feeds on fish, squid, crustaceans, carrion, and fishery discards. This species has been observed stealing food from other species. This species normally nests on steep slopes	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
				covered with tussock grass and sometimes on cliffs; however, on the Falklands it nests on flat grassland on the coast. They are an annual breeder laying one egg from between 20 September and 1 November, although the Falklands, Crozet, and Kerguelen breeders lay about three weeks earlier.	vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Diomedea antipodensis 	Antipodean Albatross	Vulnerable	Vulnerable Marine Migratory	They disperse over the Tasman Sea and South Pacific Ocean as far as the coast of South America. The Antipodean Albatross is marine, pelagic and aerial and may approach the edge of pack-ice. It sleeps and rests on ocean waters when not breeding. The Antipodean Albatross nests in open patchy vegetation, such as among tussock grassland or shrubs on ridges, slopes and plateaus.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Diomedea gibsoni 	Gibson's Albatross	Vulnerable	Vulnerable Marine	This species regularly occurs off the NSW coast from Green Cape to Newcastle. Although representing a small proportion on its total foraging area, potential forage in NSW waters during the winter is nonetheless considered significant for the species. Forage for Gibson's Albatross is extremely patchy, both spatially and temporally, and individuals traverse great distances in search of food. This species feeds pelagically on squid, fish and crustaceans.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.

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Diomedea epomophora epomophora (sensu stricto) 	Southern Royal Albatross		Vulnerable Marine Migratory	The Southern Royal Albatross is migratory, and possibly circumpolar. It occurs in all sectors of the Southern Ocean. The Southern Royal Albatross is marine and pelagic. It occurs in subantarctic, subtropical and occasionally Antarctic waters. The Southern Royal Albatross nests on flat or gently sloping ground on slopes, ridges, gullies and plateau of large islands, and on the summits of islets.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Diomedea epomophora sanfordi (sensu stricto) 	Northern Royal Albatross		Endangered Marine Migratory	Occurs in subantarctic and subtropical waters. The Northern Royal Albatross is migratory, and possibly circumpolar. There are records of it from all sectors of the Southern Ocean.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Thalassachre bulleri 	Buller's Albatross		Vulnerable Marine Migratory	This albatross only nests on islands off New Zealand. Occurs in both inshore and offshore waters, including the continental shelf break and pelagic waters. Feeds mainly on squid, fish, tunicates, octopus and crustacea. One of the smallest albatross with a wingspan of 205 to 213 cm. The Buller's Albatross is similar to other grey-headed albatross, but has a striking black and yellow bill, a white forecap, and black patch before the eye.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the

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					nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Thalassarche cauta 	Shy Albatross	Endangered	Endangered Marine Migratory	Occurs in subantarctic and subtropical waters. Some birds migrate to waters off South Africa or South America. They occur over continental shelves around continents. The species does enter harbours and bays. The species flies low to moderately high, using updraft from wave fronts for lift. They nest on level or gently sloping ledges, summits, slopes and caves of rocky islets and stacks, usually in broken terrain with little soil and vegetation. There is 2017 record of the species at Belmore Basin and the observation is Wildlife Rehab with no other sighting notes to indicate if the bird was dead, alive, rescued or other.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Thalassarche eremita (sensu stricto) 	Chatham Albatross		Endangered Marine Migratory	Occurs in subantarctic and subtropical waters. It has been noted in shelf-waters around breeding islands, over continental shelves during the non-breeding season, and occurs inshore and offshore. It enters harbours and bays and is scarce in pelagic waters.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Thalassarche impavida 	Campbell Albatross		Vulnerable Marine Migratory	The Campbell Albatross is a medium sized albatross, with a wingspan of 210–250 cm. The Campbell Albatross breed on Campbell Island (Marchant & Higgins 1990).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to

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					protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Thalassarche salvini	Salvin's Albatross		Vulnerable Marine Migratory	Marine species occurs in shelf-waters around breeding islands. During the non-breeding seasons birds have been observed over continental shelves around commercial fishing vessels and grounds. They nest on slope vegetation with tussocks and succulents.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Thalassarche cauta steadi 	White capped Albatross		Vulnerable Marine Migratory	The White-capped Albatross is a marine species and occurs in subantarctic and subtropical waters such as New Zealand. They may show that some birds migrate to eastern Bass Strait and some to the areas around South Africa	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.

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Fregata ariel 	Lesser Frigatebird		Marine Migratory	The lesser frigatebird is a lightly built seabird with brownish-black plumage, long narrow wings and a deeply forked tail. Breeding seems to occur between May and December in the Australian region. They nest in trees (on Christmas Island) and both sexes contribute to nest building and incubation and feeding of the young. One egg is laid which takes 6–7 weeks to hatch.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Phaethon lepturus lepturus 	White-tailed Tropicbird		Marine Migratory	Breeding populations of the White-tailed Tropicbird throughout the Indian Ocean are widely dispersed, with most colonies separated by hundreds of kilometres (Corre & Jouventin 1999). At the species level, the White-tailed Tropicbird occupies marine habitats in tropical waters with sea-surface temperatures of more than 22°C.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Haematopus fuliginosus 	Sooty Oystercatcher	Vulnerable		Breeding resident with an Illawarra population of around 100 birds. Usually inhabits coastal rock platforms, and regularly breeds on the Five Islands. Occasionally frequents sandpits and tidal mudflats, mostly not when breeding.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the

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					nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Haematopus longirostris 	Pied Oystercatcher	Endangered		Uncommon breeding resident of estuaries, beaches and tidal mudflats. There are thirteen recorded sites within the Wollongong LGA.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Actitis hypoleucos 	Common Sandpiper		Marine Migratory	A small sandpiper of 19–21 cm in length with a wingspan of 32–35 cm. The species has a prominent white eye-ring and indistinct dark eye-stripe from the bill to the rear of the ear coverts. White patches amongst darker feathers on the sides of the breast area are also notable. The species has a long tail that extends behind the wings when at rest, short legs, and a medium length bill (Higgins & Davies 1996). Found along all coastlines of Australia and in many areas inland, the Common Sandpiper is widespread in small numbers. The population when in Australia is concentrated in northern and western Australia (Blakers et al. 1984; Higgins & Davies 1996). The species utilises a wide range of coastal wetlands and some inland wetlands, with varying levels of salinity, and is mostly found around muddy margins or rocky shores and rarely on mudflats. (DCCEEW)	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Calidris acuminate 	Sharp Tailed Sandpiper		Vulnerable Marine Migratory	The Sharp-tailed Sandpiper prefers the grassy edges of shallow inland freshwater wetlands. It is also found around flooded fields, mudflats, mangroves, rocky shores	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
				and beaches. Arrives in Australia in August, returning to Siberia in March, with greatest numbers in south-eastern Australia. The Sandpiper feeds on aquatic insects and their larvae, as well as worms, molluscs, crustaceans and sometimes, seeds.	informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Calidris ferruginea 	Curlew Sandpiper	Endangered	Critically Endangered Marine Migratory	The Curlew Sandpipers occur around the coasts and are also quite widespread inland, though in smaller numbers. Curlew Sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast, and ponds in salt works and sewage farms. They are also recorded inland, though less often. They occur in both fresh and brackish waters. Occasionally they are recorded around floodwaters. This species does not breed in Australia.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Calidris melanotos 	Pectoral Sandpiper		Marine Migratory	Roosting known to occur in area. From the high Arctic this species migrates through the Americas to winter in southern South America. A slight deviation will lead to birds tracking down to Australia.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species

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					will be impacted by the works.
Limicola falcinellus 	Broad-billed Sandpiper	Vulnerable		Rare summer migrant. Utilises tidal mudflats, reefs, salt marsh, freshwater wetlands, sewage ponds; favours muddy ooze. There have been three recorded sightings within the LGA. One of these sites is at Coniston Beach near Bank Street.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Limosa lapponica 	Bar-tailed Godwit		Marine Migratory	The Bar Tailed Godwit is found mainly in coastal habitats such as large intertidal sand flats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. It is found often around beds of sea grass and, sometimes, in nearby salt marsh. It has been sighted in coastal sewage farms and salt works, salt lakes and brackish wetlands near coasts, sandy ocean beaches, rock platforms, and coral reef-flats. It is rarely found on inland wetlands or in areas of short grass, such as farmland, paddocks and airstrips. This species does not breed anywhere in Australia.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Limosa limosa 	Black-tailed Godwit	Vulnerable	Endangered Marine Migratory	Commonly found in sheltered bays, estuaries and lagoons with large intertidal mudflats or sand flats, or spits and banks of mud, sand or shell grit; occasionally recorded on rocky coasts or coral islets. The use of habitat often depends on the stage of the tide. It is also found in shallow and sparsely vegetated, near-coastal,	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive

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				wetlands; such as salt marsh, salt flats, river pools, swamps, lagoons and floodplains. There are a few inland records, around shallow, freshwater and saline lakes, swamps, dams and bore-overflows.	vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Numenius madagascariensis 	Eastern Curlew or Curley		Critically Endangered Marine Migratory	Most commonly associated with sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sand flats, often with beds of sea grass. The birds are often recorded among salt marsh and on mudflats fringed by mangroves, and sometimes use the mangroves. This species does not breed anywhere in Australia.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Numenius phaeopus 	Whimbrel		Marine Migratory	Often found on the intertidal mudflats of sheltered coasts. It is also found in harbours, lagoons, estuaries and river deltas, often those with mangroves, but also open un-vegetated mudflats. It is occasionally found on sandy or rocky beaches, on coral or rocky islets, or on intertidal reefs and platforms. It has been infrequently recorded using saline or brackish lakes near coastal areas. It also used salt flats with salt marsh, or saline grasslands with standing water left after high spring-tides, and in similar habitats (Higgins & Davies 1996). This species does not breed anywhere in Australia.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.

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Tringa brevipes 	Grey-tailed Tattler		Marine Migratory	A medium sized wader but compared to other waders is has rather long wings and tail. It has a medium length straight bill and short yellow legs. Distributed along most of the coast from the Queensland border, south to Tilba Lake. It is more heavily distributed along coastal regions north of Sydney. This species does not breed anywhere in Australia.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Tringa nebularia 	Common Greenshank		Endangered Marine Migratory	It is seen singly or in small to large flocks in a variety of coastal and inland wetlands. Wary, noisy and excitable, the Common Greenshank bobs its head in alarm and flushes with ringing calls. (Higgins & Davies 1996). The Common Greenshank does not breed in Australia. (Higgins & Davies 1996).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Tringa stagnatilis 	Marsh Sandpiper, Little Greenshank		Marine Migratory	Lives in permanent or ephemeral wetlands of varying salinity, including swamps, lagoons, billabongs, saltpans, salt marshes, estuaries, pools on inundated floodplains, and intertidal mudflats and also regularly at sewage farms and salt works. They are recorded less often at reservoirs, waterholes, soaks, bore-drain swamps and flooded inland lakes. They are said to avoid, or rarely occur in, tidal habitats, and rarely occur on beaches. They are found infrequently around mangroves areas. This	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
				species does not breed anywhere in Australia.	nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Gallinago hardwickii 	Latham's Snipe		Vulnerable Marine Migratory	In Australia the Latham's Snipe is a single, dispersed non-breeding population (Garnett & Crowley 2000). They usually inhabit open, freshwater wetlands, bogs etc with low, dense vegetation (Frith et. al. 1977; Naarding 1983; Weston 2006, pers. comm.). Also they occur in saline or brackish water, in modified or artificial habitats, and in habitats located close to humans or human activity (Frith et al. 1977; Naarding 1983).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Hydroprogne caspia 	Caspian Tern		Marine Migratory	The largest tern in Australia, the Caspian Tern has long, slender backswept wings and a slightly forked tail. The heavy bill is red with a dusky tip. It has a widespread occurrence and can be found in both coastal and inland habitat (Higgins & Davies 1996).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Sterna bergii 	Crested Tern		Marine	Crested Terns are found throughout Australia. They form small to large flocks, often with other species, along coastal areas. They are seldom seen on inland waterways, preferring islands, beaches, lakes and inlets.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to

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					protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Gelochelidon nilotica	Gull-billed Tern		Marine Migratory	This is a fairly large and powerful tern, similar in size and general appearance to a Sandwich tern, but the short thick gull-like bill, broad wings, long legs and robust body are distinctive. The summer adult has grey upperparts, white underparts, a black cap, strong black bill and black legs. It breeds in warmer parts of the world in southern Europe, temperate and eastern Asia, both coasts of North America, eastern South America. All forms show a post-breeding dispersal, but the northern breeders are most migratory, wintering south to Africa, the Caribbean and northern South America, southern Asia and New Zealand. (Atlas of Living Australia)	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Sternula nereis nereis 	Fairy Tern		Vulnerable	The Fairy Tern nests on sheltered sandy beaches, spits and banks above the high tide line and below vegetation. The subspecies has been found in embayments of a variety of habitats including offshore, estuarine or lacustrine (lake) islands, wetlands and mainland coastline. The bird roosts on beaches at night.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.

