NSW Telco Authority

Review of Environmental Factors

Site Name: Deua (Plumwood)	ACMA ID: 10026863

Template approval

	Date	Name	Role	Signature
Reviewed	3 June 2017	Emily Manchee	Senior Environmental Consultant	[redacted]
Endorsed	3 June 2017	Joshua Sculthorpe	Property and Planning Manager	[redacted]
Approved	6 June 2017	Jourdan Di Leo	Infrastructure Manager	[redacted]

Template revision record

Version	Date	Description	Author	Reviewed by	Approved by
0	17 February 2017	REF	E. Manchee	R. D'Souza	J. Di Leo
0.1-0.6	9 February 2018 - 4 June 2020	Updates to legislation, styles, branding etc...	E. Manchee	R. D'Souza	J. Di Leo
0.7	07 April 2022	Update to legislation	D. Mead	E. Manchee	R. D'Souza

NSW Telco Authority approval

Template ID	TAAP-QS-TMP-004_0.7
TRIM Number	BN18/283 DOC22/139586
Author's position and title	Emily Manchee, Senior Environmental Consultant
Approving officer's position/team	Senior Environmental Planner
Approved by Telco Executive (if applicable)	Roweena D'Souza
Date of next review	As required

Contractor document revision record

Please note significant template changes with a version increment of 1.0. Minor administrative changes, where the meaning or intention of the template is not altered should increase by an increment of 0.1.

Version	Date	Description	Author	Reviewed by	Approved by
1.0	5 May 2023	Review of Environmental Factors	Jodie Leeds	James McIver	Jeffrey Kam
1.1	16 May 2023	Update to include details provided by NPWS in relation to community interest	Jodie Leeds	James McIver	Jeffrey Kam
1.2	23 May 2023	Clarification on APZ clearing requirements	Jodie Leeds	James McIver	Jeffrey Kam
1.3	26 May 2023	Minor editing revisions	Jodie Leeds	James McIver	Jeffrey Kam
1.4	27 June 2023	Update to include NPWS revisions	Jodie Leeds	James McIver	Chris McCambridge
1.5	4 July 2023	Update to include NPWS Local Area comments	Jodie Leeds	James McIver	Chris McCambridge

Summary and Decision Statement

The Proposal

The purpose of this Review of Environmental Factors (REF) is to examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment as a result of the proposed installation of a new NSW Telco Authority (the Authority) telecommunications facility comprising a new 25m monopole with antennas, a new generator shelter and photovoltaic array together with the use of the existing Rural Fire Service (RFS) equipment shelter within a secure compound. The proposal is in Deua National Park, within the Eurobodalla Shire Council Local Government Area (LGA).

Legislative Framework

The Authority has both legal and due diligence requirements to assess the impacts of its proposed activities.

State Environmental Planning Policy (Transport and Infrastructure) 2021 (NSW) provides that the proposal may be carried out without development consent. Accordingly, the environmental assessment and determination of the proposal has been undertaken in accordance with Part 5 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act) and in accordance with clause 171 of the *Environmental Planning and Assessment Regulation 2021* (NSW). Under Part 5 of the EP&A Act, the Authority is both the proponent and the determining authority for the proposal. However, as the proposal is located on land reserved under the *National Parks and Wildlife Act 1974,* National Parks and Wildlife Service (NPWS) have requested to be the determining authority.

Conclusion

The potential environmental risks from the proposal are considered minor given the cleared and disturbed nature of the land and the adjacent land uses. The area surrounding the proposal location has previously been an important location to the community and it is considered that there may be some concerns for potential visual and social impacts. The visual impacts have been reduced as much as practical by co-locating with an existing radiocommunications facility and installing a slim line structure. It is expected that the surrounding tall vegetation and undulating topography would obscure visibility to the proposal and visibility from nearby view corridors would be considered in the context of the existing radiocommunications infrastructure. Social impacts would be associated with construction of the proposal. Construction would be for a short duration and with the implementation of mitigation strategies, the impacts would be reduced.

Mitigation measures identified in Section 6 of this REF would be included in the Site Environmental Plan and implemented to manage any potential environmental risks associated with the proposal.

Decision Statement

The REF concludes that:

i. The proposal is not likely to have a significant impact on the environment and accordingly, an Environmental Impact Statement (EIS) is not required.

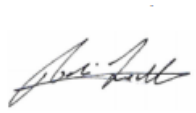
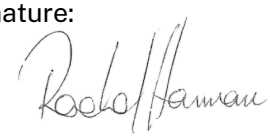
ii. The proposal will not be carried out in an area of outstanding biodiversity value and is not likely to significantly affect threatened species, populations or ecological communities or their habitats or impact biodiversity and a Species Impact Statement is not required.

iii. The proposal is not likely to significantly impact on a matter of national environmental significance or the environment of Commonwealth land and a referral to the Australian Government Department of Agriculture, Water and Environment is therefore not required under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

iv. Provided the mitigation measures identified in Section 6 of this REF are included in the Site Environmental Plan the proposed activity may proceed.

Certification

I 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 for Division 5.1 Assessments* approved under clause 170 of the EP&A Regulation, and the information it contains is neither false or misleading. This is a determination that the proposal as assessed in this REF meets the requirements under Part 5 of the EP&A Act.

Prepared by	**Endorsed by**	**Determined by**
Name: Jodie Leeds Title: Senior Planner Company: Catalyst ONE Date: 4 July 2023 Signature: 	Name: Rachel Hannan Title: Environment and Sustainability Governance Lead Company: NSW Telco Authority Date: 6 July 2023 Signature: 	For National Parks and Wildlife Service refer to Determination Notice on following page

NPWS Determination Notice

Table of contents

1. Introduction

1.1 Background information

The NSW Telco Authority (the Authority) is responsible for the overall coordination of radio communication services for the NSW Government. The Authority manages the existing Public Safety Network (PSN), which provides radio communications for Emergency Services Organisations (ESOs) and other government agencies.

Historically, radio communications infrastructure has been designed, built, operated and maintained by individual agencies. These have been built in addition to the PSN, resulting in a large number of networks being established with duplication of infrastructure, capacity, coverage and costs.

In 2015, the NSW Government released its *Operational Communications Strategy* (OCS) which set a new direction with respect to the planning, delivery and management of radio and related communications services for the government sector. As part of the OCS, the Authority will undertake its day to day management and delivery of government operational communications in addition to a Critical Communications Enhancement Program (CCEP) which includes the delivery of approximately 700 sites proposed across New South Wales.

The purpose of this Review of Environmental Factors (REF) is to describe the proposal, to examine and take into account to the fullest extent possible matters affecting or likely to affect the environment as a result of the proposal pursuant to Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), and to detail safeguards to mitigate any potential impacts.

In accordance with the *State Environmental Planning Policy (Transport and Infrastructure) 2021* (TISEPP), the proposal does not require development consent. The Authority is both a public authority proponent and the determining authority (Part 5.1 of the EP&A Act) for all proposals. An exception is made for proposals located on land reserved under the *National Parks and Wildlife Act 1974* (NPW Act). Despite the provisions under Part 5.4(c) of the EP&A Act, the National Parks and Wildlife Service's (NPWS) policy requests that NPWS be the determining authority for these proposals.

The REF has considered the requirements of the *Guidelines for Division 5.1 Assessments* (DPE 2022) and the factors listed in clause 171 of the *Environmental Planning and Assessment Regulation 2021*.

1.2 Need, alternatives and justification of the proposal

The PSN will improve the delivery of frontline law enforcement, emergency, essential and community services. The PSN will also provide greater interoperability between NSW Government agencies, and other jurisdictions, resulting in faster incident response times and improved incident management by emergency service organisations.

The site selection process aims to utilise existing Government agency infrastructure (in particular emergency services organisations) where feasible. In cases where the required infrastructure does not exist or is unsuitable, alternative options such as co-locating assets on a privately owned or commercial tower or installing a new tower are considered.

The site alternatives are assessed using a multi-criteria analysis which includes coverage, cost, constructability, property and environmental planning constraints. Co-location is preferable in circumstances where it is technically feasible and can deliver a better solution in terms of environmental and social impacts. Installing a new tower is considered where other co-location options are not suitable and/or the PSN requires a new facility to meet the backhaul and radio frequency objectives.

The Authority assessed the possibility of co-locating on the existing 11.5m high Forestry Corporation NSW (FCNSW) fire lookout tower during the feasibility stage of the proposal. The existing FCNSW fire watch tower

currently hosts FCNSW and NPWS radiocommunications equipment. Following detailed investigation, co-location on the existing FCNSW fire watch tower was discounted for the following reasons:

- The height of the existing fire lookout tower would not be suitable to meet the Authority's transmission requirements.
- The existing FCNSW fire watch tower would not be structurally adequate to support the equipment required to operate the PSN at this location.

Due to a lack of feasible co-location options, a brownfield proposal (new radiocommunications structure on land used for radiocommunications purposes) was progressed for the following reasons:

- The proposal would utilise land used for existing radiocommunications purposes and would utilise existing infrastructure (RFS equipment shelter).
- Visual impact would be minimised at this location as the new monopole would be viewed in the context of the existing infrastructure.
- The land and height of the proposed structure are at a suitable elevation for the Authority to meet its radio frequency and transmission requirements.
- The location is suitable to minimise environmental and social impacts associated with the proposal.
- The technical solution and proposed equipment arrangement is an appropriate response to the site constraints.

Accordingly, the brownfield proposal was selected as the prime candidate to progress to a detailed design solution for the Authority.

1.3 REF structure and function

The purpose of this REF is to address the Authority's obligations under section 5.5 and section 5.7 of the EP&A Act by examining and taking into account to the fullest extent possible all matters affecting or likely to affect the environment and assessing the significance of adverse environmental impacts likely to arise from the proposal.

This REF has been prepared in accordance with the principles of ecologically sustainable development (ESD) and environmental due diligence responsibilities. In preparing this assessment, consideration has been given to the EP&A Act, the EP&A Regulation and other relevant environmental legislation.

This REF is based on a preliminary design. If the scope of works as described in this document alters following determination, further consideration must be given to the need for further environmental impact assessment.

2. Proposal details

2.1 Description of the proposal, location and surrounds

A description of the site-specific proposal details and location is provided in Table 1.

Table 1 Proposal and location description

Proposal and location description	
Site name	Deua (ACMA ID: 10026863)

Proposal details	The proposal is for a brownfield facility consisting of a 25m monopole with a new generator equipment shelter and photovoltaic array, re-use of the existing RFS equipment shelter, within an expanded secure compound.
	
	The proposal would include the following components:
	
	• A 25m monopole on raft slab with rock anchor footing to accommodate the following equipment**:**
	  ○ One BA8080-67 dipole array (5.7m vertical length) at a base elevation of 25.0m.
	  ○ One VHLP2-7 0.6m parabolic antenna at a centreline elevation of 23.0m.
	  ○ One VHLP2-11 0.6m parabolic antenna at a centreline elevation of 23.0m.
	  ○ One POLAR328X yagi antenna for the RFS to be installed at a height of 21.0m.
	  ○ Two AVA5-50 and five LDF4-50 feeder cables.
	• A modular generator equipment shelter (3.0m x 2.5m) with 21kVA diesel generator and 1000 litre fuel tank on concrete pad footings.
	• Re-use of the existing RFS equipment shelter to accommodate the following:
	  ○ Equipment for the Authority.
	  ○ Two split system 3.5kW air conditioning outdoor units with security cage to be installed on a concrete base at the external shelter wall.
	  ○ Two MHI split system 3.5kW air conditioning indoor units to be installed on the internal shelter wall with new DC fan installed below.
	  ○ A new generator change-over panel with emergency receptable.
	• A 300mm wide cable tray with four support posts between the monopole and the equipment shelter.
	• An expansion of the existing compound, including:
	  ○ Removal of the north-eastern and eastern compound fence and expanding the existing compound by an approximate area of 140m^2 to the north-east and east to

	accommodate the new generator shelter and photovoltaic array. o Replacement of the existing compound fence with a new 2.7m high chainlink security fence with new 3.0m wide double access gates and 100mm x 50mm edge board surrounding the expanded compound. o A 75mm thick layer of single-sized 20mm (nominal) clean crushed stone on weed mat over the area inside the compound fence. Power supply works would include: • A photovoltaic array with 36 panels to be installed on a stand alone steel frame on pier foundations. • An earthing ring within the proposed compound perimeter consisting of 50mm x 3mm gal strap, approximately 500mm below ground level. • Ten earthing electrodes approximately 3.0m below ground level and located adjacent to the fence posts of the compound. • An electrical pit. • Underground solar cable to extend from the existing equipment shelter to the proposed generator equipment shelter. • Conduits to accommodate the AC, DC and combined data and paired cable. Other details of the proposal: • Removal of the existing solar array. • Some maintenance and repairs within the existing disturbance footprint of Plumwood Fire Tower Trail may be required, including trimming and removal of vegetation along and within the exiting track, earthworks for reshaping and repair of access track, including placing geofabric and materials and reinstatement of drainage features as required. • An access route along the existing ground surface to the proposed compound gate. • Provision of a temporary works area 10m x 15m to the south of the proposal location. The temporary works area would be within a cleared portion of the site and would provide the Authority's Construction Contractor with sufficient space to accommodate construction vehicles, plant and storage of materials required for construction of the proposal. • Clearing of ground storey vegetation would only be required within the proposal footprint as described above**.** The existing cleared area surrounding the proposed compound would be managed as an asset protection zone (APZ) and clearing beyond the proposal footprint would be undertaken by NPWS. The proposal may include use of a remotely piloted aircraft (drones) to assist inspections of infrastructure at the site