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Sterna striata	White-fronted Tern		Marine	The White-fronted Tern has grey back and wings with white everywhere else except a black cap. The tail is grey and deeply forked, extending past the wing tips. The White-fronted Tern is distributed along the south-east coast of Australia, and in New Zealand. They can occur as far north as Bribie, Moreton and Stradbroke Islands in QLD, and all around the coast to the Coorong and the south coast of Kangaroo Island in SA. The White-fronted Tern occurs in coastal seas and exposed rocky costs. They can be found also in sandy beaches of sheltered coasts such as bays, harbours, estuaries and lagoons (this is less frequent in Australia than New Zealand). (Australian Museum)	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Pluvialis fulva 	Pacific Golden Plover		Marine Migratory	Usually inhabits coastal habitats, though it occasionally occurs around inland wetlands. Usually occur on beaches, mudflats and sand flats (sometimes in vegetation such as mangroves, low salt marsh such as Sarcocornia, or beds of sea grass) in sheltered areas including harbours, estuaries and lagoons, and also in evaporation ponds in salt works. Also recorded on islands, sand and coral cays and exposed reefs and rocks.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Pluvialis squatarola 	Grey Plover		Vulnerable Marine Migratory	Grey Plovers occur almost entirely in coastal areas, where they usually inhabit sheltered embayments, estuaries and lagoons with mudflats and sandflats, and occasionally on rocky coasts with wave-cut platforms or reef-flats, or on reefs within muddy lagoons. They also occur around terrestrial wetlands such as near-coastal lakes and swamps, or salt-lakes. (Marchant & Higgins 1993 and references therein). On their breeding grounds they inhabit tundra (Dement'ev & Gladkov 1951). They usually roost in sandy areas, such as	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
				on unvegetated sandbanks or sand-spits on sheltered beaches or sheltered estuaries or lagoons (Jaensch et al. 1988; Pegler 1983).	nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Thinornis cucullatus cucullatus	Eastern Hooded Dotterel/Plover	Critically Endangered	Vulnerable Marine	The Easter Hooded Dotterel is pale-coloured and is unmistakable in having a prominent black hood and throat, a white collar, and a contrasting black-tipped red bill, a red eye-ring and short orange legs. The hooded plover (eastern) is a small Australian beach nesting bird. It mainly occurs on wide beaches backed by dunes with large amounts of seaweed and jetsam, creek mouths and inlet entrances. Nests are found above the high water mark on flat beaches, on stony terraces, or on sparsely vegetated dunes.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Arenaria interpres 	Ruddy Turnstone		Vulnerable Marine Migratory	The Ruddy Turnstone is found on coastal regions with exposed rock coast lines or coral reefs. It also lives near platforms and shelves, often with shallow tidal pools and rocky, shingle or gravel beaches. It can, however, be found on sand, coral or shell beaches, shoals, cays and dry ridges of sand or coral. It has occasionally been sighted in estuaries, harbours, bays and coastal lagoons, among low salt marsh or on exposed beds of sea grass, around sewage ponds and on mudflats. Does not breed in Australia.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Calidris ruficollis 	Red-necked Stint		Marine Migratory	It is distributed along most of the Australian coastline with large densities on the Victorian and Tasmanian coasts. The Red-necked Stint has been recorded in all coastal regions, and found inland in all states when conditions are suitable. This species does not breed in Australia	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to

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					protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Charadrius leschenaultia 	Greater Sand-plover	Vulnerable	Marine Migratory	Rare summer migrant, with only one or two individuals any given year. Utilises wide, sandy or Shelly beaches; sand spits, tidal mudflats, reefs, sand-cays, mangroves, salt marsh, dune wilderness, bare paddocks; seldom far inland. This species does not breed in Australia and there has been six sightings recorded within the LGA.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Anous stolidus	Common Noddy		Marine Migratory	In Australia, the Common Noddy occurs mainly in ocean off the Queensland coast, but the species also occurs off the north-west and central Western Australia coast. The species is also rarely encountered off the coast of the Northern Territory, where only one breeding location with about 100-130 birds is known (Chatto 2001). The species also occurs on Norfolk, Lord Howe, Christmas and Cocos-Keeling Islands (Higgins & Davies 1996). During the breeding season, the Common Noddy usually occurs on or near islands, on rocky islets and stacks with precipitous cliffs, or on shoals or cays of coral or sand. Birds may nest in bushes, saltbush, or other low vegetation. They may also nest on the ground in Pigface (Carpobrotus spp.) or grass, on bare rock, on top of rocks protruding above vegetation, on shingle	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.

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				beaches, among coral rubble or in sand close to grassy areas. During the non-breeding period, the species occurs in groups throughout the pelagic zone (open ocean) (Higgins & Davies 1996).	
Limosa lapponica baueri	Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit		Endangered	The bar-tailed godwit (western Alaskan) is a large migratory shorebird. It has a long neck with a very long upturned bill which is characterized by a dark tip and pinkish base. All non-breeding plumages have a uniform upper pattern, with a dark back and upper rump. The bar-tailed godwit (both subspecies combined) has been recorded in the coastal areas of all Australian states. It is widespread in the Torres Strait and along the east and south-east coasts of Queensland, NSW and Victoria. The bar-tailed godwit (western Alaskan) occurs mainly in coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. (Aus Gov Threatened Species Scientific Committee).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Calidris canutus 	Red Knot		Vulnerable Marine Migratory	Bonn, Japan-Australia Migratory Bird Agreement (JAMBA), China-Australia Migratory Bird Agreement (CAMBA), Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA). The Red Knot is common in all the main suitable habitats around the coast of Australia (Barrett et al. 2002b; Minton, C.D.T. 2002, pers. comm.; Watkins 1993). In Australasia the Red Knot mainly inhabit intertidal mudflats, sandflats and sandy beaches of sheltered coasts, in estuaries, bays, inlets, lagoons and harbours; sometimes on sandy ocean beaches or shallow pools on exposed wave-cut rock platforms or coral reefs. (DCCEEW)	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Cuculus optatus	Oriental Cuckoo, Horsfield's Cuckoo		Migratory	The adult male has a grey head, breast and upperparts. The belly is creamy-white with dark bars. The legs and feet are orange-yellow and there is a bare yellow ring around the eye. Adult females and juveniles occur in two morphs. The grey morph is similar to the male but has a brownish wash on the breast. The rufous	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive

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				morph is reddish-brown above, paler on the underparts and with strong dark bands all over including the rump. The exact extent of its wintering range is uncertain due to its secretive habits and the difficulty of separating it from the Himalayan cuckoo and other similar species. It is believed to include northern and eastern Australia. It mainly inhabits forests, occurring in coniferous, deciduous and mixed forest. (Atlas of Living Australia)	vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Rostratula australis 	Australian Painted Snipe	Endangered	Endangered Marine	The Australian Painted Snipe has been recorded at wetlands in all states of Australia (Barrett et al. 2003; Blakers et al. 1984; Hall 1910b). It is most common in eastern Australia, where it has been recorded at scattered locations throughout much of Queensland, NSW, Victoria and south-eastern South Australia.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Falco hypoleucos 	Grey Falcon	Vulnerable	Vulnerable	The Grey Falcon breeds in areas receiving over 500 mm annual rainfall. It preys on birds, mostly granivorous parrots and pigeons, and mammals (Marchant and Higgins, 1993). It nests in the old nests of other birds, particularly those of other raptors, laying 2-3 eggs. The nests chosen are usually in the tallest trees along watercourses, particularly River Red Gum *Eucalyptus camaldulensis* (Marchant and Higgins, 1993, T. Aumann).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.

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Monarcha melanopsis 	Black-faced Monarch		Marine Migratory	The Black-faced Monarch is found in rainforests, eucalypt woodlands, coastal scrub and damp gullies. It may be found in more open woodland when migrating. Resident in the north of its range, but is a summer breeding migrant to coastal south-eastern Australia, arriving in September and returning northwards in March. The Black-faced Monarch forages for insects among foliage, or catches flying insects on the wing.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Motacilla flava (potentially Motacilla tschutschensis)	Yellow Wagtail		Marine Migratory	It is a slender 15–16 cm long bird, with the characteristic long, constantly wagging tail of its genus. The breeding adult male is basically olive above and yellow below. In other plumages, the yellow may be diluted by white. The heads of breeding males come in a variety of colours and patterns depending on subspecies. This species breeds in the East Palearctic and has a foothold in North America in Alaska. Populations migrate to south Asia and Australia. Vagrant individuals occur around the winter quarters at migration time. This insectivorous bird inhabits open country near water, such as wet meadows. It nests in tussocks, laying 4–8 speckled eggs.(Atlas of Living Australia)	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Myiagra cyanoleuca 	Satin Flycatcher		Marine Migratory	Utilises heavily vegetated gullies in forests, taller woodlands, usually above shrub layer; during migration, coastal forests, woodlands, mangroves, trees in open country, gardens.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the

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					nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Rhipidura rufifrons 	Rufous Fantail		Marine	In east and south-east Australia, the Rufous Fantail mainly inhabits wet sclerophyll forests, often in gullies dominated by eucalypts such as Tallow-wood (*Eucalyptus microcorys*), Mountain Grey Gum (*E. cypellocarpa*), Narrow-leaved Peppermint (*E. radiata*), Mountain Ash (*E. regnans*), Alpine Ash (*E. delegatensis*), Blackbutt (*E. pilularis*) or Red Mahogany (*E. resinifera*); usually with a dense shrubby understorey often including ferns. They also occur in subtropical and temperate rainforests; for example near Bega in south-east NSW, where they are recorded in temperate Lilly Pilly (*Acmena smithi*) rainforest, with Grey Myrtle (*Backhousia myrtifolia*), Sassafras (*Doryphora sassafras*) and Sweet Pittosporum (*Pittosporum undulatum*) subdominants.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Monarcha trivirgatus	Spectacled Monarch		Marine Migratory	It is found in Australia, Indonesia, and Papua New Guinea. Its natural habitats are subtropical or tropical moist lowland forests, subtropical or tropical mangrove forests, and subtropical or tropical moist montane forests. (Atlas of Living Australia)	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Ardea ibis 	Cattle Egret		Marine	The Cattle Egret occurs in tropical and temperate grasslands, wooded lands and terrestrial wetlands. It has occasionally been seen in arid and semi-arid regions however this is extremely rare. High numbers have been observed in moist, low-lying poorly drained pastures with an	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to

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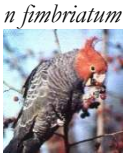
				abundance of high grass; it avoids low grass pastures. It has been recorded on earthen dam walls and ploughed fields. It is commonly associated with the habitats of farm animals, particularly cattle, but also pigs, sheep, horses and deer. They have sometimes been observed in swamps with tall emergent vegetation (Marchant & Higgins 1990; Morton et al. 1989).	protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Calyptorhynchus lathami lathami 	South-eastern Glossy Black Cockatoo	Vulnerable	Vulnerable	The Glossy Black Cockatoo characteristically inhabits forests on sites with low soil nutrient status, reflecting the distribution of key *Allocasuarina* species. The drier forest types with intact and less rugged landscapes are preferred by the Glossy Black Cockatoo. The Glossy Black Cockatoo is probably the most specialised member of its family feeding exclusively on seeds extracted from the wooden cones of Casuarinas.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Callocephalon fimbriatum 	Gang-gang Cockatoo	Endangered	Endangered	The Gang-gang Cockatoo in summer is found in tall mountain forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. In winter, may occur at lower altitudes in drier more open Eucalypt forests, particularly in box-ironbark assemblages, and often found in urban areas. Prefers old growth attributes for nesting and roosting. There have been 197 sightings within Wollongong LGA.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.