	including capture of imagery. Infrastructure to be inspected with assistance of drones may include tower, antennas, equipment shelter, PV array, access track, compound, APZ and general site condition before, during and at completion of works. Once constructed, the operation and maintenance of the proposal would require approximately two visits per year. Maintenance visits would typically require one utility vehicle; however, upgrade works on the monopole may require a crane to access the antennas (the proposal would also accommodate a tower mounted ladder with fall-arrest system for riggers to access the antennas). Refer to the design drawings in **Appendix A** for further details.
Land owner/lessee/reserve manager (land, tower and hut)	The land is administered under the NPW Act, gazetted as Deua National Park, and managed by NPWS. The Authority would enter into a licence agreement with NPWS for its proposed equipment.
Property address and Lot and DP no.	Plumwood Fire Tower Trail, off Sugar Loaf Road, Deua National Park, Deua NSW 2537
Name of National Park, State Forest, Crown Land (if relevant)	Deua National Park (Park), Eurobodalla Area, South Coast Branch Far South Coast Escarpment Parks Plan of Management (PoM)
Local Government Area and Zoning	LGA: Eurobodalla Shire Council Zoning: C1 National Parks and Nature Reserves
Road/vehicular access including proximity to major state roads	Access to the site is via the existing road network from the Princes Highway, Western Boundary Road, Little Sugarloaf Road and then Plumwood Fire Tower Trail to the site. Plumwood Fire Tower Trail is a single lane dirt track that requires a 4WD vehicle. The existing road network and access track is appropriate for the proposal. Some minor maintenance to Plumwood Fire Tower Trail may be undertaken prior to construction.
Surrounding land use and landscape (include vegetation type, waterways, topography, sensitive receivers)	The site is located within Deua National Park approximately 21km south-west of Moruya. Deua National Park is a large area that extends for kilometres in all directions. The area is generally described as containing ridgelines and valleys with dense vegetation. The areas to the north and east of the proposal location are within the Burra Oulla and Woila Deua declared wilderness areas. The proposal location is along a ridgeline. The immediate area surrounding the proposal location has been cleared of vegetation to accommodate the existing Forestry fire lookout tower and radiocommunications equipment. However, beyond this the area is densely vegetated. The location of the proposal contains a fire

	lookout tower with antennas located on top, two equipment shelters at ground level with photovoltaic arrays attached. The equipment is within a secure fenced compound. There is an irregular shape APZ surrounding the radiocommunications facility. The minimum APZ distance is approximately 23m to the west, while the maximum APZ distance is approximately 55m to the south of the existing infrastructure. The nearest waterway is a tributary creek located approximately 230m to the south. The nearest dwelling is located 15km north-east of the proposal location.

Figure 1 Proposed site location

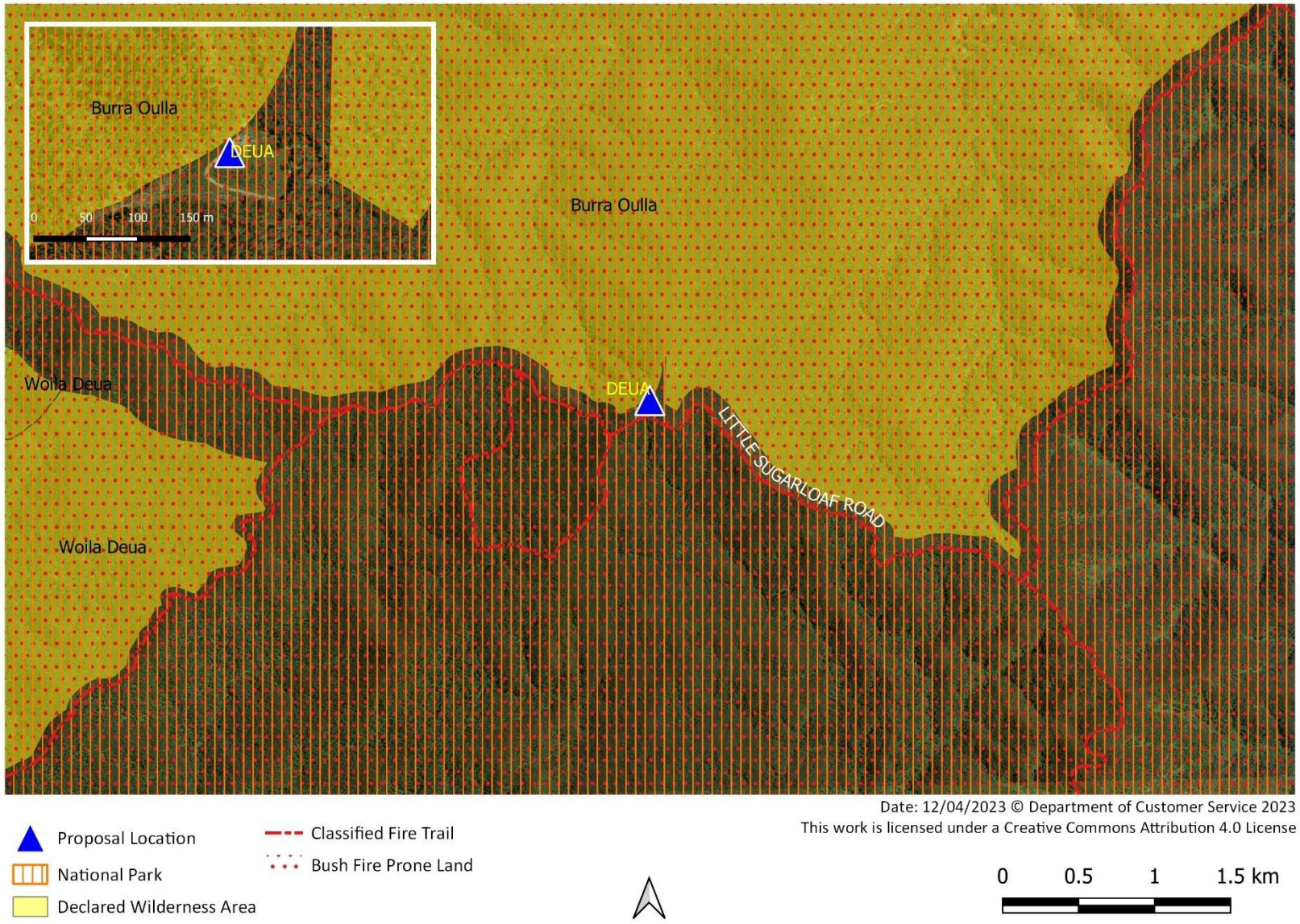
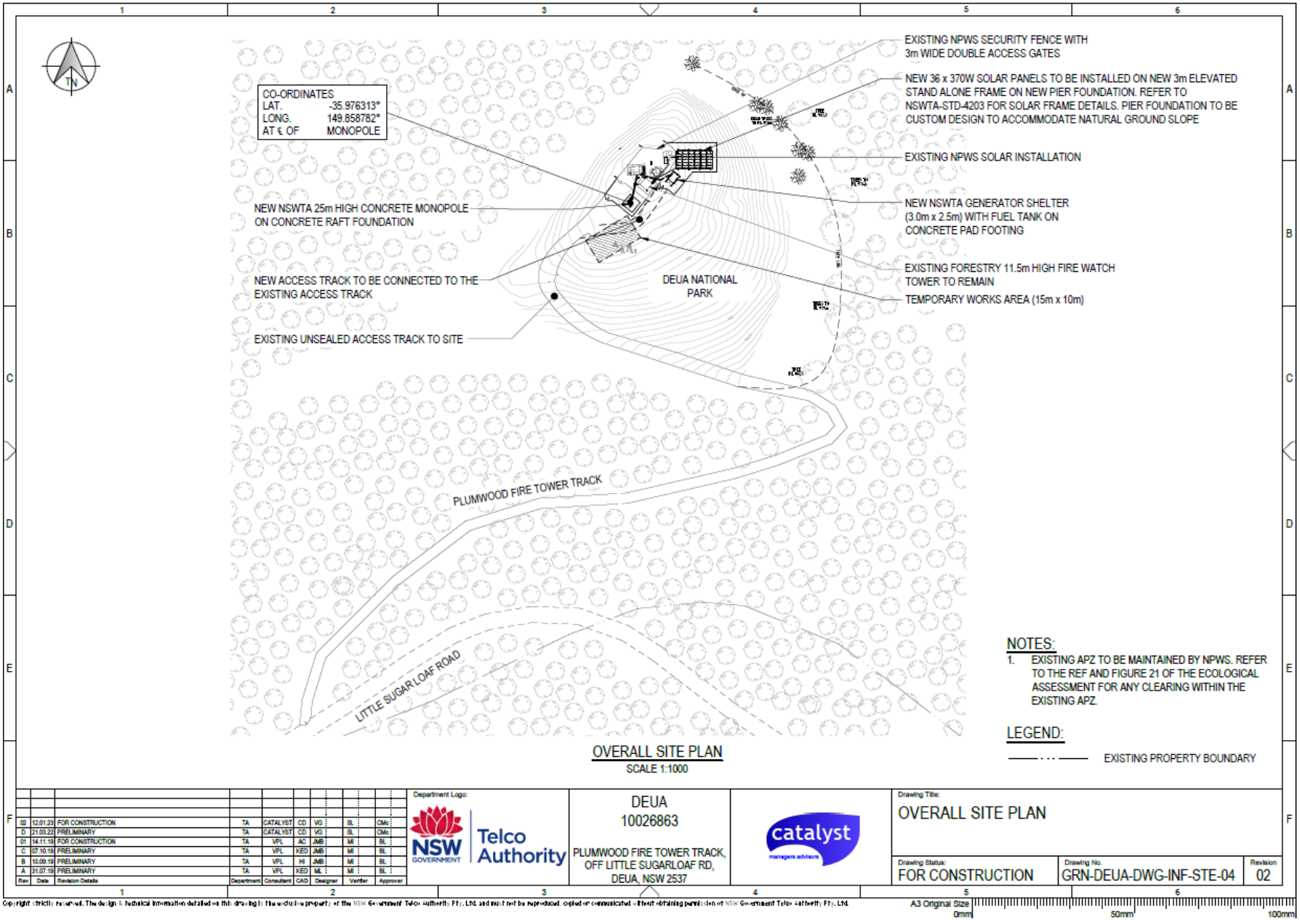


Figure 2 Proposed site layout



A site visit was conducted on 8 February 2022 to identify environmental constraints and attributes at the site to be addressed or investigated further during detail design. The photographs taken during the site visit are presented in Figure 3.

Figure 3 Photos of the site

Existing access track

Existing access track

View to the existing radiocommunications facility and fire lookout tower facing north-east

View to the existing equipment shelter facing north-east

Aerial view to the existing radiocommunications facility and fire lookout tower

Aerial view to the existing radiocommunications facility and fire lookout tower

2.2 Description of the construction and maintenance methodology

Key features of the construction methodology and required maintenance (including access routes) are described in Table 2.

Table 2 Proposal construction methodology

Proposal details	Description of construction methodology
Proposed construction method, including area and depth of proposed earthworks, scaffolding, footings etc... and details of method to install the tower (i.e. scaffolding, riggers or crane) and work required for the access track	Stage 1: Preparation • Implementation of soil and erosion control measures • Implementation of ecological mitigation measures identified in Sections 4 and the safeguards in Section 6 of this REF, as well as any conditions of the NPWS consent. • Maintenance to Plumwood Fire Tower Trail as required. • Removal of the existing compound fence. • Earthworks for the monopole raft slab footing with rock anchors would require excavation of 4800mm x 4800mm to a maximum depth of 1650mm for the slab, with eight galvanised rock anchors approximately 100mm in diameter to be drilled approximately 6.5m into the rock below. • Earthworks for the equipment shelter foundation (north) for the concrete pier foundations (two) would require excavation of a diameter of 600mm to a maximum depth of 800mm for each footing. • Earthworks for the equipment shelter foundation (south) for the concrete pier foundations (two) would require excavation of a diameter of 600mm to a maximum depth of 1150mm and 800mm for each footing. • Earthworks for the photovoltaic array concrete pier foundations (eight) would require excavation of a diameter of 750mm to a depth of 2600mm for each footing. • Earthworks for the cable tray support posts would require excavation of an area approximately 300mm in diameter to a maximum depth of 900mm; • Earthworks for the earthing ring would require excavation to a depth of 500mm within the perimeter of the proposed compound. • Embedment of the ten earthing electrodes approximately 3000mm below ground level located adjacent to the fence posts and around the perimeter of the proposed compound. • Earthworks for the underground solar cables would require excavation of a narrow trench approximately 600mm below ground. • Earthworks for the electrical pit would require excavation of an area approximately 460mm x 720mm to a depth of 840mm. • Earthworks for the compound fence post foundations would require excavation of an area approximately 300mm in diameter to a depth of 600mm for each post.