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Merops ornatus 	Rainbow Bee-eater		Marine	Resident in coastal and subcoastal northern Australia; regular breeding migrant in southern Australia, arriving September to October, departing February to March, some occasionally present April to May (Pizzey and Knight 1997). Occurs in open country, chiefly at suitable breeding places in areas of sandy or loamy soil: sand-ridges, riverbanks, road-cuttings, sandpits, occasionally coastal cliffs (ibid). Nest is a chamber the end of a burrow, up to 1.6 m long, tunneled in flat or sloping ground, sandy back or cutting (ibid).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Lathamus discolour 	Swift Parrot	Endangered	Critically Endangered Marine	The Swift Parrot inhabits dry sclerophyll eucalypt forests and woodlands. It occasionally occurs in wet sclerophyll forests. Individuals or small groups may be expected to occur infrequently in areas with fruiting trees, including gardens. The Swift Parrot breeds only in Tasmania and predominantly forages within habitats that have been cleared and classified as endangered ecological communities (OEH).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Neophema pulchella 	Turquoise Parrot	Vulnerable		Two species have been recorded within the catchment area, one near Mt Keira and one at Darkes Forest. The species occurs in Eucalyptus woodlands and open forests, with a ground cover of grasses and low understorey of shrubs. These forests/woodlands usually have mixed assemblages of native pine (*Callitris* and a variety of Eucalyptus species, especially White Box *Eucalyptus albens*, Yellow Box Eucalyptus *melliodora*, Blakely's Red Gum *Eucalyptus blakelyi*, Red Box, Red Stringybark, *Eucalyptus macrorhyncha,* Bimble Box *Eucalyptus populnea* or Mulga Ironbark *Eucalyptus sideroxylon* (OEH).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the

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					nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Polytelis swainsonii 	Superb Parrot	Vulnerable	Vulnerable	The Superb Parrot is found extensively throughout Eastern inland NSW. Birds breeding in this region are mainly absent during winter, when they migrate north. It is estimated that there are less than 5000 breeding pairs left in the wild. Occasional records are probably attributable to aviary escapes (OEH).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Neophema chrysogaster 	Orange Bellied Parrot	Critically Endangered	Critically Endangered Marine	The species forages for the seeds of low vegetation in a variety of coastal plant communities and roosts in shrub land usually within 10 km of the coast of South Eastern Australia. It breeds only in South Western Tasmania and migrates to Victoria and South Australia to spend winter in salt marsh and strandline habitats (OEH).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Neophema chrysostoma	Blue-winged Parrot	Vulnerable	Vulnerable Marine	Upper body and breast dark green, wings blue, belly yellow-green. Face yellow with a blue stripe across the forehead. Tail green and blue with a yellow edge. Body up to 23 cm long. Blue-winged Parrots are nomadic, moving to different areas depending on the availability of grasses and herbs. Found in woodlands, coastal	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to

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				heaths and grasslands. (Atlas of Living Australia)	protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Pachyptila turtur subantarctica	Fairy Prion		Vulnerable Marine	The fairy prion (southern) breeds on Macquarie Island and a number of other subantarctic islands outside of Australia. There are 80 to 250 breeding pairs in Australia and a global population of 80 000. In Australia, breeding is recorded on two rock stacks off Macquarie Island and on the nearby Bishop and Clerk Island. The population may have been larger prior to the arrival of black rats on Macquarie Island. The subspecies digs burrows among rocks or low vegetation in which to nest. Burrows may be dug below mat forming herbs. Feeds by plucking food from the ocean surface. Some individuals may migrate towards New Zealand and southern Australia in winter. (DCCEEW)	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Anthochaera phrygia  *Formerly known as Xanthomyza phrygia*	Regent Honeyeater	Critically Endangered	Critically Endangered	Most records appear to be in late spring and summer, so it may continue to be a casual visitor to flowering trees in the area, though the winter flowering Swamp Mahogany is also an important resource in other localities. The species favours Box Ironbark Eucalypt associations, though also utilised wet lowland coastal forests dominated by Swamp Mahogany, Spotted Gum and Riverine Casuarina woodlands. Remnant stands of timber and street trees also provide important habitat at certain times.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.

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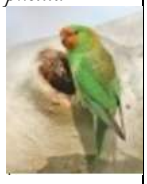
Climacteris picumnus victoriae	Brown Treecreeper	Vulnerable	Vulnerable	The Brown Treecreeper, Australia's largest treecreeper, is a grey-brown bird with black streaking on the lower breast and belly and black bars on the undertail. The face is pale, with a dark line through the eye, and a dark crown. The Brown Treecreeper is endemic to eastern Australia and occurs in eucalypt forests and woodlands of inland plains and slopes of the Great Dividing Range. It is less commonly found on coastal plains and ranges.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Petroica phoenicea 	Flame Robin	Vulnerable		The Flame Robin breeds in upland moist eucalypt forests and woodlands in areas of open understorey. It migrates in winter to more open lowland grassland and open woodland. The Robin forages on invertebrates taken from the ground, tree trunks, logs and other coarse woody debris. The Robin builds an open cup nest near the ground in a ledge or shallow cavity in a tree, stump or bank.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Ptilinopus regina 	Rose-crowned Fruit-Dove	Vulnerable		Rose Crowned Fruit Doves occur mainly in sub-tropical and dry rainforest and occasionally in moist Eucalypt forest and swamp forest, where fruit is plentiful. They are shy pigeons, not easy to see amongst the foliage, and are more often heard than seen. Some populations are migratory in response to food availability numbers in North Eastern NSW increase during spring and summer then decline in April or May.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
					nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Ptilinopus superbus 	Superb Fruit-dove	Vulnerable		Inhabits rainforest and similar closed forests eating the fruits of many tree species such as figs and palms and may also forage in *Eucalypt* or *Acacia* Woodlands e.g. *Syncarpia glomulifera* where there are plentiful fruit bearing trees. Breeding takes place from September to January. The nest is a structure of fine interlocked forked twigs and is usually 5-30 meters up in the canopy. Three individual sightings recorded at Mt Pleasant, Keiraville and Mangerton area.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Glossopsitta pusilla 	Little Lorikeet	Vulnerable		Forages primarily in the canopy of open Eucalyptus forest and woodland, yet also finds food in Angophora, Melaleuca and other tree species. Nests in proximity to feeding areas if possible, most typically selecting hollows in the limb or trunk of smooth-barked Eucalypts. Entrance is small (3 cm) and usually high above the ground (2–15 m). These nest sites are often used repeatedly for decades, suggesting that preferred sites are limited. Riparian trees often chosen, including species like Allocasuarina. Nesting season extends from May to September and in years when flowering is prolific (OEH).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Dasyornis brachypterus 	Eastern Bristlebird	Endangered	Endangered	The Eastern Bristlebird is a cover dependent and fire sensitive species. It occurs in dense heaths and woodlands of both the coast and plateau. It was last recorded in the Wollongong LGA west of Mt. Kembla during the 1960's. There is a remote possibility that the species may still	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to