	• Earthworks for maintenance and repairs within the existing disturbance footprint of Plumwood Fire Tower Trail if required, including trimming and removal of vegetation along and within the existing track, earthworks for reshaping and repair of access track, including placing geofabric and materials and reinstatement of drainage features. Excavated soil would be used to provide a suitable finished level for the excavated areas, considering the required fill and compacting for each component. If the soil cannot be reused it would be relocated to a suitable location that would be agreed with the NPWS Area Manager during the pre-start meeting. Stage 2: Foundations • Laying of steel reinforcement and make ready works. • Pouring concrete for the equipment shelter, PV array, fence post and cable tray support post foundations. • Concrete trucks would be used in this stage. Safeguards specified in Section 6 require that concrete would not be mixed on Park. Stage 3: Installation • Installation of the monopole on the foundations. • Installation of equipment on the monopole. • The equipment shelter would be installed on the foundations. • The PV array steel frame would be installed on the foundations and solar panels installed on the frame. • Installation of the compound fence. • Finishing of the compound with clean crushed rock. • Cranes and elevated work platforms would be used in this stage. Stage 3: Demobilisation • Relocation of excess soil. • Removal of all vehicles, plant, materials, equipment, and where required and waste from the land. • The areas used to construct the proposal and to demobilise would be restored to a condition similar to the condition prior to commencing works.
Materials and equipment proposed to be used for the proposal	Materials to be used for the proposal would include: • Monopole • Generator equipment shelter • Steel frames for photovoltaic arrays • Photovoltaic panels • Antennas • Radiocommunications equipment to be housed within the equipment shelter

	• Cabling • Cable tray, ladder and support posts • Concrete • Batteries • Fuel • Pits and conduits • Weed matting and gravel. Equipment and plant to be used for the proposal would include: • Utility vehicles • Cranes • Elevated work platforms • Delivery trucks • Concrete trucks • Excavation machinery • Skip bins • Lifting equipment • Generators • Power tools • Air compressor • Welding machinery • Portable amenities. • Drones to assist visual inspections and to capture imagery to inform construction planning.
Receipt, storage and on-site management for materials and equipment including number of trucks and other vehicles accessing the site	All materials would be delivered to the proposal location and stored within the temporary construction works area. The Authority's Construction Contractor would undertake the works in accordance with its construction methodology. The number of vehicles accessing the site is dependent on the construction stage. Excavation and foundation works would require heavy plant including concreting trucks and pumps. Construction of the monopole and installation of antennas would require a crane and an elevated work platform. Details of construction would be provided to NPWS during the pre-start meeting.
Site clearing including extent of vegetation to be removed (ie. for an Asset Protection Zone)	The proposal would involve clearing of some ground storey vegetation and vegetation regrowth within the previously cleared footprint of the existing radiocommunications facility and APZ. No clearing beyond the extent of the existing APZ would be required. The proposal may also involve clearing of some vegetation growing within, alongside of or that impedes the use of the existing access track as required.
Solar power requirements/power supply	The proposal would require a solar power solution consisting of 36 photovoltaic panels mounted on a steel frame. Details of the power supply is provided in the drawings enclosed in **Appendix A**.

Public utility adjustments	All services required for the ongoing operation of the proposal are capable of being provided without impacting on the supply or reliability of these services to any existing consumers in the locality. No stormwater, sewerage or waste management facilities are required.
Any adjustment or earthworks required for access roads or traffic	Access to the proposal would be through the existing road network as described in Section 2.1. The existing road network generally suitable to accommodate construction vehicles and only maintenance and repairs are anticipated for construction and ongoing operations of the proposal. Construction would be undertaken for a short duration and would be managed in accordance with the measures discussed in Section 4, the safeguards included in Section 6, as well as any NPWS condition of consent including traffic management and signage. Maintenance and repairs within the existing disturbance footprint of Plumwood Fire Tower Trail if required, including trimming and removal of vegetation along and within the existing track, earthworks for reshaping and repair of access track, including placing geofabric and materials and reinstatement of drainage features. Prior to construction, a track maintenance Scope of Works would be provided to NPWS for endorsement.
Storage and disposal of waste material	The proposal includes a temporary construction works area to the south of the proposed compound location. The temporary works area would be used to store waste materials. Waste would be disposed of in accordance with the safeguards specified in Section 6.
Description of ancillary activities, for example, a 'works area', signage, generators etc.	During construction, a 'works area' would be required and may require provision for: • Crane and elevated works platforms as required. • Vehicle parking. • Equipment and plant set down area. • Materials unloading and storage. The works area is specified in the design drawings and is referenced in the safeguards in Section 6.
Timeframe, duration, construction hours of operation, workforce	Construction of the proposal is anticipated to take approximately 10-12 weeks to complete, commencing in the first half of 2024. Construction activity would occur during the following work hours: • Monday to Friday: 7am to 6pm • Saturday: 8am to 1pm. Works may be carried out on Sundays, public holidays or outside standard working hours with the approval of NPWS where those works are considered by NPWS to have no adverse impacts.

	Working hours would be in accordance with the NPWS access protocols.
Demobilisation works	Once construction of the proposal is complete, demobilisation would include the removal of all vehicles, plant, materials, equipment (including redundant equipment and photovoltaic array), spoil and waste from the land. The areas used to construct the proposal would be restored to a condition similar to the condition prior to commencing works and the land would be left to re-vegetate naturally.
Description of maintenance activities	Maintenance of the proposal would be undertaken two to three times a year. Maintenance activities would typically require one utility vehicle and one to two persons. An elevated work platform or a crane may be required for works on the monopole. Drones may be used during site visits to assist visual inspections, undertake condition assessments, and support audit processes. This may include inspection and imagery capture of the monopole (including location of all collocated antennas), huts, PV array, APZ, ground maintenance and access tracks and general condition of the assets and surrounding areas.

3. Statutory and planning framework

3.1 Summary of statutory framework

A summary of the planning pathway analysis and legislative requirements for the proposal is included in Table **3**.

Table 3 Summary of the REF pathway analysis and legislative requirements

Legislative requirements / aspects	Comments
State Environmental Planning Policy (Transport and Infrastructure) 2021 (TISEPP) designation	The TISEPP aims to facilitate the effective delivery of infrastructure across the state, including radio and telecommunications facilities. Clause 2.141(1) of the TISEPP permits development for the purposes of telecommunications facilities (including radio facilities) to be carried out by a public authority without consent on any land.
TISEPP consultation requirements (clause 2.10, 2.11, 2.12, 2.14 and 2.15)	Refer to Table 4 for specific criteria and assessment.
TISEPP requirements (clause 2.141(2)). Does the proposal include a new tower or mast? If so, has the proponent taken into consideration any guidelines concerning site selection, design, construction or operating principles for telecommunications facilities that are issued by the Director-General? (Refer to *NSW Telecommunications Facilities Guideline Including Broadband, October 2022*, Department of Planning and Environment).	The proposal would be a brownfield installation at an existing radiocommunications site. The proposal has considered the principles of *NSW Telecommunications Facilities Guideline Including Broadband, October 2022* (Department of Planning and Environment, NSW). **Principle 1: Design and site telecommunications facilities to minimise visual impact.** The proposal would be a brownfield solution at an existing radiocommunications site. The location would be on a ridgeline within the Deua National Park. The locality is densely vegetated and comprises mountain peaks and valleys. While the location of the proposal has been cleared for the existing radiocommunications infrastructure, visibility from the surrounding area would be obscured by the dense vegetation and the variations in topography. It is expected that there would be some visual impacts in the short distance, immediately surrounding the proposal location. It is considered that these short distance impacts would be viewed in the context of the existing radiocommunications infrastructure. Similar to the frame of the adjacent fire lookout tower, the proposed monopole would be constructed of galvanised steel. While the monopole would appear reflective

	immediately after installation, the monopole's reflectivity would reduce substantially as weathering occurs over the following year. Once weathered, the monopole would appear in a similar muted tone as the existing fire lookout tower frame. It is considered that the proposal has been located appropriately with similar infrastructure to minimise visual impact. The nearest dwelling is located 15km north-east of the proposal location and visibility from the dwelling is not expected. **Principle 2: Co-locate telecommunications facilities where practical.** The proposal would be a brownfield facility at an existing radiocommunications site. The proposal would utilise existing equipment as much as possible, minimising potential environmental and visual impacts. A co-location on the existing FCNSW lookout tower was considered during the feasibility stage of the proposal. Due to structural inadequacies of the existing FCNSW tower, as well as height limitations, the co-location option would not be feasible and was not progressed. For the reasons listed in Section 1.3, the proposal is considered the most suitable alternate solution. **Principle 3: Health standards for exposure to radio emissions will be met.** The proposal would produce electromagnetic energy (EME) emissions in compliance with the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) *Standard for Limiting Exposure to Radiofrequency Fields – 100 kHz to 300 GHz (2021)*, RPS S-1 (the ARPANSA Standard). An Environmental EME report has been prepared and shows the predicted EME levels from the proposal would comply with the Australian safety standards imposed by the Australian Communications and Media Authority (ACMA) and the ARPANSA Standard. Refer to the Environmental EME report enclosed in **Appendix B** **Principle 4: Minimise disturbance and risk, and maximise compliance.** The proposal would be constructed in accordance with the reference documentation and the safeguards specified in Section 6. The proposal is designed and certified by qualified engineers and the installation would be carried out in accordance with all relevant Australian Standards. **Principle 5: Undertake an alternative site assessment for new mobile phone base stations**

	The proposal is not a mobile phone base station, however, the Authority undertook an extensive site selection process that is noted in Section 1.2.
Land tenure	The proposal would be located on land gazetted as Deua National Park, administered by NPWS. The Authority would seek a licence from NPWS for its equipment.
Is the proposal a category identified as State significant development or State significant infrastructure under *State Environmental Planning Policy (Planning Systems) 2021?*	The proposal does not fall into any of the categories identified in the *State Environmental Planning Policy (Planning Systems) 2021*. Mitigation measures discussed in Sections 4 and the safeguards identified in Section 6 would be implemented to ensure environmental impacts are minimised.
Is the work likely to have a significant impact on a Matter of National Environmental Significance as defined under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth)?	The proposal is not likely to have a significant impact on a Matter of National Environmental Significance (MNES) as discussed in Section 4 and **Appendix F.**
Does the work involve an action on Commonwealth land that is likely to have a significant impact on the environment, or an action outside Commonwealth land that may significantly impact the environment on Commonwealth land?	The work does not involve an action on Commonwealth land that is likely to have a significant impact on the environment, or an action outside Commonwealth land that may significantly impact the environment on Commonwealth land.
Is the proposal on land subject to a Native Title claim, determination, or an Indigenous Land Use Agreement?	The proposal is on land impacted by Native Title Claim: Claimant: South Coast People Claim #: NC2017/003 Federal Court #: NSD1331/2017 Registered: 31 Jan 2018 Status: Active On 7 March 2023, a 'Future Act' notification was provided to the South Coast People, via email. The claimants were provided 28 days to comments. To date, no comments from the claimants have been received. Refer to **Appendix E**.
Is there an Aboriginal land claim under the *Aboriginal Land Rights Act 1983* (NSW)? Consult with Crown Lands to establish any Aboriginal land claims.	The proposal is not on land subject to an Aboriginal land claim.
Does the proposal comply with the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) Radio Frequency Standard?	An Environmental EME report has been prepared and shows the predicted EME levels from the proposal would comply with the ARPANSA Standard. Refer to the Environmental EME report enclosed in **Appendix B.**
Does the proposal require an approval, permit or licence under any other environmental legislation?	The proposal requires a licence from NPWS, the land is administered under the NPW Act by NPWS.

	Any use of drones must comply with CASA regulations and would require approval in accordance with NPWS policy.

3.2 TISEPP consultation requirements

The TISEPP contains provisions for public authorities to consult with local councils and other public authorities prior to the commencement of certain types of development**.** Table 4 provides a checklist to determine if TISEPP consultation is required.