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				exist in the catchment areas of wet heath or mallee (OEH).	protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Pycnoptilus floccosus 	Pilotbird		Vulnerable	Pilotbirds are strictly terrestrial, living on the ground in dense forests with heavy undergrowth. Largely sedentary, they are typically seen hopping briskly over the forest floor and foraging on damp ground or among leaf-litter. Flight is described as fairly weak, though, if disturbed, birds can sometimes ascend into shrubs (but no more than 1–2 m from the ground). Birds forage mostly in pairs for insects, and occasionally eat seeds and fruits. They use their bills and feet to turn and scratch leaf litter for food. Habitat critical to the survival of the Pilotbird includes: • wet sclerophyll forests in temperate zones in moist gullies with dense undergrowth and • dry sclerophyll forests and woodlands occupying dry slopes and ridges	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Grantiella picta 	Painted Honey Eater	Vulnerable	Vulnerable	The Painted Honeyeater is found in dry open forests and woodlands, and is strongly associated with mistletoe. It may also be found along rivers, on plains with scattered trees and on farmland with remnant vegetation. It has been seen in urban parks and gardens where large Eucalypts trees are available for the Painted Honey Eater. It forages on mistletoe, particularly *Amyema spp.* mainly in upper canopies of trees. It feeds mainly on mistletoe berries but also eats nectar from the flowers and insects. The honeyeater nest is a flimsy cup of plant material and spider web in foliage (OEH).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
Petroica rodinogaster 	Pink Robin	Vulnerable	Marine	Inhabits rainforest and tall, open eucalypt forest, particularly in densely vegetated gullies. Foraging more on the ground than the most flycatcher-like Rose Robin. Insects and spiders are the main dietary items. Breeds between October and January and can produce two clutches in a season. The nest is a deep, spherical cup made of green moss bound with cobweb and adorned with camouflaging lichen, and is lined with fur and plant down. It is situated in an upright or oblique fork, from 30cm to 6m above the ground, in deep undergrowth (OEH).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Ninox strenua 	Powerful Owl	Vulnerable		Habitat preference may be a result of distribution of prey (common Ringtail Possums and Greater Gliders). Usually breeds and roosts in closed forest, including rainforests and wet sclerophylls. It roosts by day in dense vegetation comprising species such as *Syncarpia glomulifera, Allocasuarina littoralis, Acacia melanoxylon, Angophora floribunda, Exocarpus cupressiformis* and a number of eucalypt species.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Tyto novaehollandiae 	Masked Owl	Vulnerable		The Masked Owl may occur in areas above the escarpment, particularly along the edges of the more open woodlands. It inhabits large hollows for roosting and open areas for hunting. It lives in dry Eucalypt forests and woodlands from sea level to 1100m. A forest owl, but often hunts along the edges of forests, including roadsides. It will use large tree hollows or even caves for nesting.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
					nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Tyto tenebricosa 	Sooty Owl	Vulnerable		Occurs in rainforest, including dry rainforest, subtropical and warm temperate rainforest, as well as moist eucalypt forests. Roosts by day in the hollow of a tall forest tree or in heavy vegetation; hunts by night for small ground mammals or tree-dwelling mammals such as the Common Ringtail Possum or Sugar Glider. Nests in very large tree-hollows (OEH).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Epthianura albifrons	White-fronted Chat	Vulnerable		The White-fronted Chat is an endemic Australian passerine bird, 12 cm in length and weighing approximately 13 g. It has a short slender bill, long spindly legs, a short square-tipped tail and rounded wings. Classified as a honeyeater it is most similar in form to its close relatives, the Orange Chat, Yellow Chat and Crimson Chat from which it is easily distinguished by its black and white colouration. The White-fronted Chat is found across the southern half of Australia, from southernmost Queensland to southern Tasmania, and across to Western Australia as far north as Carnarvon. Found mostly in temperate to arid climates and very rarely sub-tropical areas, it occupies foothills and lowlands up to 1000 m above sea level. In NSW, it occurs mostly in the southern half of the state, in damp open habitats along the coast, and near waterways in the western part of the state. Along the coastline, it is found predominantly in saltmarsh vegetation but also in open grasslands and sometimes in low shrubs bordering wetland areas. Gregarious species, usually	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
				found foraging on bare or grassy ground in wetland areas, singly or in pairs. (NSW Gov OEH)	
Plants					
Cynanchum elegans 	White-Flowered Wax Plant	Endangered	Endangered	Vegetation communities where this species has been recorded: • MU4/MU13 Lowland Dry Subtropical Rainforest; • MU5/MU6/MU32 Littoral Rainforest; • MU46 *Leptospermum laevigatum, Banksia integrifolia subsp. integrifolia coastal scrub;* • MU23/MU24/MU37/MU38/MU13 *Eucalyptus tereticornis* aligned open forest/woodland; • MU25 *Eucalyptus maculata* aligned open forest/woodland; • MU38/MU54 *Melaleuca armillaris* scrub to open scrub. A climber or twiner with a highly variable form. Mature stems have a fissured corky bark and can grow to 10 metres long and 3.5 cm thick. The leaves are paired (or rarely in threes). Flowering occurs between August and May, with a peak in November. Flower abundance on individual plants varies from sparse to prolific.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Senna acclinis 	Rainforest Cassia	Endangered		One sighting within the Wollongong LGA. Grows in subtropical rainforest to 2 metres high, now very rare owing to clearing. Yellow flowers 30 mm in Spring and Summer. This species is dependent on a pool of pollinators capable of removing the pollen such as bees and butterflies.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
Rhodamnia rubescens 	Scrub Turpentine	Critically Endangered	Critically Endangered	Occurs in coastal districts north from Batemans Bay and occasionally extend inland onto escarpments up to 600 m in areas with rainfall. Flowers in late winter through to spring with a peak in October and fruits in December.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Syzygium paniculatum 	Magenta Lilly Pilly	Endangered	Vulnerable	Shrub or small tree with flaky bark. Grows in subtropical and littoral rainforest on sandy soils or stabilized dunes near the sea; widely separated localities between Bulahdelah and Jervis Bay.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Zieria granulate 	Illawarra Zieria	Endangered	Endangered	Zieria is known from several sites in the Illawarra mainly between Oak Flats and Toolijooa. It usually grows in shrubland on rocky outcrops with shallow volcanic soils. Less frequently found on moist slopes of the escarpment and in low-lying areas on Quaternary sediments in sclerophyll forest and on rainforest margins (DEC 2005; PlantNet 2011). Three vegetation types are considered to provide typical habitat for the species; *Melaleuca amillaris* scrub to tall shrub land, subtropical rainforest and *Eucalyptus tereticornis* woodland to open forest. The	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
				typical habitat is dry ridge tops and rocky outcrops on shallow volcanic soils, usually on Bombo Latite.	nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Solanum celatum 	*Solanum celatum*	Endangered		Grows in rainforest clearings, or in wet sclerophyll forests. The plant flowers August to October and produces fruit December to January. The species is restricted to an area from Wollongong to just south of Nowra, and west to Bungonia.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Acacia bynoeana 	Bynoe's Wattle	Endangered	Vulnerable	Forty-one sightings of the Bynoe's wattle has been in the Illawarra. Also found in the Hunter District (Morisset) south to the Southern Highlands and west to the Blue Mountains. It has recently been found in the Colymea and Parma Creek areas west of Nowra.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Caladenia tessellata 	Thick Lip Spider Orchid Daddy Long Legs	Endangered	Vulnerable	Generally found in grassy Sclerophyll woodland on clay loam or sandy soils, though the population near Braidwood is in low woodland with stony soil.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
					protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Cryptostylis hunteriana 	Leafless Tongue-orchid	Vulnerable	Vulnerable	This species may occur in a wide variety of habitats including heathlands, heathy woodlands, sedgelands, *Xanthorrheoa* spp. plains, dry sclerophyll forests, forested wetlands, freshwater wetlands, grasslands, grassy woodlands, rainforests and wet sclerophyll forests. Soils are generally considered to be moist and sandy; however, this species is also known to grow in dry or peaty soils.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Daphnandra johnsonii 	Illawarra Socketwood	Endangered	Endangered	Occupies the rocky hillside and gully slopes of the Illawarra lowlands, occasionally extending onto the upper escarpment slopes. Occurs within the Illawarra Subtropical Rainforest endangered ecological community at several sites. Occasionally found in moist Eucalypt forest in association with *E. tereticornis* (Forest Red Gum), *E. pilularis* (Blackbutt), *E. quadrangulata* (White Box) or *Casuarina cunninghamiana* (River She-Oak).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
Genoplesium baueri 	Bauer's Midge Orchid	Endangered	Endangered	*G. baueri* prefers open forest, woodland and shrubby forest in well drained gravelly or sandy soils. On average about 80 mm–120 mm tall and seldom have more than 4-5 flowers although 12 has been recorded on one plant in Sydney's northern suburbs.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Haloragis exalata subsp. exalata var. laevis 	Square Raspwort	Vulnerable	Vulnerable	*Haloragis exalata subsp. exalata* is divided into two varieties: *var. exalata and var. laevis*, has glabrous stems and leaves, 7-15 flowered dichasia and glabrous ovary (Wilson 2002). Haloragis exalata subsp. exalata var. laevis is currently restricted to a single population on two adjacent islands in Lake Illawarra (Miles & Cameron 2007).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Melaleuca biconvexa. 	Biconvex Paperbark	Vulnerable	Vulnerable	Biconvex Paperbark is a shrub or small tree with a typical paperbark. Biconvex Paperbark generally grows in damp places, often near streams or low-lying areas on alluvial soils of low slopes or sheltered aspects.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
					nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Persicaria elatior	Knotweed, Tall Knotweed	Vulnerable	Vulnerable	Knotweed is an erect herb growing to 90 cm tall, with stalked, glandular hairs (i.e. they are knobbed when seen under a lens) on most plant parts. Its leaves are up to 11 cm long and 30 mm wide. A sheath encircles the stem at the base of each leaf, which is characteristic of the *Polygonaceae* family. Its tiny flowers are in long, narrow spikes up to 5 cm long. The pink flower-segments are less than 4 mm long (NSW DECCW 2005ov). Knotweed is known from the North Coast, Central Coast and South Coast Botanical Subdivisions in New South Wales (NSW) and Moreton Pastoral District in south-east Queensland (NSW undated; Queensland Herbarium 1999). Knotweed has been collected from five sites in South-east NSW including: Mt Dromedary (an old record) (NSW DECCW 2005ov); Moruya State Forest (SF), near Turlinjah (NSW DECCW 2005ov); the Upper Avon River catchment, north of Robertson (NSW DECCW 2005ov); Bermagui (NSW DECCW 2005ov); Picton Lakes (NSW DECCW 2005ov). Knotweed normally grows in damp places, including coastal with swampy areas (Quinn et al. 1995); along watercourses, streams and lakes (NSW DECCW 2005ov); swamp forest (NSW DECCW 2005ov); disturbed areas (NSW DECCW 2005ov). (DCCEEW)	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Pimelea spicata 	Spiked Rice Flower	Endangered	Endangered	In the coastal Illawarra it occurs commonly in Coast Banksia open woodland with a better developed shrub and grass understorey. It has been in disturbed areas that would have previously supported Cumberland Plain Woodland Vegetation Community. In the Illawarra, it occurs on clay soils on coastal headland in *Themeda triandra* grassland with low native shrubs present.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
					will be impacted by the works.
Prasophyllum affine	Jervis Bay Leek Orchid	Endangered	Endangered	The Jervis Bay Leek Orchid is a ground orchid which produces a single onion-like leaf that can grow to 40 cm long. Flowers are produced on a cylindrical stalk that emerges from about two thirds of the way up the hollow leaf. Up to 35 flowers are clustered in a spike arranged along the top third of each flower stalk. Each flower is about 9 mm across and flower colour varies between plants; including light green, yellow, red-brown and purple. Jervis Bay Leek Orchid is currently known from three areas south-east of Nowra on South Coast. These are Kinghorne Point, Wowly Gully near the town of Callala Bay, and near the township of Vincentia. Grows on poorly drained grey clay soils that support low heathland and sedgeland communities. The underground dormant tubers commence shooting in mid-winter and leaves are known to have emerged above ground by June. (NSW Gov OEH)	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Pterostylis gibbosa 	Illawarra Greenhood	Endangered	Endangered	Occurs in forest or woodland with poorly drained soils. Associated vegetation is woodland dominated by *Eucalyptus tereticornis* (Forest Red Gum) and *Melaleuca decora* (White Feather Honey-myrtle) with an open grassy understorey. It is associated with the Lowland Woolybutt-*Melaleuca* Forest (MU24).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Rhizanthella slateri	Eastern Underground Orchid	Vulnerable	Endangered	The Eastern Underground Orchid grows on and derives its nourishment from dead or decaying organic matter. The stem is whitish, often branching, with prominent, fleshy, overlapping bracts (DECC 2008; 2005c; d). Flowering heads mature below the soil surface and may extend up to 2 cm above the ground. The Eastern Underground Orchid has a relatively large	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
				extent of occurrence, from the NSW south coast to the mid north coast. However, the species is likely to have a very restricted area of occupancy, as it is known from fewer than 10 small, isolated populations within its extent of occurrence. There are insufficient data available to adequately quantify the species' geographic distribution (TSSC 2007q). The species grows in eucalypt forest but no informative assessment of the likely preferred habitat for the species is available (DECC 2005b; c). (DCCEEW)	vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Rhodomyrtus psidioides	Native Guava	Critically Endangered	Critically Endangered	A shrub or small tree to 12 m high with brown scaly bark. Young branchlets and inflorescences covered with pale hairs. Leaves have conspicuous lateral veins and numerous oil glands. Petals white or pink. Berry yellow and fleshy. Occurs from Broken Bay, approximately 90 km north of Sydney, New South Wales, to Maryborough in Queensland. Populations are typically restricted to coastal and sub-coastal areas of low elevation however the species does occur up to c. 120 km inland in the Hunter and Clarence River catchments and along the Border Ranges in NSW. Pioneer species found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest often near creeks and drainage lines. (NSW Gov OEH)	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Thesium australe 	Austral Toadflax	Vulnerable	Vulnerable	Erect perennial herb to 40 cm high, pale green to yellow-green, glabrous; stems 1-several, little-branched, wiry, striate. Grows in grassland or woodland, often in damp sites.	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.
Populations					

Scientific Name	Common Name	BC Act	EPBC Act	Habitat Requirements	Likelihood of Impact
Gossia acmenoides 	The Scrub Ironwood population in the Sydney Basin Bioregion south of the Georges River	Endangered		Found primarily in Eucalyptus forest, health and low shrubland often in damp or moist sites. May occur in northern Illawarra on rocky ridges and areas of outcrops (including the military reserve lands and the Royal and Heathcote National Parks).	The works are to formalise an existing emergency vehicle access track and walking tracks, and close other informal tracks, and restrict 4WD and motorbike access to protect sensitive vegetation communities and allow for regeneration. Only pruning is required, no tree/vegetation removal is proposed. Due to the nature of the works, and provided safeguards outlined in this REF are implemented, it is unlikely that this species will be impacted by the works.