Table 4 TISEPP consultation checklist

Is consultation with council required under clauses 2.10, 2.11, 2.12, 2.14 of the ISEPP?		
Are the works likely to have a substantial impact on the stormwater management services which are provided by council?	☐Yes	☒No
Are the works likely to generate traffic to an extent that will strain the existing road system in a local government area?	☐Yes	☒No
Will the works involve the installation of a temporary structure on, or the enclosing of, a public place which is under local council management or control? If so, will this cause more than a minor or inconsequential disruption to pedestrian or vehicular flow?	☐Yes	☒No
Will the works involve more than a minor or inconsequential excavation of a road or adjacent footpath for which council is the roads authority and responsible for maintenance?	☐Yes	☒No
Are the works located on flood liable land? If so, will the works change flooding patterns to more than a minor extent?	☐Yes	☒No
Is there a local heritage item (that is not also a state heritage item) or a heritage conservation area in the study area for the works? If yes, does a heritage assessment indicate that the potential impacts to the item/area are more than minor or inconsequential?	☐Yes	☒No
Is the proposal on land that is within a coastal vulnerability area and is inconsistent with a certified coastal management program?	☐Yes	☒No
Is consultation with other agencies required under clause 2.15 of the TISEPP?		
Is the proposal adjacent to a national park, nature reserve or other area reserved under the *National Parks and Wildlife Act 1974*?	☒Yes	☐No
Is the proposal located within the dark sky region (within 200 kilometres of the Siding Spring Observatory) and would the proposal increase the amount of artificial light in the night sky?	☐Yes	☒No
Is the proposal located within the Lockhart Shire Council, Narrandera Shire Council or Urana Shire Council and within defence communications facility buffer land?	☐Yes	☒No
Is consultation with council and occupiers of any adjoining land required under clause 2.140(2) of the TISEPP?		
Does the proposal involve the development of a tower or mast? If so, written notice to the local council and the occupiers of any adjoining land must be undertaken. Include a list/map of the adjoining landowners and correspondence in the Appendices. On 5 April 2023, a notification was sent to Council in accordance with clause 2.141 of the TISEPP. Council was given 21 days to provide comment on the proposal. As of 4 May 2023, no comments have been received. There are no further notification requirements under TISEPP.	☒Yes	☐No

3.3 Community consultation

Table 5 identifies whether community consultation is required.

Table 5 Community consultation

Is consultation with the local community or other stakeholders required?	
Is the proposal located within 500m of a sensitive receiver (ie. school, hospital, residence, business)? If yes, detail distance and type of sensitive receiver.	☐Yes ☒No
Is the proposal likely to impact any sensitive receivers (include potential sensitive receivers near the proposal location and access tracks/roads)? If yes, provide details and determine whether a Community Consultation Plan is required?	☐Yes ☒No

3.4 Consultation with NPWS

3.4.1 Permissibility

The proposal is not prohibited under the NPW Act and a licence is required under Section 151. The proposal is not located within a wilderness area as identified under the *Wilderness Act 1987*. The Far South Coast Escarpment Plan of Management (PoM) includes management issues and strategies which are relevant to the assessment of the proposal. Section 6.2 of the PoM identifies authorised uses and management operations of 'public utility infrastructure' including radiocommunications within National Parks and recognises that there are a number of existing radiocommunications infrastructure within the Parks. The desired outcome of the PoM in relation to public utility infrastructure focuses on the protection of the Parks' natural and cultural heritage values.

The proposal would utilise an existing radiocommunications site and would involve the installation of new infrastructure as well as using existing infrastructure. The proposal would be undertaken within the previously cleared footprint of the existing radiocommunications site and APZ. The proposal would involve a small amount of clearing of some ground storey vegetation and vegetation regrowth within the existing footprint. An EBRA and field survey works have been undertaken which notes that due to the modified nature of the location it does not appear to contain a TEC. In addition, no threatened species were identified within the proposal area. The EBRA therefore concludes that the proposal is unlikely to have a significant impact on flora and fauna.

An assessment of the proposal in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (the Due Diligence Code of Practice) has been undertaken. The Due Diligence Assessment (DDA) has been prepared and concludes that no Aboriginal sites or potential archaeological deposits were identified during the visual inspection. An attempt to inspect an existing artefact located near the existing access route was undertaken, however, no item of Aboriginal cultural heritage was found. The proposal is therefore not expected to negatively impact cultural heritage value. The proposal is considered consistent with requirements contained within Section 6.2.1 Guidelines and Actions the PoM.

3.4.2 Consultation

The Authority has consulted with NPWS during the design and planning process, and through the formal approval in-principal (AIP) process. The AIP process is established to address matters for consideration under the NPW Act and to ensure that the proposal aligns with the PoM.

During the AIP meeting on 19 May 2022, the focus of comments from an environmental perspective related to the following:

- The requirement for some vegetation clearance due to the compound expansion.
- NPWS are not aware of any existing cultural heritage studies and a Due Diligence Assessment (DDA) would be required for the proposal.
- The existing access track may require some remedial works, however it is not anticipated to be a significant upgrade.

On 27 May 2022 the formal AIP process commenced with the following information being supplied to NPWS:

- Meeting minutes dated 19 May 2022
- Preliminary Design Drawings
- Form 1 – CCEP Site Proposal on NPWS Land
- Form 3 – Application for Licence: New CCEP Facility on NPWS Land
- Map of existing locations
- RF Coverage map

NPWS considered the submission and provided AIP for the proposal on 17 June 2022. A copy of the submission to NPWS is enclosed in **Appendix D**.

In addition to the comments provided in the AIP meeting, the AIP requests that the proposal should consider impacts such as visual impact and access within the REF.

In response to the matters raised during the AIP meeting and the formal AIP response, an EBRA and DDA have been prepared. The EBRA concludes that due to the previous modifications made to accommodate the existing radiocommunications infrastructure and APZ the location is unlikely to contain or impact threatened species. The minor clearing of ground storey vegetation and vegetation regrowth within the APZ is expected to have a minimal environmental impact. The DDA concludes that following on from site investigations of the proposal location, no items of Aboriginal cultural heritage significance were identified as a result of the previous site disturbance. The location is unlikely to have a high archaeological potential. Further details are provided in Sections 4.4 and 4.8 of this report. All recommendations made within the EBRA and DDA have been incorporated to the safeguards in Section 6 and the Authority would ensure compliance with these safeguards.

The proposal including visual impact and access have been considered in relation to the adjacent wilderness area. While the proposal location would not be within the wilderness area, a large portion of the Deua National Park is a declared wilderness area and this begins approximately 25m to the west and north of the proposal location, beyond the existing APZ. The proposal would involve a co-location with an existing radiocommunications site. It is expected that there would be some visual impact in the immediate vicinity surrounding the proposal location, however this would be viewed in the context of the existing radiocommunications infrastructure. From medium and longer distances away, the dense vegetation and topography is expected to obscure visibility to the proposal. It is therefore considered that the proposal would not have a significant visual impact on views to and from the wilderness area. Refer to Section 4.5 for more information.

Finally, construction and ongoing maintenance of the proposal would be via the existing access network that is assessed as being suitable for these activities. The Authority would undertake an access track assessment prior to construction, however, it is not expected that there would be any impact to the wilderness area.

3.4.3 Telecommunications facilities checklist

The checklist in Table 6 meets the requirements of section 153A and 153D of the NPW Act which applies to telecommunications facilities.

Table 6 OEH Telecommunications facilities checklist

Principle	Comments
Is the facility on land that is within an area designated as a remote natural area or back country zone in a plan of management or an Aboriginal area?	The proposal is not located within an area designated as a remote natural area or back country zone in a plan of management or an Aboriginal area.
Are there feasible alternative sites for the facility on land that is not reserved under the *NPW Act*?	There are no feasible alternative sites on land not reserved under the NPW Act. The Deua National Park is a large land holding that extends for several kilometres in all directions. Given the extent of surrounding land that is reserved under the NPW Act, there would not be a suitable 'off-park' location that would meet the site selection requirements. Site alternatives are assessed using a multi-criteria analysis including whether the location would meet the targeted radiofrequency and transmission objectives, constructability and environmental constraints. Co-locating with existing radiocommunications infrastructure is generally preferred where it is technically feasible and can deliver a suitable solution in terms of environmental and social impacts. The proposal location has been chosen as it is utilised as for existing Government agency radiocommunications equipment and it is a suitable elevation and position to meet the targeted radiocommunications and transmission requirements.
Does the site of any above ground facility cover the minimum area possible?	The development footprint is the minimum area required to support the required PSN site. The proposal would be a brownfield solution at an existing radiocommunications site. The proposal would require a new monopole, generator equipment shelter and photovoltaic array. The proposal would involve a compound expansion to the north-east. This option is the only viable solution preferred over the installation of a new facility at an alternate location within the Deua National Park as

Principle	Comments
	it would result in a significantly reduced environmental impact.
Is the facility to be designed and constructed to minimise risk of damage to the facility from bushfires?	In accordance with the RFS Practice Note 1/11 T*elecommunications Towers in Bush Fire Prone Areas*, the proposal would achieve a minimum APZ of 10m in all directions. In addition to the APZ, the proposal takes into consideration the performance criteria and BAL rating of materials used on site, engineering, and network design to maintain communications during bushfire events.
Has the site and construction of the facility been selected to, as far as practicable, minimise visual impact?	The proposal for a brownfield solution at an existing radiocommunications site is appropriate to minimise visual impact. The proposal is designed to the minimum required height to achieve radio frequency and transmission objectives, further details are provided in Section 4.5.
Is it feasible to use an existing means of access to the site?	The existing access would be utilised for the proposal. Maintenance and repairs may be required to sections of the existing access track as necessary and would be assessed immediately prior to construction activities. Maintenance works would not widen the footprint of the existing track, nor intensify its designated use. Further details are provided in Section 4.7.
Is the facility essential for the provision of telecommunications services for land reserved under the *NPW Act* or for surrounding areas to be served by the facility?	The proposal meets the coverage and capacity needs of NSW Government Agencies. This will improve the delivery of frontline law enforcement, emergency, essential and community services, which includes essential telecommunications services on land reserved under the NPW Act and in surrounding areas.
Will the facility be removed and the site restored as soon as possible after the facility becomes redundant (e.g. due to changes in technology)?	The proposal would be decommissioned, and the land restored should the proposal and technology become redundant.
Has the site been selected after taking into account the objectives set out in any plan of management relating to the land?	The design and location of the proposal has considered the PoM and the proposal is permissible as detailed above.
If feasible, will the facility be co-located with an existing structure or located at a site that is already disturbed by an existing lease, licence, easement or right of way.	The proposal is a brownfield solution at an existing radiocommunications site. The proposal location has previously been disturbed for the existing infrastructure an APZ.

Principle	Comments
Is the facility on land that is within a wilderness area?	A large portion of the Deua National Park is a declared Wilderness Area. The Wilderness Area is located approximately 25m to the north, immediately beyond the existing radiocommunications development footprint and APZ. The proposal location would not be located on land within the declared Wilderness Area.

3.5 Summary of consultation

Table 7 summarises the stakeholders notified regarding the proposal, the issues raised in any submissions received, and the Authority's response to the stakeholders. A copy of the correspondence with the stakeholders is provided in the Appendices.

Table 7 Summary of stakeholder consultation

Stakeholder notified	Issues raised in submission by stakeholder	Response by the Authority
Eurobodalla Shire Council	In accordance with the clause 2.141 of TISEPP, a TISEPP notice was issued to Eurobodalla Shire Council (Council) on 5 April 2023 via email. Council was given 21 days to comment on the proposal, and as of 5 May 2023 no response from Council has been received. Correspondence is provided in **Appendix C**.	No response required.
South Coast People	On 7 March 2023, a Future Act notification was provided to the South Coast People. The South Coast People were provided 28 days to comment. As of 5 May 2023, no comments have been received. Refer to **Appendix E**.	No comments required.
Public Exhibition	The proposal would be placed on public exhibition by NPWS to seek queries and comments from the local community. Any comments received during the exhibition period would be responded to as necessary.	No comments required at this stage.

4. Environmental impact assessment and safeguards

This section aims to identify potential impacts of the proposal (including access, construction and ongoing maintenance works) to the existing environment and recommend safeguards to mitigate any environmental risks.

4.1 Soil and landforms

Table 8 assesses the potential impacts to soils and landforms from the proposal and recommends suitable mitigation measures.

Table 8 Soil and landforms

Environmental aspect	Existing environment, potential impact and recommended safeguards
Would the proposal require excavation or ground disturbance?	The proposal requires excavation for construction of the proposal. Details of the excavation and ground disturbance are provided in Section 2.2. The impacts associated with excavation and ground disturbance would be limited to the construction phase for a short duration. Provided the mitigation strategies included in Section 6 are implemented, environmental impacts are expected to be minimal and would be appropriately managed.
Is there likely to be excess rock or spoil from the excavation? (ie. soil or rock that cannot be re-used to level the ground surface of the new compound or incorporated as part of the proposal).	Excavated soil would be used to provide a suitable finished level for the excavated areas, including the site compound and foundations, considering the required fill and compacting for each component. Excess soil that cannot be used for the finished levels would be approximately 15m^3 and may be relocated on the land in consultation with NPWS. If the soil cannot be used to create the finished levels and cannot be relocated on the land, then it would be removed from the land in accordance with the safeguards specified in Section 6.
Will the proposal disturb acid sulfate soils? Check – eSPADE ASS Probability mapping.	A search of the acid sulfate soils risk maps on eSpade shows that the proposal location is unlikely to be subject to risks associated with acid sulfate soils.

Will the proposal disturb contaminated land, contaminated material or lead to the contamination of land? Check the NSW EPA Contaminated Lands Database	A search of the NSW EPA Contaminated Lands Database was undertaken on 11 April 2023 and the property is not included in the results of the search. Should contaminated material be encountered during construction of the proposal the safeguards specified in Section 6 would be put in place to manage the risks associated with the contaminated material.
Is the proposal on land with the potential for asbestos, lead-based paint or other contamination sources?	The proposal is not located on land with the potential for asbestos, lead-based paint or other contamination sources.
Is the proposal in or nearby highly sloping landform? Does the site have constraints for erosion and sedimentation controls such as steep gradients or narrow corridors?	The proposal location is near to highly sloping land. Erosion and sediment control measures would be required in accordance with the safeguards specified in Section 6. These mitigation measures are assessed as being appropriate to mitigate potential erosion and sediment control impacts associated with the proposal.
Detail any other soil and erosion issues or impacts of the proposal in construction and operation and consider if specialist input is required?	The impacts associated with erosion and sedimentation would primarily be during construction activities. The safeguards specified in Section 6 would be sufficient to manage the impacts.

4.2 Waterways and water quality

Table 9 below establishes the existing environment, assesses the potential impacts to waterways and water quality from the proposal and recommends suitable mitigation measures.

Table 9 Waterways and water quality

Environmental aspect	Existing environment, potential impact and recommended safeguards
Is the proposal located within, adjacent to or near a waterway (ie. within 40 m of a waterway) Check mapping (eg. SixMaps)? If yes, is the proposal likely to impact the waterway?	The proposed location is not within 40m from a waterway. The nearest waterway is a tributary creek located approximately 230m to the south. The tributary creek is connected to the Deua River further to the south. It is not expected that the proposal would impact on waterways in the area.
Is the location known to flood or likely to change flood patterns, be affected by flooding? Check relevant Council LEP flood mapping, or available flood study mapping.	The location of the proposal is not known to flood and is unlikely to change flood patterns.
Will the works require the use or storage of fuels or other chemicals?	Construction of the proposal would require the use of fuels, including refuelling of plant and equipment. There are risks associated with the activity primarily associated with fuel spills and leaks from equipment. The proposal would also require a temporary generator during construction. During operation of the proposal the generator shelter would require the storage a fuel. The generator would be regularly checked, and re-fuelling would be carried out in accordance with the Authority's refuelling procedures approximately one to three times per year. The site would automatically switch to the generator when solar input is low and also battery power is low or requires recharging. To mitigate risks associated with fuel spills the generator would include a dual wall bunded fuel tank, where the top of tank acts as a catchment area for all potential liquid spills and it would include a secondary containment with capacity for 110% of liquids.
Will the works encounter groundwater? Check – Water NSW Real Time Data (Groundwater bores), and the	The excavation works required for the proposal would be to a maximum depth of 3m. The proposal location is at an elevation of approximately 966m and is located 15km to the north-

Bureau of Meteorology (BOM) Groundwater Dependent Ecosystems Atlas. If yes, can the works be classified as 'minimal impact activity', as per the NSW Aquifer Interference Policy?	west of the nearest groundwater bore that is at a depth of 30m. It is unlikely that the works associated with the construction of the proposal would encounter groundwater.
Detail any other water quality issues or impacts of the works in construction and operation and consider if specialist input is required. Identify if the proposal: • Would potentially impact an area administrated by Water NSW (formerly Sydney Catchment Authority (SCA))? Refer to Section 3.2.2. Check - Water NSW Protected and Special Areas mapping • Is located within or immediately adjacent to the area covered by *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011*? Refer to Section 3.2.2. If yes, complete a Neutral or Beneficial Effects (NorBE) Assessment and include in Appendices.	The proposal would not potentially impact an area administered by Water NSW and is not within, or immediately adjacent to, the area covered by *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011*.

4.3 Bushfire prone land

Table 10 assesses the bushfire risk to the proposal and recommends suitable mitigation measures.

Table 10 Bushfire risk assessment

Environmental aspect	Existing environment, potential impact and recommended safeguards
Is the proposal located within bushfire prone land and likely to increase the risk of bushfire? Is the proposed infrastructure at risk of being damaged/destroyed by bushfire? Does the proposal require vegetation clearing for an APZ?	The proposal location is identified as bushfire prone land. The EBRA has been prepared in accordance with *Planning for Bush Fire Protection 2019* (PBP) and *Practice Note 1/11 – Telecommunication Towers in Bushfire Prone Areas* (RFS Practice Note) and states: *The bush fire risk assessment has determined that the bushfire attack level that the development is likely to be exposed to as per Table A1.12.5 of PBP is BAL-FZ. This is despite an existing cleared area that is significantly larger than the minimum 10 metre wide APZ required under the Practice Note. The characteristics of BAL-FZ are that significant radiant heat and significantly higher likelihood of flame contact from the fire front will threaten the integrity of infrastructure.* The location of the proposal would be within land that has previously been cleared for the existing radiocommunications infrastructure and an APZ. The proposal would include the provision of a minimum 10m APZ around the proposed infrastructure in accordance with the RFS Practice Note. In addition, the proposal has considered the performance criteria and BAL rating of materials used on site, engineering and network design to maintain communications during bushfire events. There existing APZ surrounding the existing and proposed infrastructure would continue to be maintained by NPWS. The EBRA notes that: *There is no intention of undertaking further clearing, nor should there be given the ecological significance of the site's location within a national park estate.* The proposal would require removal of some groundcover stratum and regrowth of the understorey and canopy within the footprint of the proposal. Only vegetation within the proposal footprint and construction activities would be cleared for the proposal. The figure below identifies the extent of the existing APZ to be maintained by NPWS.

Environmental aspect	Existing environment, potential impact and recommended safeguards
	 Refer to the EBRA in **Appendix F.**

4.4 Biodiversity

Table 11 assesses the potential impacts to biodiversity in the vicinity of the proposal and recommends suitable mitigation measures.

Table 11 Biodiversity

Environmental aspect	Existing environment, potential impact and recommended safeguards
Would the proposal require the removal of vegetation?	The proposal would involve removal of some groundcover and regrowth within the previously cleared footprint of the existing radiocommunications facility and APZ. The EBRA notes that vegetation within the proposal location and surrounds is a Wet Sclerophyll Forest Formation (Grassy sub-formation) that is identified as Plant Community Tyle (PCT) 3310: Gulaga Silvertop Ash Moist Forest. As a result of previous clearing, as well as changes in environmental conditions due to the locations exposure to frost and direct sunlight the EBRA states that '*it is difficult to verify the plant community with confidence*'. In addition, the 2019-2020 bushfire that impacted the site and surrounding land has severely impacted the vegetation. The EBRA states: *It is considered that the species assemblage at the site is atypical of any particular locally occurring PCT and that this is largely due to the modified nature of the site as well as the post fire, regenerative condition of the vegetation. The landscape position and underlying geology suggest that the plant communities located within the study area are unlikely to be associated with any listed TEC.* Refer to the EBRA in **Appendix F**.
Will the proposal impact any threatened species/populations, ecological communities, critical habitat, or migratory species listed on: • *Biodiversity Conservation Act 2016* (BCA Act) Check – NSW Wildlife Atlas • EPBC Act Check - EPBC Act database migratory and threatened species, Protected Matters Search Tool.	The EBRA has considered the impacts of the proposal on any threatened species, threatened populations, ecological communities, critical habitat, or migratory species. Significance tests were carried out for threatened species, populations and ecological communities listed under the BC Act and Assessments of Significance prepared under the EPBC Act. The EBRA concludes that '*it is considered unlikely that any threatened species were present within the study area*'. Refer to **Appendix F** for the EBRA.

Environmental aspect	Existing environment, potential impact and recommended safeguards
Does the proposal involve Key Threatening Processes (KTP) under these Acts (ie. land clearance)? Check – EPBC KTP list, BCA Act KTP list.	The EBRA notes that key threatening processes (KTPs) identified with the proposal includes anthropogenic climate change and states: *The use of machinery and power tools during the proposed works will contribute to anthropogenic climate change through release of stored carbon from vegetation and greenhouse gas emissions associated with use of fossil fuels. However, the overall impact of the action is considered negligible in the context of other human activities in the region.* Refer to **Appendix F**.
Does the proposal have the potential to endanger, displace or disturb fauna (including fauna of conservation significance) or create a barrier to their movement?	The proposal does not have potential to endanger, displace or disturb fauna (including fauna of conservation significance) or create a barrier to their movement. The EBRA notes that the Deua National Park forms an area comprising other National Parks and reserves to combine more than 250,000 hectares of forest, woodland and montaine heath habitats. The proposal location would be on previously cleared land and the adjacent habitats would not be impacted. Further, as a result of the 2019 bushfires that occurred at the proposal location, the development footprint and surrounding habitats were significantly impacted. The area surrounding the perimeter of the existing radiocommunications facility and APZ contains habitat features such as fallen trees and other woody debris, as well as rocky habitat comprised of exposed rock outcrops. While there is some rocky habitat features close to the proposal location, due to the previous clearing to accommodate the existing radiocommunications infrastructure, the proposal location is well clear of these habitat features. The proposal would involve some minor clearing of some understorey vegetation and vegetation regrowth within the previously cleared footprint of the radiocommunications facility and APZ. The EBRA notes: *The main impact involves the removal of a relatively small quantity of potential foraging habitat for the subject threatened species from the proposed development footprint. However, these resources are very limited, particularly in the context of the site's position in the landscape and the habitat is only likely to be utilised incidentally by the subject threatened species. Once the*

Environmental aspect	Existing environment, potential impact and recommended safeguards
	initial work to construct the new radiocommunications facility is completed there will be no ongoing human presence associated with the facility apart from infrequent visits to undertake maintenance activities. Therefore, it is considered unlikely that the proposed works will have an adverse effect on the life cycle of the subject threatened species such that a viable local population of the species is likely to be placed at risk of extinction. Refer to the EBRA in **Appendix F**.
Would the proposal impact any other legally protected terrestrial, marine or aquatic habitats (e.g. urban bushland, riparian zones, marine parks) including; • A declared Ramsar wetland • Koala habitat (*State Environmental Planning Policy (Koala Habitat Protection) 2019*) • Urban bushland (SEPP 19) • Littoral rainforests and coastal wetlands (Check - *State Environmental Planning Policy (Coastal Management) 2018* mapping)	The EBRA advises that no sightings of Koalas have occurred within a 10km^2 surrounding the proposal location in accordance with the BioNet Atlas database. The EBRA states: *The absence of koala records suggests there is no discernible population of the species in the local area.* In addition: *Given the absence of koala records, doubts about the occurrence of a local population of the species in the general area and the unsuitability of the habitat within the development footprint, the impacts on the koala associated with the proposal are considered to be negligible. Therefore, referral to DCCEEW is considered to be unnecessary in this instance.* The proposal would not impact on a declared Ramsar wetland, urban bushland or littoral rainforest.
Is the proposal on land to which a Biosecurity Management Plan (in accordance with the *Biosecurity Act 2015*) applies?	The proposal is not on land to which a Biosecurity Management Plan applies. However, weed management and general biosecurity safeguards would be implemented to minimise risks to the Deua National Park.
Is the proposal likely to introduce noxious weeds into an area? Would clearing of noxious or environmental weeds be required for construction and/or on-going maintenance of the site?	The proposal has the potential to introduce noxious weeds and pathogens into the proposal location, the risk would be primarily associated with construction activity. The EBRA includes recommendations which would apply to personnel and equipment entering and leaving the site.

Environmental aspect	Existing environment, potential impact and recommended safeguards
	The recommendations are included in Section 6 and are considered appropriate to mitigate the risks associated with the spread of noxious weeds and pathogens. Once operational, ongoing maintenance of the proposed facility would be associated with limited potential to introduce noxious weeds.
Detail any other biodiversity issues or impacts of the proposal in construction and operation and whether specialist input is required?	No other biodiversity issues or impacts of the proposal in construction and operation are expected provided that the safeguards specified in Section 6 are effectively implemented. No further specialist input is considered necessary.

4.5 Visual and social impact

Table 12 assesses the visual and social impact to sensitive receivers in the vicinity of the proposal and recommends suitable mitigation measures.