Native Vegetation of the Illawarra Escarpment and Coastal Plain (NVIE&CP 2002)		
Map Unit/Name (NVIE&CP 2002) **Habitat description / characteristic species**	**Ecological Community Status** **(BC Act and EPBC Act)**	**Likelihood of impact**
Lowland Dry-Subtropical Rainforest MU4  Lowland Dry-Subtropical Rainforest is a closed forest characterised by a low and dense canopy. It contains *Cassine australe*, *Streblus brunonianus*, *Notelaea venosa*, *Croton verreauxii*, *Alectryon subcinereus*, *Guoia semiglauca,* and *Planchonella australis*. Example locations include Mt Brown, Dapto; Berkeley Hills; Marshall Mount; Calderwood; and Avondale.	**BC Act:** Illawarra Subtropical Rainforest in the Sydney Basin Bioregion - **EEC** Include Forest Red Gum *Eucalyptus tereticornis*, Thin-leaved Stringybark *Eucalyptus eugenioides*, Woollybutt *Eucalyptus longifolia*, Coast Grey Box *Eucalyptus bosistoana* and White Feather Honey-myrtle *Melaleuca decora*. Occurs throughout the Illawarra coastal plain. Includes MU1 Illawarra Escarpment Subtropical Rainforest; MU4 Lowland Dry-Subtropical Rainforest **EPBC Act:** Illawarra-Shoalhaven Subtropical Rainforest of the Sydney Basin Bioregion - **Critically Endangered**	Unlikely. Works are restricted to existing disturbed land, and no tree removal is proposed, only pruning. Provided safeguards outlined in this report are in place, it is unlikely that this EEC will be impacted due to the nature of the works and minimal/no impact on habitat.
Lowland Woollybutt-Melaleuca Forest MU24  Fowlers Road Dapto Characterised by the dominance of Woollybutt (Eucalyptus *longifolia*), Paperbark (*Melaleuca decora*) and Narrow-leaved stringybark (*E. globoidea*) in the canopy. A grassy understorey and the presence of species such as Poison rock fern	**BC Act:** Illawarra Lowlands Grassy Woodland in the Sydney Basin Bioregion - **EEC** **EPBC Act:** Illawarra and South Coast Lowland Forest and Woodland Ecological Community - **Critically Endangered** Vegetation mapped as MU24 that will be impacted needs to be assessed against EPBC Conservation advice and satisfy 'Key diagnostic	Unlikely. Works are restricted to existing disturbed land, and no tree removal is proposed, only pruning. Provided safeguards outlined in this report are in place, it is unlikely that this EEC will be impacted due to the nature of the works and minimal/no impact on habitat

Native Vegetation of the Illawarra Escarpment and Coastal Plain (NVIE&CP 2002)		
(*Cheilanthes sieberi* subsp. *sieberi*), Hedgehog grass (*Echinopogon caespitosus* var. *caespitosus*), Golden star (*Hypoxis hygrometrica*) and Flax lily (*Dianella longifolia*). This community occurs on flat low-lying Shoalhaven Group sediments at elevations between 10 and 35 metres above sea level. Slope rarely exceeds 2 degrees.	characteristics' and 'Condition thresholds and survey guidelines' to determine status. The River-Flat Eucalypt Forest on coastal floodplains of southern New South Wales and eastern Victoria - **Critically Endangered** may overlap with this EEC	
Coastal Swamp Oak (Casuarina) Forest MU36  Coastal Swamp Oak Forest most often supports a simple forest structure with tree dominates as ***Casuarina glauca*** Swamp Oak and ***Melaleuca ericifolia*** Swamp Paperbark. The rush *Phragmites australis* is a regular component of the understorey with the sedge *Juncus kraussii* subsp. *australiensis* and forbs *Atriplex australasica* and *Commelina cyanea* also common. The EPBC River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions is now listed under the EPBC Act as 'critically endangered'. Swamp Oak Floodplain Forest EEC (MU36 - Coastal Swamp Oak Forest, such as at Puckeys Estate) and in this case where there isn't a distinct transition from dominance of Swamp Oak to Eucalyptus species.	**BC Act:**  DEC Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions – **EEC** **EPBC Act:** Coastal Swamp Oak (Casuarina glauca) Forest of NSW and South East Queensland – **Endangered** The River-Flat Eucalypt Forest On Coastal Floodplains Of Southern New South Wales And Eastern Victoria – **Critically Endangered** - may overlap with The Coastal Swamp Oak Forest.	Unlikely. Works are restricted to existing disturbed land, and no tree removal is proposed, only pruning. Provided safeguards outlined in this report are in place, it is unlikely that this EEC will be impacted due to the nature of the works and minimal/no impact on habitat
Saltmarsh MU52  Saltmarsh is a feature of the intertidal zone around the estuaries of Lake Illawarra and estuarine coastal lagoons. The vegetation is characterised by a mixture of salt tolerant forbs most frequently dominated by *Sarcocornia quinqueflora*, with *Juncus kraussii* subsp. *australiensis*, *Samolus repens, Triglochin striatum*, *Sporobolus virginicus* and *Suaeda australis* also common. Include Baumea juncea, Sea Rush (*Juncus krausii subsp. australiensis*), Samphire (*Sarcocornia quinqueflora subsp. quinqueflora*), Marine Couch (*Sporobolus virginicus*), Streaked Arrowgrass (*Triglochin striata*), Knobby Club-rush (*Ficinia nodosa*), Creeping Brookweed (*Samolus repens*), Swamp Weed (*Selliera radicans*), Seablite (*Suaeda australis*) and Prickly Couch (*Zoysia macrantha*). Includes MU52 Saltmarsh. Areas of Mangrove Forest within or adjacent to Coastal Saltmarsh are included within the EEC listings and intergrade with Coastal Swamp Oak Forest as salinity levels decrease. Example locations include Picnic Island, Purry Burry Point, Koonawarra Bay and Koona Bay. Werri Lagoon, Windang, Tom Thumb Lagoon, Springhill, Lake Heights; Kanahooka; Yallah on	**BC Act:**  DEC Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions - **EEC** **EPBC Act:** Subtropical and Temperate Coastal Saltmarsh - **Vulnerable** Vegetation mapped as MU52 needs to be assessed against EPBC Conservation advice and satisfy 'Key diagnostic characteristics' and 'Condition thresholds and survey guidelines' to determine status. The River-Flat Eucalypt Forest on Coastal Floodplains Of Southern New South Wales and eastern Victoria **- Critically Endangered** may overlap with this EEC	Unlikely. Works are restricted to existing disturbed land, and no tree removal is proposed, only pruning. Provided safeguards outlined in this report are in place, it is unlikely that this EEC will be impacted due to the nature of the works and minimal/no impact on habitat

Native Vegetation of the Illawarra Escarpment and Coastal Plain (NVIE&CP 2002)		
the lake. No flora species listed as threatened are listed within the LGA.		
Estuarine Alluvial Wetland MU53  Estuarine Alluvial Wetlands occur in small pockets of low-lying poorly drained soils on the coastal floodplains and estuaries. They are easily recognisable by a thick cover of rushes such as Common reed (*Phramites australis*), Cumbungi rush (*Typha orientalis*), *Juncus krausii* subsp. *australiensis* and Tall spike rush (*Eleocharis sphacelata*). They are characterised by low isolated trees of Swamp Oak (*Casuarina glauca*) and Prickly-leaved tea-tree (*Melaleuca stypheliodes*). No species listed as threatened. Component of the Sydney Coastal Estuary Swamp Forest Complex (EEC)	**BC Act:** Sydney Freshwater Wetlands in the Sydney Basin Bioregion - **EEC** **EPBC Act:** Not listed.	Unlikely. Works are restricted to existing disturbed land, and no tree removal is proposed, only pruning. Provided safeguards outlined in this report are in place, it is unlikely that this EEC will be impacted due to the nature of the works and minimal/no impact on habitat
Floodplain Wetland MU54  Dominated by dense grassland or sedgeland vegetation, if lack standing water, often forming a turf less than 0.5 metre tall and dominated by *Paspalum distichum* (water couch), *Leersia hexandra* (swamp rice-grass), *Pseudoraphis spinescens* (mud grass) and *Carex appressa* (tussock sedge). Occurs throughout the Illawarra. Includes MU54 Floodplain Wetland	**BC Act:** Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions - **EEC**  DEC Dominated by dense grassland or sedgeland vegetation, if lack standing water, often forming a turf less than 0.5 metre tall and dominated by Paspalum distichum (water couch), Leersia hexandra (swamp rice-grass), Pseudoraphis spinescens (mud grass) and Carex appressa (tussock sedge) Occurs throughout the Illawarra. Includes MU54 Floodplain Wetland **EPBC Act:** Not listed.	Unlikely. Works are restricted to existing disturbed land, and no tree removal is proposed, only pruning. Provided safeguards outlined in this report are in place, it is unlikely that this EEC will be impacted due to the nature of the works and minimal/no impact on habitat

Assessments of Significance

Swamp Oak Floodplain Forest
NSW Status: Endangered Ecological Community
BC Act Name: Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions
Commonwealth Status: Endangered
EPBC Act Name: Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community
Associated mapping units: MU36 – Swamp Oak Floodplain Forest, MU39 - Coastal Sand Freshwater Wetland, MU53 – Estuarine Alluvial Wetland
Description: This community is found on the coastal floodplains of NSW. It has a dense to sparse tree layer in which *Casuarina glauca* (swamp oak) is the dominant species. The community generally occurs below 20 m

(rarely above 10 m) elevation. It is associated with grey-black clay-loams and sandy loams, where the groundwater is saline or sub-saline, on waterlogged or periodically inundated flats, drainage lines, lake margins and estuarine fringes associated with coastal floodplains. The structure of the community may vary from open forests to low woodlands, scrubs or reedlands with scattered trees (NSW OEH).

Assessment of Significance under the BC Act:
The following is to be taken into account under Section 7.3 of the *NSW Biodiversity Conservation Act 2016* for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats—

(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction.
Does not apply as this is an Endangered Ecological Community, not a threatened species.

(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity—

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

The works are occurring on land that is already disturbed with no widening of tracks proposed. No tree or vegetation removal will occur, only pruning where vegetation has regrown over the fire trail and walking tracks. The formalisation of existing tracks for RFS emergency vehicle access will minimise the impacts of fire. By closing off informal tracks and trails, providing designated walking tracks for the public, and reducing 4WD and motorbike access to the site through the placement of concrete blocks, this will protect and enhance sensitive vegetation such as Coastal Saltmarsh. Restoration works are also occurring in this area to improve biodiversity at the site. Therefore, the proposed activity will not significantly impact the occurrence or composition of the EEC or place it at risk of extinction in the locality.

(c) in relation to the habitat of a threatened species or ecological community—

(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

No habitat of this EEC is proposed to be removed. The proposed works will not result in significant modification or removal of the community as only pruning is proposed where vegetation has regrown over the fire trail and walking tracks. The works seek to protect and enhance the sensitive vegetation within the site by minimising the impacts of fire, closing off informal tracks, providing designated walking tracks for the public, and reducing 4WD and motorbike access to the site.

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

The proposed works will not result in the EEC habitat becoming fragmented or isolated in a way that may impact on the long-term survival of the EEC. It is unlikely that the community will be further fragmented or isolated as a result of the works as no significant impact on these communities has been predicted. The works seek to protect and enhance the sensitive vegetation within the site.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

There is little likelihood for this EEC to be removed, modified, fragmented or isolated as a result of the works. Only pruning where vegetation has regrown over the fire trail and walking tracks will occur. The works seek to protect and enhance the sensitive vegetation within the site.

(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),
The activity is not being carried out in or in proximity to a declared area of outstanding biodiversity value, declared in accordance with Part 3 of the BC Act.

(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.
The key threatening processes relevant to the proposed action are the 'clearing of native vegetation' and 'alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands'. However, no vegetation removal is permitted for the works, only the pruning of vegetation that has regrown over the fire trail and walking tracks that are to be formalised. Pruning of native vegetation will be kept to the minimum required for the applicable fire trail category and associated emergency vehicles, and for the walking tracks. In regards to the alteration of natural flows, this is a potential impact of the works, however the works have been planned and designed to avoid the alteration of natural flows. Concrete bollards will not be placed within areas of pooling water; they will not abut one another meaning that there are gaps between them; and there is opportunity to potentially use chains between blocks to reduce the number of blocks required. Concrete block placement will also avoid existing saltmarsh vegetation.

Conclusion
The proposed action is unlikely to have a significant effect on Swamp Oak Floodplain Forest in the study area. Based on the test of significance above, it is concluded that the proposed activity is unlikely to significantly negatively impact any potential occurrence of the SOFF in the study area and therefore:

- There is no statutory requirement for a species impact statement to be prepared according to Part 7 Division 5 of the BC Act.
- It will not be necessary to voluntarily consider the preparation of a biodiversity development assessment report according to Section 6.12 of the BC Act as the alternative to a species impact statement.

References
Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions - profile | NSW Environment, Energy and Science

Assessment of Significance under the Environmental Protection and Biodiversity Act 1999:
The following factors must be taken into account in making a determination under the EPBC Act –

An action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:

Reduce the extent of an ecological community.
The works are occurring on land that is already disturbed with no widening of tracks proposed. No tree or vegetation removal will occur, only pruning where vegetation has regrown over the fire trail and walking tracks. The formalisation of existing tracks for RFS emergency vehicle access will minimise the impacts of fire. By closing off informal tracks and trails, providing designated walking tracks for the public, and reducing 4WD and motorbike access to the site through the placement of concrete blocks, this will protect and enhance sensitive vegetation. Restoration works are also occurring in this area to improve biodiversity at the site. Therefore, the proposed activity is not likely to lead to a long-term decrease in the extent of the ecological community.

Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines.
The proposed works will not result in the ecological community becoming fragmented or isolated in a way that may impact it's the long-term survival. It is unlikely that the community will be further fragmented or isolated as a result of the works. The works seek to protect and enhance the sensitive vegetation within the site.

Adversely affect habitat critical to the survival of an ecological community.
No habitat of this ecological community is proposed to be removed. The proposed works will not result in significant modification or removal of the community as only pruning is proposed where vegetation has regrown over the fire trail and walking tracks. The works seek to protect and enhance the sensitive vegetation within the site by minimising the impacts of fire, closing off informal tracks, providing designated walking tracks for the public, and reducing 4WD and motorbike access to the site.

Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns.
The proposed works are not likely to result in the modification or destruction of abiotic factors necessary for the ecological community's survival. Works will be occurring on land that is already disturbed, with no widening of any tracks proposed. No excavation is required for the works.

Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting.
No significant species in the ecological community are proposed for removal; only pruning of vegetation that has regrown over the fire trail and designated walking tracks will occur.

Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:

- **assisting invasive species, that are harmful to the listed ecological community, to become established, or**
- **causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community.**

The proposed works will not introduce invasive species or pollutants. No herbicides will be used for the works.

Interfere with the recovery of an ecological community.
It is unlikely that the proposed works will interfere with the recovery of this ecological community as the works seek to protect and enhance the sensitive vegetation within the site by minimising the impacts of fire, closing off informal tracks, providing designated walking tracks for the public, and reducing 4WD and motorbike access to the site.

Conclusion
It is concluded there is unlikely to be a significant impact on the ecological community. A referral to the Department of the Environment for a decision on an impact to a Matter of National Environmental Significance is not required.

References
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community (environment.gov.au)

Coastal Saltmarsh
NSW Status: Endangered Ecological Community

BC Act Name: Coastal Saltmarsh
Commonwealth Status: Vulnerable
EPBC Act Name: Subtropical and Temperate Coastal Saltmarsh
Associated mapping units: MU52
Description:

Assessment of Significance under the BC Act:
The following is to be taken into account under Section 7.3 of the *NSW Biodiversity Conservation Act 2016* for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats—

(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,
Does not apply as this is an Endangered Ecological Community, not a threatened species.

(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity—

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

The works are occurring on land that is already disturbed with no widening of tracks proposed. No tree or vegetation removal will occur, only pruning where vegetation has regrown over the fire trail and walking tracks. The formalisation of existing tracks for RFS emergency vehicle access will minimise the impacts of fire. By closing off informal tracks and trails, providing designated walking tracks for the public, and reducing 4WD and motorbike access to the site through the placement of concrete blocks, this will protect and enhance sensitive vegetation such as Coastal Saltmarsh. Restoration works are also occurring in this area to improve biodiversity at the site. Therefore, the proposed activity will not significantly impact the occurrence or composition of the EEC or place it at risk of extinction in the locality.

(c) in relation to the habitat of a threatened species or ecological community—

(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and
No habitat of this EEC is proposed to be removed. The proposed works will not result in significant modification or removal of the community as only pruning is proposed where vegetation has regrown over the fire trail and walking tracks. The works seek to protect and enhance the sensitive vegetation within the site by minimising the impacts of fire, closing off informal tracks, providing designated walking tracks for the public, and reducing 4WD and motorbike access to the site.

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and
The proposed works will not result in the EEC habitat becoming fragmented or isolated in a way that may impact on the long-term survival of the EEC. It is unlikely that the community will be further fragmented or isolated as a result of the works as no significant impact on these communities has been predicted. The works seek to protect and enhance the sensitive vegetation within the site.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality.

There is little likelihood for this EEC to be removed, modified, fragmented or isolated as a result of the works. Only pruning where vegetation has regrown over the fire trail and walking tracks will occur. The works seek to protect and enhance the sensitive vegetation within the site.

(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),
The activity is not being carried out in or in proximity to a declared area of outstanding biodiversity value, declared in accordance with Part 3 of the BC Act.

(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.
The key threatening processes relevant to the proposed action are the 'clearing of native vegetation' and 'alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands'. However, no vegetation removal is permitted for the works, only the pruning of vegetation that has regrown over the fire trail and walking tracks that are to be formalised. Pruning of native vegetation will be kept to the minimum required for the applicable fire trail category and associated emergency vehicles, and for the walking tracks. In regards to the alteration of natural flows, this is a potential impact of the works, however the works have been planned and designed to avoid the alteration of natural flows. Concrete bollards will not be placed within areas of pooling water; they will not abut one another meaning that there are gaps between them; and there is opportunity to potentially use chains between blocks to reduce the number of blocks required. Concrete block placement will also avoid existing saltmarsh vegetation.

Conclusion
The proposed action is unlikely to have a significant effect on Coastal Saltmarsh in the study area. Based on the test of significance above, it is concluded that the proposed activity is unlikely to significantly negatively impact any potential occurrence of the SOFF in the study area and therefore:

- There is no statutory requirement for a species impact statement to be prepared according to Part 7 Division 5 of the BC Act.
- It will not be necessary to voluntarily consider the preparation of a biodiversity development assessment report according to Section 6.12 of the BC Act as the alternative to a species impact statement.

References
Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions - profile | NSW Environment, Energy and Science

Assessment of Significance under the EPBC Act:
An assessment under the EPBC Act is not required for the EEC as ecological communities listed in the vulnerable category of ecological communities listed under the EPBC Act are not matters of national environmental significance for the purposes of Part 3 of the EPBC Act (requirements for environmental approvals). See Australian Government Department of the Environment – Matters of National Environmental Significance Guidelines pg. 8.

Sydney Freshwater Wetlands
NSW Status: Endangered Ecological Community
BC Act Name: Sydney Freshwater Wetlands
Commonwealth Status: N/A
EPBC Act Name: N/A
Associated mapping units: MU53
Description:

Assessment of Significance under the BC Act:

The following is to be taken into account under Section 7.3 of the *NSW Biodiversity Conservation Act 2016* for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats—

(a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,
Does not apply as this is an Endangered Ecological Community, not a threatened species.

(b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity—

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

The works are occurring on land that is already disturbed with no widening of tracks proposed. No tree or vegetation removal will occur, only pruning where vegetation has regrown over the fire trail and walking tracks. The formalisation of existing tracks for RFS emergency vehicle access will minimise the impacts of fire. By closing off informal tracks and trails, providing designated walking tracks for the public, and reducing 4WD and motorbike access to the site through the placement of concrete blocks, this will protect and enhance sensitive vegetation. Restoration works are also occurring in this area to improve biodiversity at the site. Therefore, the proposed activity will not significantly impact the occurrence or composition of the EEC or place it at risk of extinction in the locality.

(c) in relation to the habitat of a threatened species or ecological community—

(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and
No habitat of this EEC is proposed to be removed. The proposed works will not result in significant modification or removal of the community as only pruning is proposed where vegetation has regrown over the fire trail and walking tracks. The works seek to protect and enhance the sensitive vegetation within the site by minimising the impacts of fire, closing off informal tracks, providing designated walking tracks for the public, and reducing 4WD and motorbike access to the site.

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and
The proposed works will not result in the EEC habitat becoming fragmented or isolated in a way that may impact on the long-term survival of the EEC. It is unlikely that the community will be further fragmented or isolated as a result of the works as no significant impact on these communities has been predicted. The works seek to protect and enhance the sensitive vegetation within the site.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality.
There is little likelihood for this EEC to be removed, modified, fragmented or isolated as a result of the works. Only pruning where vegetation has regrown over the fire trail and walking tracks will occur. The works seek to protect and enhance the sensitive vegetation within the site.

(d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),
The activity is not being carried out in or in proximity to a declared area of outstanding biodiversity value, declared in accordance with Part 3 of the BC Act.

(e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

The key threatening processes relevant to the proposed action are the 'clearing of native vegetation' and 'alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands'. However, no vegetation removal is permitted for the works, only the pruning of vegetation that has regrown over the fire trail and walking tracks that are to be formalised. Pruning of native vegetation will be kept to the minimum required for the applicable fire trail category and associated emergency vehicles, and for the walking tracks. In regards to the alteration of natural flows, this is a potential impact of the works, however the works have been planned and designed to avoid the alteration of natural flows. Concrete bollards will not be placed within areas of pooling water; they will not abut one another meaning that there are gaps between them; and there is opportunity to potentially use chains between blocks to reduce the number of blocks required. Concrete block placement will also avoid existing saltmarsh vegetation.

Conclusion

The proposed action is unlikely to have a significant effect on Sydney Freshwater Wetlands in the study area. Based on the test of significance above, it is concluded that the proposed activity is unlikely to significantly negatively impact any potential occurrence of the SOFF in the study area and therefore:

- There is no statutory requirement for a species impact statement to be prepared according to Part 7 Division 5 of the BC Act.
- It will not be necessary to voluntarily consider the preparation of a biodiversity development assessment report according to Section 6.12 of the BC Act as the alternative to a species impact statement.

References

Sydney Freshwater Wetlands in the Sydney Basin Bioregion - profile | NSW Environment, Energy and Science

Assessment of Significance under the EPBC Act:

An assessment under the EPBC Act is not required for this EEC as it is not listed under the EPBC Act.