Table 12 Visual and social impact

Environmental aspect	Existing environment, potential impact and recommended safeguards
Is the proposal likely to have a visual or social impact on the surrounding area (ie. local residences/business/schools/hospitals)	The proposal is not likely to have significant visual or social impacts on surrounding areas. It is understood that the community has had an interest in the proposal location previously during the wilderness assessment that resulted in the area surrounding the proposal location becoming included as part of either the Burra-Oulla Wilderness Area (the wilderness area) or being gazetted as part of the National Park. The proposal would be placed on public exhibition, where the community would be given the opportunity to provide comments. The proposal has been designed to reduce potential social and visual impacts as much as practical. Social impacts are assessed as being predominantly confined to the construction stage of the proposal. Construction works would be for a short duration and provided the safeguards included in Section 6 are implemented, the impacts would be minimal. The closest dwelling is approximately 15km to the north-east of the proposal location. Proposed construction works would be undertaken at the proposal location, and it is unlikely that construction works would negatively impact sensitive receivers. It is considered that the proposal has been located appropriately to minimise visual impact associated with the development. The nearest dwelling is located 15km north-east of the proposal location and visibility is not expected. The proposal would be a brownfield solution at an existing radiocommunications site. The location is on a ridgeline within the Deua National Park. The locality is densely vegetated and comprises mountain peaks and valleys. While the location of the proposal has been cleared for the existing radiocommunications infrastructure, visibility from the surrounding view catchments would be obscured by the dense vegetation and topography. It is expected that there would be some visual impacts in the short distance, immediately surrounding the proposal location. It is considered that these short distance impacts would be

Environmental aspect	Existing environment, potential impact and recommended safeguards
	considered in the context of the existing radiocommunications infrastructure. The proposed monopole would be constructed of a galvanised material that would weather and dull within a short period, as the existing radiocommunications infrastructure has weathered to a muted finish. Visual impacts immediately surrounding the proposal are expected to be low. A large portion of the Deua National Park is a declared wilderness area. The wilderness area begins to the north of the existing radiocommunications site and APZ. The proposal would utilise an existing radiocommunications site and while there would be some visual impacts in the immediate locality, they are expected to be confined to the existing radiocommunications development footprint and APZ. Further to the north, and within the wilderness area, visual impact would be obscured by the dense vegetation and topography. The proposal is not considered to significantly impact views to and from the wilderness area.
Would the proposal obstruct or intrude upon the character or views of a valued landscape or urban area. For example, locally significant topography, a rural landscape or a park, a river, lake or the ocean or a historic or distinctive townscape or landmark?	The location of the proposal is adjacent to a wilderness area. The proposal would utilise an existing radiocommunications site and would be contained to the existing development footprint and APZ, as well as utilising the existing access track. Visual impacts in the immediate area would be viewed in the context of the existing radiocommunications infrastructure. From medium and longer distances, the proposal is expected to be obscured by the surrounding topography and dense vegetation. Should there be any visibility to the proposal, the new slim line monopole would be at a height comparable to the existing tall trees in the immediate vicinity. The proposal is expected to blend in with the vegetated background from longer distances.
Would any new structures or features proposed to be constructed result in over shadowing to adjoining properties or areas?	The proposal would not result in any overshadowing to adjoining properties. The proposal location is within the Deua National Park that extends for several kilometres in all directions. There are no dwellings within 15km of the proposal location.
Is the proposal likely to impact on any items or places of social value to the community (either temporarily or permanently)?	The proposal is located within Deua National Park, and south of a wilderness area. The proposal would co-locate with existing radiocommunications infrastructure and would be considered in the context of the existing infrastructure. The proposal is expected to have a low impact to the

Environmental aspect	Existing environment, potential impact and recommended safeguards
	surrounding locality and is unlikely to impact any items or places of social value to the community. Temporary impacts associated with the construction stage would be manageable with the implementation of the safeguards in Section 6. Any temporary construction impacts would be for a short duration and are considered to be minor. The proposal is expected to have an overall positive benefit to the community as a result of an improved government agency and emergency services radiocommunications network. The proposal would facilitate communications and enhance responses for police, ambulance and firefighting agencies.
If involving lighting, would the proposal create unwanted light spillage on residential properties at night (in construction or operation)?	The proposal does not include the installation of lighting.
Detail any other socio-economic issues or impacts of the proposal in construction and operation and whether specialist input is required?	No other socio-economic issues or impacts have been identified and no further specialist input is considered necessary.

4.6 Noise and air quality

Table 13 assesses the potential impacts to noise and air quality from the proposal and recommends suitable mitigation measures.

Table 13 Noise and air quality

Environmental aspect	Existing environment, potential impact and recommended safeguards
Are there any residential properties or other noise sensitive areas near the location of the proposal that may be affected by the proposal from noise or emissions to air (i.e. church, school, hospital) during construction or operation? If yes, provide details of the potential impact.	The proposal location is well separated from residential properties and other noise sensitive receivers. The proposal location is within the Deua National Park that extends for several kilometres in all directions. The nearest dwelling is approximately 15km to the north-east of the proposal location. It is unlikely that construction activities would impact on the properties in the town. Further, the use of drones would create minor noise impacts. Use would be limited to the areas directly associated with assets, infrequent and of short duration there would be minimal impact. No other noise issues or air quality impacts have been identified and no further specialist input is considered necessary.
Are the works likely to exceed noise criteria in the *Noise Policy for Industry* (EPA 2017) or Interim Construction Noise Guideline (DECC 2009)?	The proposal is not likely to exceed the noise criteria specified in the *Industrial Noise Policy* (EPA 2000) or *Interim Construction Noise Guideline* (DECC 2009).
Is there likely to be emissions to air (ie. odours, emissions from diesel generators or dust from the proposal or access to site) during construction and operation?	Construction activity associated with the proposal would generate dust and emissions from plant and machinery. Construction activities would be for a short duration and would be mitigated by implementing the safeguards specified in Section 6. Intermittent emissions that result from the proposed generator could be expected during the operation of the proposal. Emissions would be minimised to an acceptable level based on the site context and separation to sensitive receivers.
Is there likely to be any vibration issues during construction and operation?	The proposal is unlikely to be associated with vibration impacts during construction and operation.

Environmental aspect	Existing environment, potential impact and recommended safeguards
Detail any other noise issues or air quality impacts from the proposal during construction and operation and consider if specialist input is required.	No other noise issues or air quality impacts have been identified and no further specialist input is considered necessary.
Are the works within 50 metres of a heritage item and would the proposal cause vibration impacts?	The location of the proposal is not within 50m of a heritage item.

4.7 Traffic and access

Table 14 assesses potential impacts to traffic and access from the proposal and recommends suitable mitigation measures.

Table 14 Traffic and access

Environmental aspect	Existing environment, potential impact and recommended safeguards
Would the proposal impact traffic (vehicular, cycle and pedestrian), change road conditions, street parking, require partial or full lane closure or require a new access track to be formed or impact existing access to private property, National Park, Crown Reserve or Crown leasehold land (including Western Lands Lease)?	The existing road network would have a low traffic volume and would be suitable for the proposal. Traffic impacts would not be expected during construction or operation of the proposal. Refer to the access track item below for further details.
Is the proposal likely to alter any access for properties or reserves (either temporarily or permanently)?	No, the proposal is not likely to impact access for properties and reserves.
Is the proposal likely to affect any other transport nodes or transport infrastructure (eg. bus stops, bus routes) in the surrounding area?	No, the proposal is not likely to affect transport nodes or transport infrastructure in the surrounding area.
Will the availability of street parking spaces for residents, businesses, or popular recreation areas be reduced during the work period?	No, the availability of street parking spaces will not be impacted.
Is an upgrade to the existing access track required?	Routine maintenance to sections of the Plumwood Fire Tower Trail leading to the proposal location may be required and would be assessed immediately prior to construction activities. Maintenance and repairs would be contained within the existing disturbance footprint of the access track. Works may include trimming and removal of vegetation along and within the existing track, reshaping and repair of the track surface, including placement of geofabric and gravel, and reinstatement of drainage features.
Detail any other traffic and access issues or impacts from the proposal in construction and operation and whether specialist input is required?	The proposal is not expected to generate any traffic or transport related impacts during construction, or during the operation stage of the proposal.

4.8 Aboriginal and non-Aboriginal heritage

Table 15 assesses potential impacts to Aboriginal and non-Aboriginal heritage from the proposal and recommends suitable mitigation measures.

Table 15 Aboriginal and non-Aboriginal heritage

Environmental aspect	Existing environment, potential impact and recommended safeguards
Would the proposal involve ground surface disturbance and is there potential for the proposal to impact on any items of Aboriginal heritage?	An assessment of the proposal in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (the Due Diligence Code of Practice) is required. A DDA has been prepared in accordance with the Due Diligence Code of Practice, included in **Appendix G**. The study area associated with the assessment report covered the site footprint including the APZ surrounding site. The results of the DDA have concluded that the proposal location '*is of moderate archaeological sensitivity and of low archaeological potential'.* *Step 1. Will the activity disturb the ground surface or any other culturally modified tree?* The DDA notes that the proposal would involve ground disturbance. *Step 2. Are there any:* *a) Relevant confirmed site records or other associated landscape feature information on AHIMS? and/or* *b) Any other sources of information of which a person is already aware?* The DDA undertook an extensive search of AHIMS which indicates that the closest recorded sites in the region are approximately 1.4km to the west of the proposal location. There are no recorded AHIMS sites at the proposal location, however it is noted that most of the recorded sites within close proximity to the proposal location are on ridgelines. A visual inspection of the proposal location was undertaken on 23 November 2022 by Everick Archaeologists (Everick). The Bodalla Local Aboriginal Land Council (LALC) did not attend the site inspection. The visual inspection undertaken by Everick notes: *No Aboriginal sites or potential archaeological deposits were identified during the visual inspection. Additionally, an attempt was made to reinspect the location of DL1A (AHIMS ID*

Environmental aspect	Existing environment, potential impact and recommended safeguards
	57-6-130), an artefact site located along the fire trails accessed to reach the Project Area. No Aboriginal cultural heritage was found at the mapped location. The DDA has recommended safeguards that have been included to Section 6. The safeguards would be implemented prior to construction commencing. With the additional safeguards in place, the proposal is unlikely to impact cultural heritage. Refer to **Appendix G.**
Is the proposal within or would affect a high-risk landscape? Areas that have high archaeological potential are: • Within 200m of waters. • In a sand dune system (particularly in Pleistocene or Holocene sand soil layers). • On a ridge top, ridge line or headland (turn on contours). • Within 200m below or above a cliff face. • Within 20m of or in a cave, rock shelter or cave mouth. Check - AHIMS, MapInfo, Hydra; conduct site visits and/or consult maps and plans of the area to understand the physical landscape	*c) Landscape features that are likely to indicate presence of Aboriginal objects?* The proposal location contains sensitive landscape features as it is located on a ridgetop. The DDA notes that the proposal location has been assessed as demonstrating moderate archaeological sensitivity and low archaeological potential. The location would be at an existing radiocommunications site, and the land has undergone significant disturbance for the existing infrastructure. Following a visual inspection of the location the DDA states: *The visual inspection confirmed that no Aboriginal objects or archaeological deposits would be harmed as a result of the proposed works.* In addition, a visual inspection of an identified AHIMS site located approximately 2.8km to the south-east, adjacent to Sugar Loaf Road was undertaken. The DDA confirms that '*no Aboriginal cultural heritage was found at the mapped location'.* Provided the safeguards provided in Section 6 are followed, the proposal is unlikely to impact cultural heritage.
Would the proposal involve the removal of mature native trees?	No, the proposal does not involve the removal of mature native trees.
If Aboriginal objects or landscape features are present, can impacts be avoided?	No Aboriginal objects have been identified near the proposal location. The safeguards provided in Section 6 would be followed if objects were discovered during construction.

Environmental aspect	Existing environment, potential impact and recommended safeguards
Does the proposal require further Aboriginal due diligence assessment?	No, it is not considered that further due diligence would be required in relation to the subject site location. The due diligence assessment concludes: *Therefore, in accordance with the Due Diligence Code of Practice (DECCW 2010a), the proposed works within the Project Area will not impact on Aboriginal objects and thus requires no further investigation.* The safeguards provided in Section 6 would be implemented and are assessed as being suitable to mitigate potential impact to the proposal during construction and operation.
Is the proposal within the curtilage of a World, Commonwealth, State or local heritage item or Conservation Area and would there be any impact to the heritage item or area? Check the following databases: • World, National and Commonwealth Heritage Significance • State Heritage Register • s170 Registers • Local Environmental Plans.	Searches of the relevant databases have been undertaken and show that the proposal location is not within the curtilage of a heritage item, or in the vicinity of a heritage item.
Detail any other potential non-Aboriginal heritage impacts and safeguards during construction and operation and whether specialist input is required?	No other non-Aboriginal heritage impacts have been identified and no further specialist input is considered necessary.

4.9 Waste

Table 16 details the waste generation from the proposal and management of any potential impact.

Table 16 Waste impact

Environmental aspect	Existing environment, potential impact and recommended safeguards
Is the proposal likely to generate waste material? Provide details of waste streams, location and nature of storage and disposal i.e. licenced waste disposal facilities and any safeguards for waste management?	The waste generated from the construction of the proposal would be minimal. The proposal would also involve removal of the existing equipment shelter and photovoltaic array frame and batteries. The waste streams that could be generated include: • General solid waste (non-putrescible) such as excess cabling. • General solid waste (putrescible) such as excess packaging. • Redundant NPWS equipment. The proposal would reuse existing equipment where appropriate. The waste material that cannot be reused on this proposal or on other CCEP proposals, would be disposed of appropriately to a licensed waste management facility in accordance with the requirements of the Waste Classification Guidelines (EPA, 2014). The existing NPWS solar frames, panels, equipment shelter and storage box would be returned to the local NPWS depot or an alternate appropriate location in consultation with NPWS.
Detail any other waste issues or impacts of the proposal during construction and operation and whether specialist input is required?	No other waste issues or impacts have been identified in relation to the construction and ongoing maintenance of the proposal and no further specialist input is considered necessary.

4.10 Electromagnetic energy

Table 17 confirms compliance of the proposal with the Radiation Frequency Standard.

Table 17 Electromagnetic energy

Environmental aspect	Existing environment, potential impact and recommended safeguards
Does the proposal comply with the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) Radio Frequency Standard?	The proposal would comply with the ARPANSA Standard. The maximum EME level calculated for the proposal is less than 0.07% out of 100% of the public exposure limit, at 21m from the proposal location. Please refer to the Environmental EME Report enclosed in **Appendix B.**

4.11 Aerodromes and aviation

Table 18 **Aerodromes and aviation** confirms impacts to aerodromes from the proposal and recommends suitable mitigation measures.

Table 18 Aerodromes and aviation

Environmental aspect	Existing environment, potential impact and recommended safeguards
Would the proposal (including construction – cranes etc.) exceed 100m or more above ground level and/or affect the obstacle limitation surface (OLS) of an aerodrome as defined in Part 139 of *Civil Aviation Safety Regulations 1998* (CASR)?	The proposal would not exceed 100m or more above ground level and would not protrude the OLS of an aerodrome defined in Part 139 of CASR.
Would the proposal result in a permanent structure of 30m or more above ground level?	Yes, the proposal would result in a permanent structure of 30m or more above ground level, with an overall height of 30.7m (monopole height of 25.0m and a 5.7m dipole array antenna mounted at a base elevation of 25.0m). Notification forms would be issued in accordance with the safeguards in Section 6, including to Airservices Australia in accordance with Section 2.2.3 of the Civil Aviation and Safety Authority (CASA) Advisory Circular AC 139.E-01 v1.0 Reporting of Tall Structures, December 2021, following construction of the structure.

4.12 Cumulative impact

Table 19 assesses the potential cumulative impact from the proposal and suitable mitigation measures.

Table 19 Cumulative impact

Environmental aspect	Existing environment, potential impact and recommended safeguards
Are there any major developments (for example wind farms) which are anticipated to impact the proposal? (Refer to major developments registered with DPE)	There are no major developments which are anticipated to impact the proposal.
Describe any potential cumulative environmental impacts from the proposal associated with other existing and likely future developments (ie. emissions, traffic, access, visual etc...)	The proposal would not contribute to cumulative environmental impacts given the impacts identified above and the separation from other existing or likely future developments.

5. Consideration of State and Commonwealth environmental factors

5.1 Environmental Planning and Assessment Regulation 2021 checklist

In accordance with the requirements of the Guidelines for Division 5.1 Assessments (DPE 2022) Table 20 summarises the factors listed under clause 171 of the Environmental Planning and Assessment Regulation 2021 (EP&A Regulation). These factors have been assessed in this REF; the assessment outcome for each factor is summarised in Table 20.

Table 20 Environmental Planning and Assessment Regulation 2021 checklist

Environmental Factor
Any environmental impact on a community? Nil to minor.
Any transformation of a locality? Nil to minor.
Any environmental impact on the ecosystems of a locality? Nil to minor.
Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality? Aesthetic values associated with the proposal are detailed in Section 4.5. The proposal would utilise an existing radiocommunications site and visibility is not expected to extend to the broader area.
Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present generations? The proposal and its impacts are detailed in Section 4. The effect of the proposal on aesthetic, archaeological, architectural, cultural, historical, scientific or social vales are expected to be minimal given that the proposal would co-locate with an existing radiocommunications site that has been previously cleared and disturbed.
Any impact on habitat of any protected fauna (within the meaning of the *Biodiversity Conservation Act 2016)*? The impacts of the proposal on any threatened species, threatened populations, ecological communities, critical habitat, or migratory species are detailed in Section 4. Significance tests under the BC Act are provided in Appendix F.
Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air? Nil to minor.

Environmental Factor
Any long-term effects on the environment? Nil to minor.
Any degradation of the quality of the environment? Nil to minor.
Any risk to the safety of the environment? Section 6 safeguards.
Any reduction in the range of beneficial uses of the environment? Nil to minor.
Any pollution of the environment? Nil to minor.
Any environmental problems associated with the disposal of waste? Nil to minor.
Any increased demands on resources, natural or otherwise which are, or are likely to become, in short supply? Nil to minor.
Any cumulative environmental effect with other existing or likely future activities? Nil to minor.
Any impact on coastal processes and coastal hazards, including those under projected climate change conditions? Nil to minor.
Applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1? (Note: The CCEP is a NSW State Government *Operational Communications Strategy* (OCS). Not applicable.

5.2 Commonwealth Matters of National Environmental Significance (MNES)

The purpose of this section is to consider the relevant matters of national environmental significance under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth). The consideration of the matters identified in Table 21, are used to assist in determining whether a proposal should be referred to the Commonwealth Government Department of Energy and Environment.

Table 21 Matters of National Environmental Significance checklist

Factor	Impact
a) Any impact on a World Heritage property?	Nil to minor
b) Any impact on a National Heritage place?	Nil to minor
c) Any impact on a Ramsar wetland of international importance?	Nil to minor
d) Any impact on a listed threatened species and ecological communities?	Nil to minor
e) Any impacts on listed migratory species protected under international agreements?	Nil to minor
f) Any impact on a Commonwealth marine area?	Nil to minor
g) Any impact on the Great Barrier Reef Marine Park?	Not applicable
h) Any impact on the environment due to a nuclear action?	Not applicable
i) Any impact on a water resource, in relation to coal seam gas development and large coal mining development	Not applicable

6. Summary of Safeguards and Environmental Management Measures

The safeguards identified in Table 22 will be implemented to reduce potential environmental impacts throughout construction and operation.

Table 22 Summary of safeguards for the proposal

Aspect	Safeguard
General	1. All licence, approval, working hours and notification requirements identified in this REF are to be documented in the Site Environmental Plan (SEP). 2. The SEP will include a site map presenting the location and extent of the safeguards and environmental management measures. 3. Prior to commencement, all project staff and contractors will be inducted in the SEP, including the environmental sensitivities of the National Park and wilderness area, work site and relevant safeguards. 4. Building materials and equipment must be stored wholly within the temporary works area. 5. The Environmental Manager (Construction Contractor) will be notified immediately of any complaints relating to management of environmental issues including occurrence of any environmental incidents, spills and near misses. 6. Serious and catastrophic incidents will be reported to the NSWTA Environmental Manager and WHS Manager immediately. 7. All environmental incidents will be recorded in iAuditor. 8. In the event of any environmental incident that may cause material harm to the environment, the Construction Contractor must notify the Environment Protection Authority (EPA) environment line on 131555 immediately and any other relevant authorities as defined in section 148(8) of the *Protection of the Environment Operations Act 1997*. For proposals on National Parks, the Area Manager must be contacted following the EPA environment line. 9. All services in the vicinity of the works will be located in the field and pegged-out and noted in the work plans prior to excavation works - "Dial 1100 Before You Dig". 10. When a temporary generator is brought to site, the generator will be located within the existing compound or within a temporary fenced area. The generator will include a dual wall bunded fuel tank. 11. A pre-start inspection of the generator will be conducted each day when in use. If a generator requires servicing, a drip tray or suitable bunding should be used to contain potential spills. Spills will be cleaned up using a spill kit. 12. A compliant spill kit and dry chemical fire extinguisher will be present during operation. The spill kit will be stored in an appropriate location that is quickly and easily accessible from all areas of the work site. Any spills will be contained, and material collected and disposed of at a licensed facility by a licensed contractor when necessary. Disposal records will be kept by the Construction Contractor and provided to NSWTA.

Aspect	Safeguard
Soil and landforms	13. All excavation works will be carried out in accordance with *Managing Urban Stormwater: Soils and Construction, Volume 1* (Landcom 2006) (the Blue Book) and Managing Urban Stormwater: Soils and Construction (Volumes 2A, 2C and 2D), and in accordance with the NSWTA Site Environmental Plan Framework. 14. No concrete washouts will be discharged directly onsite. All concrete washouts will be collected and retained in leak proof containers and disposed at a suitable licensed facility. 15. Stockpiles will be placed more than 2m from vegetation, concentrated water flow and roads, and no more than 2m in height. Sediment fencing will be established 1m-2m downslope of each stockpile. Where stockpiles are to be in situ for more than 14 days, they will be stabilised or covered (builder's plastic, geotextile fabric etc). Refer to the Blue Book (Diagram SD 4-1) for further details. Stockpiles should not be placed in the direction of stormwater flow. Where this is unavoidable, please consider further management measures and/or a site-specific erosion and sediment control plan. 16. Topsoil should be conserved at all times, and, wherever possible, stored separately. Topsoil stockpiles should be stabilised or covered (builder's plastic, geotextile fabric etc). Topsoil preservation in greenfield areas should be given preference. 17. Sediment fencing will be positioned parallel to the contours of the area of ground disturbance. A 150mm deep trench along the upslope line of the sediment fence will be cut for the installation of the geotextile fabric. The trench will be backfilled over the base of the fabric and compacted. Star pickets will be installed at 2.5m intervals at the downslope of the geotextile fabric to stabilise the sediment fence. Refer to the Blue Book (Diagram SD 6-8) for further details. 18. At the NPWS pre-start meeting (at least seven days prior to construction commencing) the Construction Contractor will discuss with NPWS whether any excess soil can be relocated on the land (distributed and spread evenly over an agreed part of the land).
Waterways and water quality	19. A designated and bunded refuelling area with a drip tray will be maintained on site to capture any spills. 20. A pre-work checks of all machinery (for oil leaks or worn/damaged hydraulic hoses etc) will be carried out to determine any worn or damaged parts on machinery. Drip trays should be placed under heavy vehicles when stationery. All damaged and worn parts are to be replaced before machinery is operational on site. No vehicles, equipment or plant are to be washed on site.
Noise and vibration	21. Work must be carried out between during the following work hours: • Monday to Friday: 7am to 6pm. • Saturday: 8am to 1pm. 22. Works may be carried out on Sundays, public holidays or outside standard working hours with the approval of NPWS where those works are considered by NPWS to have no adverse impacts. Working hours would be in accordance with the NPWS access protocols. 23. The Construction Contractor will ensure that the working hours are in accordance with the relevant access protocols for NPWS. 24. Works will be conducted in accordance with the DECC's 2009 *Interim Construction Noise Guideline*.

Aspect	Safeguard
Air quality	25. All work areas (including access roads and tracks) and stockpiles will be monitored for dust generation, particularly during hot, dry or windy weather. 26. The Construction Contractor will check the Bureau of Meteorology (BOM) forecast for wind speed and direction and update the work method for the day. 27. In the event of excessive dust generation, appropriate dust suppression measures will be implemented (e.g., watering, covering exposed areas/stockpiles with tarpaulins or geotextile fabric). During extremes of wind speed and temperature, work practices will be modified or ceased to reduce excessive dust. This will apply to vehicle and/or plant, and/or equipment operations. All work vehicles/machinery will be maintained in good working order and in accordance with relevant standards.
Traffic and access	28. Access to the work sites will be via existing access routes only and in accordance with the Site Access Protocol. 29. The Construction Contractor will conduct a pre-start condition assessment of the access track, inclusive of photos and description for each photo, to capture sections of existing damage, fallen objects, crossings, intersections, water flow lines, stormwater pipes, creeks, structures, and locations of risk. The Construction Contractor will retain a copy of this assessment. 30. In the event of inclement weather, the access track will be re-assessed to ensure no damage is caused by the Construction Contractors activities. It is recommended the Construction Contractor discuss the condition of the access track with the NPWS Area Manager prior to accessing the site following wet weather. If any damage occurs to the tracks or roads this will be repaired at the Construction Contractors expense.
Aboriginal and Non-Aboriginal Heritage	31. If, during the activity: o any Aboriginal objects or Aboriginal remains defined under the NPW Act are uncovered or discovered; and/or o any relics defined under the *Heritage Act 1977* are uncovered or discovered, the Construction Contractor must: o Cease work immediately. o Protect and not further harm these objects or remains. o Secure the area and restrict access to avoid further harm to the objects or remains. o Notify NSWTA immediately via phone, NPWS Environment Line (131 555) (and the local police only if the findings are human remains) as soon as practicable and at that time provide any available details about the nature and location of the objects or remains. If the project is under the jurisdiction of National Parks, then they should also be notified. o Recommence the activity only after receiving confirmation in writing from Heritage NSW (and the local police if the findings are human remains) that it is appropriate to do so, in consultation with NSWTA.
Biodiversity	32. Locations of parking, lay-down and storage areas for materials, plant and stockpiles shall be allocated/created and illustrated in the SEP. 33. Site access during construction and for future ongoing maintenance activities shall be confined to the existing site access road (Plumwood Fire Tower Trail). 34. The extent of the works footprint is to be clearly marked (e.g., via pegging/fencing/flagging) before commencement of work in order to prevent any inadvertent harm to the adjacent vegetation and habitat. This fencing/marking is to remain until all work is completed.