Appendix E: Coastal Management Assessment

Matters for Consideration under the State Environmental Planning Policy (Resilience and Hazards) 2021	**Yes/No/Comments** Refer to https://www.planningportal.nsw.gov.au/spatialviewer/#/find-a-property/address
Division 1 cl. 2.7 **Is the proposal within the Coastal Wetlands and Littoral Rainforests Area?** …development for the purpose of environmental protection works on land identified as "coastal wetlands" or "littoral rainforest" on the Coastal Wetlands and Littoral Rainforests Area Map may be carried out by or on behalf of a public authority without development consent if the development is identified in— (a) the relevant certified coastal management program, or (b) a plan of management prepared and adopted under Division 2 of Part 2 of Chapter 6 of the Local Government Act 1993, or (c) a plan of management under Division 3.6 of the Crown Land Management Act 2016.	Yes, works are proposed for areas mapped as coastal wetlands. However, the works are relating to the **Hooka Creek Fire Trail**, which was endorsed by the Illawarra Bushfire Management Committee on 13 June 2024 to be included in the Illawarra Fire Access and Fire Trail (FAFT) Plan – see Appendix B. This activity complies with the clause 2.54 of the SEPP (Transport and Infrastructure) 2021 which prevails over clauses 10 and 11 (now clauses 2.7 and 2.8) of the SEPP (Resilience and Hazards) 2021 (see clause 2.7 of the SEPP (Transport and Infrastructure). So the works can proceed, as long as works are undertaken in accordance with 2.54 of the SEPP (Transport and Infrastructure) 2021: (a) the development is consistent with the applicable bush fire management plan or any direction or agreement relating to the applicable fire trail, and (b) the development complies with the Fire Trail Standards, and (c) the development does not involve the use of fire, the widening of a fire trail, any clearing of vegetation (other than of regrowth on a fire trail) or any excavation. The **remainder of the works are aiming to protect and enhance sensitive coastal wetland area and vegetation** through closing off informal tracks and trails, provide designated walking tracks for the public, and to reduce 4WD and motorbike access, which can be considered **environmental protection works**. Actions within the Lake Illawarra Coastal Management Program covering these works include PM3 - Develop and implement a community engagement and participation strategy (interpretive signage at key locations to promote specific lake values/habitats); EV1 - Rehabilitate vegetation and manage public access along foreshores and banks of the Lake, its tributaries, islands and broader low-lying areas (fencing and access restrictions for sensitive areas with educational signage to explain activities and damage caused by informal access, mowing, tree lopping etc.; and permanent public access arrangements i.e. provision of new/repaired access ways, boardwalks, shared cycleways etc., designed to limit damage to sensitive areas, which may include keeping people on paths); EV2 - undertake targeted action to control damage to foreshore and lake vegetation, including seagrasses caused by: 4WDs and other vehicles, bikes (including BMX), pedestrians etc (actions may include Bollards/fencing/gates etc. to restrict illegal access (provided they are lowkey from a visual perspective); signs to explain estuarine habitat values). So the works can proceed, as long as the safeguards in this REF are strictly applied.
Division 1 cl. 2.8 **Is the proposal within the Proximity to Coastal Wetlands and Littoral Rainforests Area?** Development consent must not be granted to development on land identified as "proximity area for coastal wetlands" or "proximity area for littoral rainforest" on the Coastal Wetlands and Littoral Rainforests Area Map unless the consent authority is satisfied that the proposed development will not significantly impact on:	Yes, the subject site is located within the Proximity to Coastal Wetlands. This REF has considered the impacts of the proposal on the adjacent wetland area, and a range of safeguards relating to erosion, sediment control, water quality, flora, fauna and ecosystems and weed management must be applied to minimise impact on adjacent wetlands. It is unlikely that the project will negatively impact on any threatened communities or habitat for threatened species.

• the biophysical, hydrological or ecological integrity of the adjacent coastal wetland or littoral rainforest, or • the quantity and quality of surface and ground water flows to and from the adjacent coastal wetland or littoral rainforest	It is unlikely that the water quality in the adjacent wetland will be adversely impacted. Appropriate erosion and sediment control measures will be implemented during the works to prevent sediment entering the creek.
Division 1 cl. 2.9 **Is the proposal within the Coastal Vulnerability Area?**	The Coastal Vulnerability Area is not mapped yet, so these factors must be considered in all SEPP Coastal Management areas until mapping is completed. This project will not alter coastal processes. This project will not impact on access and will improve public amenity through preventing access to sensitive areas and minimising impact of fire.
Division 1 cl. 2.10 **Is the proposal within the Coastal Environment Area?** (1) Development consent must not be granted to development on land that is within the coastal environment area unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the following: (a) the integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment, (b) coastal environmental values and natural coastal processes, (c) the water quality of the marine estate (within the meaning of the *Marine Estate Management Act 2014*), in particular, the cumulative impacts of the proposed development on any of the sensitive coastal lakes identified in Schedule 1, (d) marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms, (e) existing public open space and safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability, (f) Aboriginal cultural heritage, practices and places, the use of the surf zone. (2) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that: (a) the development is designed, sited and will be managed to avoid an adverse impact referred to in subclause (1), or (b) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or if that impact cannot be minimised—the development will be managed to mitigate that impact.	Yes, the subject site is located within the Coastal Environment Area. This REF has considered the impacts of the project on the coastal environment area, including coastal, riparian and wetland habitats. The project aims to improve the integrity and resilience of the environment by preventing access to sensitive areas and minimising impact of fire. A range of safeguards relating to erosion, sediment control, water quality, flora, fauna and ecosystems and weed management are in the REF and must be applied to minimise impact on the environment. If these safeguards are strictly adhered to: (a) It is unlikely that the project will affect any threatened communities or habitat for threatened species. (b) The project will not have an adverse impact on environmental values and coastal processes. (c) It is unlikely that the water quality in the adjacent waterways will be adversely impacted. (d) It is unlikely that the proposal will affect any threatened communities or habitat for threatened species. (e) This project will not cause access restrictions during works. (f) It is unlikely that the proposal will adversely impact heritage (see Appendix C for more details and due diligence process).
Division 1 cl. 2.11 **Is the proposal within the Coastal Use Area?**	**Yes, the subject site is located within the Coastal Use Area.** This REF has considered the impacts of the project on the coastal use area, including access, amenity and heritage. A range of safeguards relating to

Development consent must not be granted to development on land that is within the coastal use area unless the consent authority: (a) has considered whether the proposed development is likely to cause an adverse impact on the following: (i) existing, safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability, (ii) overshadowing, wind funnelling and the loss of views from public places to foreshores, (iii) the visual amenity and scenic qualities of the coast, including coastal headlands, (iv) Aboriginal cultural heritage, practices and places, (v) cultural and built environment heritage, and (b) is satisfied that: (i) the development is designed, sited and will be managed to avoid an adverse impact referred to in paragraph (a), or (ii) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or (iii) if that impact cannot be minimised—the development will be managed to mitigate that impact, and (c) has taken into account the surrounding coastal and built environment, and the bulk, scale and size of the proposed development. (d) has taken into account the surrounding coastal and built environment, and the bulk, scale and size of the proposed development	erosion, sediment control, water quality, flora, fauna and ecosystems and weed management are in the REF and must be applied to minimise impact on the environment. If these safeguards are strictly adhered to: (i) This project will not cause access restrictions during works. (ii) This project will not impact on overshadowing and the loss of views from public places to foreshores. (iii) This project will improve the scenic qualities by improving the condition of the vegetation communities by restricting access and minimising impact of fire. (iv) It is unlikely that the proposal will adversely impact heritage (see Appendix C for more details and due diligence process).
Division 5 General 2.12 Development in coastal zone generally—development not to increase risk of coastal hazards Development consent must not be granted to development on land within the coastal zone unless the consent authority is satisfied that the proposed development is not likely to cause increased risk of coastal hazards on that land or other land. 2.13 Development in coastal zone generally—coastal management programs to be considered Development consent must not be granted to development on land within the coastal zone unless the consent authority has taken into consideration the relevant provisions of any certified coastal management program that applies to the land.	If these safeguards of this REF are strictly adhered to, it is unlikely that the proposal will increase the risk of any coastal hazards such as coastal inundation or shoreline recession.

Appendix F: Tree Protection Procedure

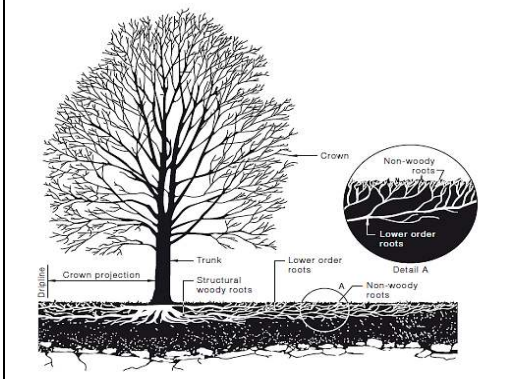
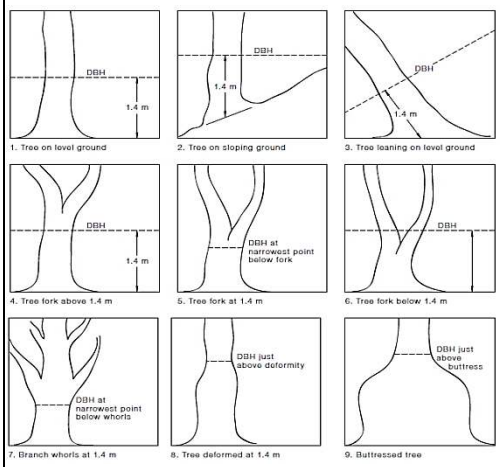


FIGURE B1 STRUCTURE OF A TREE IN A NORMAL GROWING ENVIRONMENT

A Tree Protection Zone (TPZ) is an important area around the trunk of a tree in which key feeder and stabilising roots can be found just beyond the tree canopy. This area must be protected to prevent instability and minimise loss of health of the woody root system of the tree. **Restricted activities include excavation, storage, dumping of waste and parking of vehicles/plant.**

TPZ standard should be:

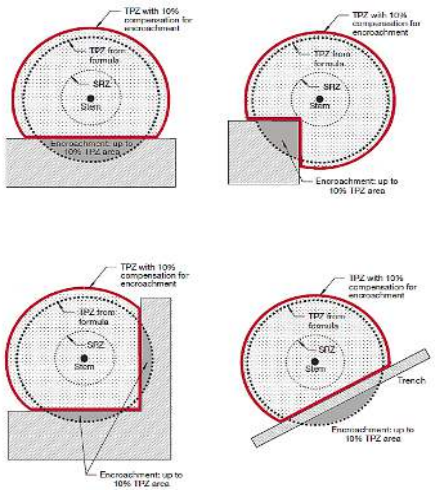
- TPZ = DBH x 12 (Where DBH is the trunk diameter measured at 1.4m above ground).
- Not greater than 15m.
- **TPZ should not be less than 2m nor greater than 15m** (Except where crown protection is required).
- **TPZ of palms, tree ferns, other monocots and cycads should not be less than 1m outside the crown projection.**
- Refer to the Arborist Report for dimensions for the TPZ / Buffers



Due to a range of growing environments the Tree DBH is measured using a range of methods to suit the situation. See adjacent image or Australian Standard AS 4970-2009. Delineate an area with the use of appropriate signage for:

- Protective fencing installed or no-go zones will be created and maintained for the duration of works
- Ground protection (e.g. mulch) if temporary access for machinery is required.

The Structural Root Zone (SRZ) is an area within the TPZ that is particularly significant for stability. A larger area is required to maintain a viable tree. The SRZ only needs to be calculated when major encroachment into a TPZ is proposed. Many factors affect the size of the SRZ (e.g. tree height, crown area, soil type, soil moisture, rocks, footings etc).



The indicative SRZ radius can be determined from the trunk diameter measured immediately above the root buttress using the following formula:

- SRZ radius = (D x 50)0.42 x 0.64 (Where D = trunk diameter in metres measured above the root buttress)

Note: The SRZ for trees with trunk diameter less than 0.15m will be 1.5m

Encroachment into TPZ is sometimes unavoidable:

- Minor encroachment is possible without root investigations. (Must be under 10% of the TPZ area and outside the SRZ)
- Major encroachment is possible if an arborist can prove the tree will be sustained. (Refer to AS 4790 for recommended considerations)

Any additional Encroachment must be reviewed by the Level 5 AQF Arborist for works within the TPZ (E.g. excavation) is possible with variation to the above standards.

Appendix G: Incident Management Procedure

TITLE

Accidental spills in waterways, marine environments, and constructed drains, plus other air/noise/land pollution events.

PURPOSE

To ensure all practicable means are used to prevent spillage or other pollution during construction or maintenance works near any types of watercourses.

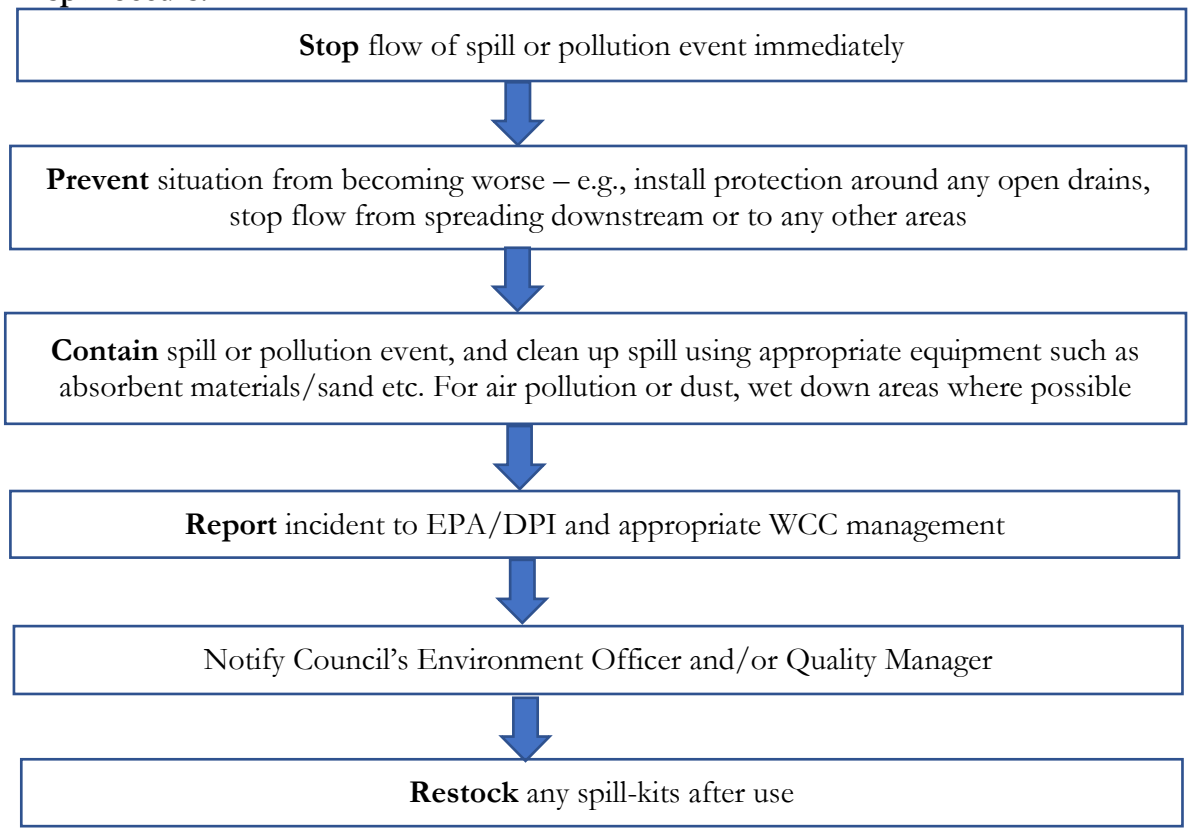
APPLICATION

This procedure applies to all watercourses including coastal water, rivers, lakes, dams, natural watercourses, artificial channels, ditches and gullies, and stormwater drains. It also applies to all air and land pollution incidents.

Project Managers and Works Co-ordinators are to ensure all operators working near water courses are trained in this procedure. Contractors undertaking works should also be aware of the requirements in this procedure.

PROCEDURE

If spill occurs:



CHECKLIST

- Spill kit kept at site and kept in order.
- All relevant staff at the work site are aware of this Procedure.

CORRESPONDANCE AND NOTIFICATION

- For all spills in any waterways, air pollution, or land pollution, notify the EPA first and follow all instructions. Notify Environment Officer, and either Manager Project Delivery or Manager City Works.
- For any spills where there is the potential to impact on Key Fish Habitat, or there is a Permit in place from DPI, notify both DPI and EPA and follow any instructions. Notify Environment Officer and either Manager Project Delivery or Manager City Works.

Appendix H: Standard Operating Procedures-Unexpected Finds Protocols

Description of Work:	**Unexpected Find Procedure – Council Owned Land/Worksites**

This procedure has been developed to outline the process to be followed in the event that an unexpected find (hazard) is identified.

Hazards that may be encountered could be Asbestos material, contaminated soils, or archaeology/heritage finds.

In most cases the finds would occur during excavation operations on a worksite

In some instances ACM may be left by MOP's or work its way up through the ground

Main Hazards:

- **Exposure to Contaminated soils (Asbestos Containing Materials (ACM), chemicals, Acid Sulphate)**
- **Exposure to ACM or chemicals to public**
- **Damage to archaeology/heritage artefacts**

PPE REQUIRED –: ***Standard PPE for daily tasks, in event of unexpected find for ACM or substances, will require P2 disposable mask & hazard tape to provide barrier to prevent access by staff/public or to isolate area if archaeological/Heritage find***

*** If unexpected find is ACM**

Note: P2 masks not suitable if employee has a beard – prevents sealing

SAFETY RULES

- In event of unexpected find – cease work immediately
- Isolate the worksite
- Keep public away
- Contact Supervisor/Coordinator

Permits: (associated with task)

- Asbestos Removal Control Plan if asbestos material identified as Friable and is to be removed by licenced contractor

Checklists: (associated with task)

- Waste Classification Docket as reference

Team Training / Skills Required:

- Asbestos Awareness
- Waste Classification Docket
- Collection and disposal of Asbestos Containing Material (ACM) under 10Sq mtrs (optional for nominated staff)

References:

- WHS Regulations 2011 Chapter 8
- COP How to Safely Remove Asbestos
- COP How to Manage & Control Asbestos in the Workplace
- Managing Asbestos in or on soil (Wkcvr 2014)

Relevant Documentation:

Asbestos and Hazardous Materials Guidelines – Corporate

Sampling materials request form

Clearance certificate - Asbestos or Contaminated soils

SOP Collection & Disposal of Bonded Asbestos Containing Material (ACM) under 10SQ mtrs

1. PRE-Operation (must include environmental controls)

- If site is a construction site (K&G, Road, Drainage etc.) Waste Classification process and/or CEMP/REF to be checked/recorded
- Do a visual inspection of site prior to works commencing – looking for loose ACM, soil discoloration/smell.

2. Operation

- In the event of an unexpected find of contaminated material or archaeological/heritage artefacts (through excavations), cease work immediately
- If the find is considered to be illegal dumping which may contain asbestos or hazardous material, contact the customer service team (42277111) and provide details of the location, size and type of material – do not attempt to remove or "sift" through the material
- In the event excavated material is loaded onto truck and then material is suspected ACM:_

  > If on site, tip the load back onto the site and go through assessment process,

  > If the load has been transported to another site and suspected ACM is identified prior to tipping the load, contact the Coordinator/Supervisor who will assess the load and determine if a qualified person is required to provide advice on management of the load.

  > If the material has been unloaded offsite and suspected material found Coordinator/Supervisor to assess if ACM, type and amount, option to collect & remove if bonded and under 10sqmtrs or contact qualified person to provide advice

  Note: Depending on the condition of the material, the load may require wetting down to minimise dust/contamination until a management plan has been developed
- Isolate the immediate work area (barriers or Hazard tape)
- Where required contact the Supervisor and/or Coordinator, provide details to determine if they need to attend the site
- An assessment of the find is to be undertaken if potential ACM identify if bonded or friable
- If contaminated soil contact Environment Planning Manager (ESP) 42277574 to attend and assess
- If Archaeological or Heritage find contact Strategic Project Officer (ESP) 42277524 to attend and assess the find.
- Based on the find and assessment a suitably qualified person may be required to attend the site and advise what action should be taken
- Where required a sampling materials request is to be completed and issued to the qualified person
- Keep the area isolated until a determination is made – qualified person will provide advice on best option(s)
- In the event the unexpected find is confirmed as contaminated material or heritage artefact, record the details in Pathways (Action Request generated)
- Qualified person provides results of testing or assessment and develops an action plan
- If identified as Bonded ACM and is under 10sq Mtrs in content, trained WCC personnel can collect and bag as per SOP (Collection & Removal of Bonded ACM under 10Sq mtrs)
- If after all tests and searches have been completed and the material is not ACM or archaeological then continue works as normal & file the survey report on the project file
- If material is identified as ACM or Archaeological then the Action Request is updated through Pathways via Coordinator/project manager, record details of the find in the project file
- If the Asbestos material is considered to be a potentially significant hazard to employees or the public the supervisor/coordinator is to contact their manager and provide details and through consultation with council officers determine how to manage
- For Friable ACM, Archaeological, Heritage or other contaminated soil, an action plan is to be developed by the qualified person to manage the site. This may include temporary measure of barricades, tape, Geo Textile or plastic sheeting
- Works to be undertaken as per Action Plan, this may be by WCC personnel or specialist contractors depending on the action plan developed by the qualified person

- Where required a clearance certificate (ACM/Soil) is to be issued by a competent person and a copy sent to Land Use Planning for recording on the 149 Contaminated Land Register, a copy of the clearance certificate to be placed on the project file
- Advise crew/staff of the clearance certificate
- Update the Action Request information
- Planned Works to then continue
- For Archaeological or Heritage finds, an action plan to be implemented by qualified person which will include any references to clearances or other permits that may be required.
- Refer to "management of suspected or known asbestos contaminated stockpiles (short term storage only) for management of all unexpected finds requiring stockpiling

3. POST-Operation

- Pathways request to be closed off
-

Supervisor Name:	**Date:**
Print Name:	**Signature of worker:**

Record of induction/training to be recorded in Divisional HPE container **-925.09. ***.and in site diary if applicable

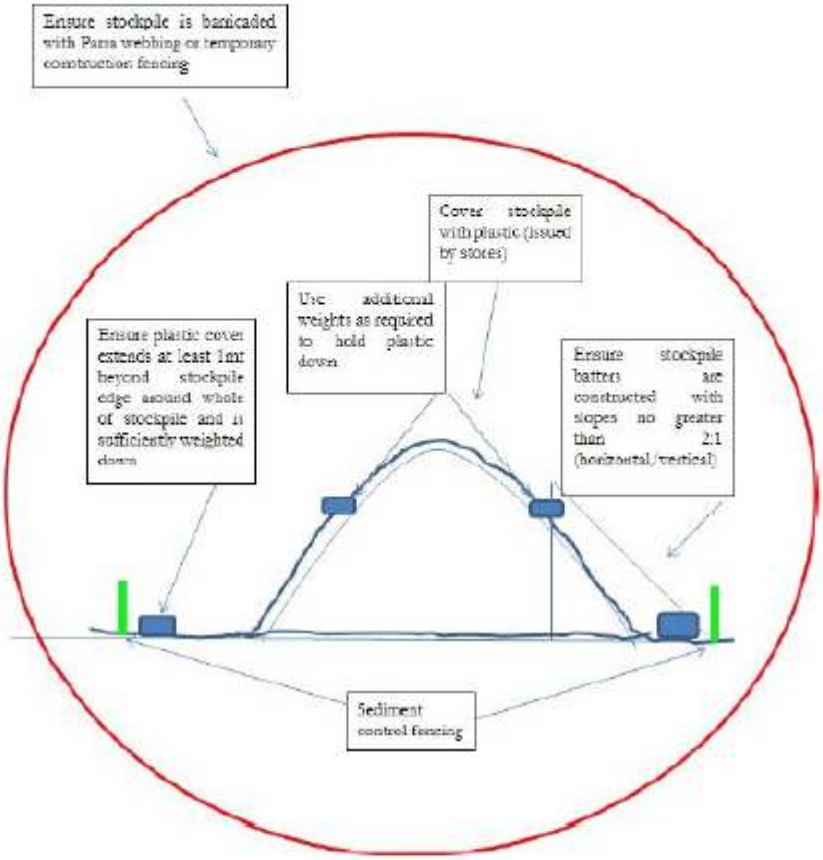
Bonded ACM

Contaminated soils (Sulphates)

Archaeological & heritage finds

Friable Asbestos – in no circumstances is this material to be touched – must be a licenced removalist

Management of Suspected or Known Asbestos Contaminated Stockpiles (Short-term Storage Only)



This diagram applies to suspected or confirmed asbestos contaminated stockpiles awaiting removal by a licenced contractor