Aspect	Safeguard
	35. Site induction is to specify that no work is to occur beyond the marked area. All materials and equipment shall be placed in designated areas. 36. Works are to avoid damage to root zones of all adjacent trees as per the requirements of Australian Standard; *AS 4970-2009 – Protection of trees on development sites.* 37. Clearing of ground storey vegetation required to accommodate the construction activities associated with the proposal as indicated in the overall site plan prepared by Catalyst ONE, reference No. GRN-DEUA-DWG-INF-STE-04. Clearing of vegetation beyond the extent of the proposed works would not be required. The existing APZ as identified in Figure 21 of the Ecological and Bushfire Risk Assessment report prepared in consultation with NPWS would continue to be managed and maintained by NPWS. 38. The Construction Contractor will dispose of cleared vegetation within the development footprint and any vegetation to be trimmed or cleared within the footprint of the existing access track in consultation with NPWS during the pre-construction meeting. Records of waste disposal will be kept by the Construction Contractor. 39. If any threatened or native species (flora or fauna) are discovered during the works, all work will stop immediately, and the Environmental Manager (Construction Contractor) will be notified. Threatened fauna will be allowed to leave the site without any coercion. If required a suitably qualified/experienced person is to be contacted to facilitate the safe removal of the animal. The Construction Contractor will inform the NSWTA Environmental Manager and maintain a record of fauna displaced, injured or deceased at the site in iAuditor. 40. All clothing, hats, footwear, tools, equipment, machinery and vehicles will be checked to remove weed seeds, mud, soil and organic matter before entering and exiting the site. 41. Vehicles will be thoroughly cleaned inside and out between site visits. No vehicles will be washed on site. 42. To mitigate the spread of environmental, aquatic or noxious weeds or pests the relevant safeguards in the *Arrive Clean, Leave Clean (2015)* guideline (Australian Government, Department of the Environment) will be implemented. 43. The Authority would be responsible for the control of weed activity resulting from the works, for a minimum of three years post works in accordance with NPWS consent conditions. 44. Ongoing maintenance of the infrastructure shall be confined to the footprint of the facility (i.e. the NSWTA compound) as detailed in the site set out plan prepared by Catalyst ONE, reference No. GRN-DEUA-DWG-INF-STE-05.
Storage of Fuels and Chemicals	45. All fuels and chemicals stored and handled on site would be done so in accordance with *AS 1940:2004 The Storage and Handling of Flammable and Combustible Liquids* and the *Storage and Handling Liquids, Environmental Protection, Participants Manual (DECC, 2007).* Material Safety Data Sheets for all the chemicals will be maintained onsite. 46. Re-fuelling will be carried out in accordance with the *Standard Operating Procedure for Re-fuelling of NSW Telco Authority Generators at Government Radio Network Sites*.
Waste	47. All wastes are required to be classified in accordance with the *Waste Classification Guidelines (EPA, 2014)* and transported to a licensed facility and waste records will be maintained.

Aspect	Safeguard
	48. If contamination is suspected or identified on site during construction, the Contractor will stop work, notify NSWTA and any contaminated material will be stored, removed and disposed of in accordance with the regulations, guidelines and best practice for the removal of these materials. Hazardous materials will only be removed by suitably qualified, licensed and experienced contractors and waste records will be maintained. 49. The work site must be left clear of waste and debris at the completion of works and restored, as far as possible, to the original condition.
Bushfire	50. The Construction Contractor will review bush fire area conditions each day prior to accessing the site via the Bush Fire Information Line - 1800 NSW RFS (1800 679 737) and the NSW RFS Fires Near Me website (https://www.rfs.nsw.gov.au/fire-information/fires-near-me). If the fire danger rating in the area is severe or above, further advice will be sought from RFS and/or NPWS prior to any works being undertaken. 51. Hot works where plant, equipment and/or machinery may cause sparking or ignition, a risk assessment will be completed, controls and management strategies will be implemented. Proposed work methods will be updated or changed to ensure controls and ignition risk mitigation is implemented. During periods where one or more of the following occur; accelerated wind conditions, high temperatures, low humidity and/or during total fire bans, plant, equipment, or machinery are not operated. 52. The extent of the existing APZ is identified in Figure 21 of the Ecological and Bushfire Risk Assessment report (determined in consultation with NPWS). Maintenance of the existing APZ would continue to be undertaken by NPWS. 53. Bushfire protection measures, including design, asset protection zones, design for recovery/emergency planning and site reinstatement process shall be as per CCEP prepared by the Authority.
Visual and social	54. Construction Contractors will maintain the site in a tidy appearance and no rubbish will be left on-site. 55. The Construction Contractor will be responsible for managing on-site complaints and issue a Flash Card to the interested stakeholder. Contractors will document the feedback in iAuditor and pass on the details to the Stakeholder team at NSW Telco Authority. 56. If any accidental damage to property occurs as a result of work activities, either within or outside the boundaries of the work site, the Construction Contractor will be notified and damage to property incurred by the works must be repaired in consultation with the affected property owner.
Additional stakeholders	57. The construction Contractor will notify the council of the proposed construction seven days prior to construction commencing.
Aerodromes and aviation	58. Following construction completion of the proposal, the Authority will issue a Vertical Obstacle Notification Form to Airservices Australia.

7. Conclusion

The potential environmental risks from the proposal are considered minor given the cleared and disturbed nature of the land and the adjacent land uses. The area surrounding the proposal location has previously been an important location to the community and it is considered that there may be some concerns for potential visual and social impacts. The visual impacts have been reduced as much as practical by co-locating with an existing radiocommunications facility and installing a slim line structure. It is expected that the surrounding tall vegetation and undulating topography would obscure visibility to the proposal and visibility from nearby view corridors would be considered in the context of the existing radiocommunications infrastructure. Social impacts would be associated with construction of the proposal. Construction would be for a short duration and with the implementation of mitigation strategies, the impacts would be reduced.

On the basis of the available information and by adopting the safeguards identified Section 6 of this REF, it is concluded that the proposed works are unlikely to significantly affect the environment. Any potential impacts and/or additional site-specific safeguards will be integrated into the Site Environmental Plan.

Accordingly, an Environmental Impact Statement (EIS) and Species Impact Statement is not required under Part 5 of the EP&A Act and the proposal may proceed.

References

1. EPA (2014) *Waste Classification Guidelines*, Part 1-4, NSW Government, Sydney.
2. DECC (2009) *Interim Construction Noise Guideline*, NSW Government, Sydney.
3. DECCW (2010) *Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW*, NSW Department of Environment, Climate Change and Water, Sydney.
4. Department of Planning and Environment (DPE)*, Guidelines for Division 5.1 Assessments* (February 2022)
5. Landcom (2004) *Managing Urban Stormwater – Soils and Construction* 4th Edition. (Blue Book) DECCW (2010), Department of Environment, Climate Change and Water, Sydney.
6. (2022) *NSW Telecommunications Facilities Guideline Including Broadband*, NSW Government, Sydney.
7. *The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) Radio Frequency Standard*.

Terms and acronyms

Term / Acronym	Definition
Authority	NSW Telco Authority
AHIMS	Australian Heritage Information Management System
BC Act	Biodiversity Conservation Act 2016
BA Act	Biosecurity Act 2015
CCEP	Critical Communications Enhancement Program
CLM Act	*Crown Land Management Act 2016*
Crown Lands	NSW Department of Planning and Environment – Crown Lands' (Crown Lands)
Cth	Commonwealth
DPIE	Department of Planning and Environment
EIA	Environmental impact assessment
EIS	Environmental impact statement
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW). Provides the legislative framework for land use planning and development assessment in NSW
EP&A Regulation	Environmental Planning and Assessment Regulation 2021 (NSW). Provides a framework to guide the processes, plans, public consultation, impact assessment and other decisions made by planning authorities.
EPA	Environment Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth). Provides for the protection of the environment, especially matters of national environmental significance, and provides a national assessment and approvals process.
Ecologically sustainable development.	Development which uses, conserves and enhances the resources of the community so that ecological processes on which life depends, are maintained and the total quality of life, now and in the future, can be increased
PSN	Public Safety Network (formerly referred to as Government Radio Network (GRN))
Heritage Act	*Heritage Act 1977* (NSW)
TISEPP	*State Environmental Planning Policy (Transport and Infrastructure) 2021*
LGA	Local Government Area
MNES	Matters of national environmental significance under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.
NPW Act	*National Parks and Wildlife Act 1974 (NSW)*
NSW	New South Wales
OCS	Operational Communications Strategy
REF	Review of Environmental Factors
SEPP	State Environmental Planning Policy. A type of planning instrument made under Part 3 of the EP&A Act.
SIS	Species Impact Statement
TMP	Traffic Management Plan

Appendix A – Design drawings

DATE OF ISSUE	31.07.19	10.09.19	07.10.19	14.11.19	21.03.22	09.06.23				
DRAWING PACKAGE VERSION	1	2	3	4	5	6				

GRN-DEUA-DWG-INF-STE-01A	COVER PAGE 1	A	B	C	01	D	03				
GRN-DEUA-DWG-INF-STE-01B	COVER PAGE 2	-	-	-	-	-	01				
GRN-DEUA-DWG-INF-STE-02	COVER PAGE 3	-	-	-	-	-	02				
GRN-DEUA-DWG-INF-STE-03A	SITE SPECIFICATION AND LOCALITY PLAN SHEET 1 OF 2	A	B	B	01	C	02				
GRN-DEUA-DWG-INF-STE-03B	SITE SPECIFICATION AND LOCALITY PLAN SHEET 2 OF 2	-	-	-	-	-	01				
GRN-DEUA-DWG-INF-STE-04	OVERALL SITE PLAN	A	B	C	01	D	02				
GRN-DEUA-DWG-INF-STE-05	SITE SETOUT PLAN	A	B	C	01	D	03				
GRN-DEUA-DWG-INF-STE-06	ANTENNA TABLE AND ANTENNA PLAN CONFIGURATION	A	A	A	01	B	02				
GRN-DEUA-DWG-INF-TWR-01	SITE ELEVATION	A	B	C	01	D	02				
GRN-DEUA-DWG-RAN-TRX-01	RF INTERCONNECTIONS	-	-	-	-	A	01				
GRN-DEUA-DWG-RAN-TRX-02	P25 BASE STATION SCHEMATIC	-	-	-	-	-	01				
GRN-DEUA-DWG-BKH-TRX-01	SITE LINK DIAGRAM	-	-	-	-	-	01				
GRN-DEUA-DWG-INF-PAC-01	ELECTRICAL SPECIFICATION	-	-	-	-	-	01				
GRN-DEUA-DWG-INF-PAC-02	SUBARRAYS CB AND CABLE SCHEDULES	-	-	-	-	-	01				
GRN-DEUA-DWG-INF-PAC-03	SITE EARTHING DIAGRAM SHEET 1 OF 2	-	-	-	-	-	02				
GRN-DEUA-DWG-INF-PAC-04	SITE EARTHING DIAGRAM SHEET 2 OF 2	-	-	-	-	-	01				
GRN-DEUA-DWG-INF-PAC-06	ELECTRICAL AND CONTROL CABLINGS	-	-	-	-	-	01				
GRN-DEUA-DWG-RAN-CAB-01	GRN BASE STATION RACK LAYOUT	-	-	-	-	A	01				
GRN-DEUA-DWG-ENV-CAB-01	DC POWER AND BATTERY RACKS (EATON) - SHEET 1 OF 2	-	-	-	-	A	02				
GRN-DEUA-DWG-ENV-CAB-02	DC POWER AND BATTERY RACKS (EATON) - SHEET 2 OF 2	-	-	-	-	-	01				
GRN-DEUA-DWG-INF-HUT-01	EQUIPMENT SHELTER LAYOUT PLAN - EXISTING	A	B	C	01	D	02				
GRN-DEUA-DWG-INF-HUT-02	EQUIPMENT SHELTER LAYOUT PLAN - NEW	A	A	A	01	B	02				
GRN-DEUA-DWG-INF-HUT-03	GENERATOR SHELTER LAYOUT PLAN - NEW	-	A	A	01	B	02				
GRN-DEUA-DWG-INF-HUT-04	SHELTER EARTHING PLAN	-	-	-	-	-	01				
GRN-DEUA-DWG-INF-CVL-01	SOLAR FRAME FOUNDATION DETAIL - SHEET 1	-	-	-	-	-	02				
GRN-DEUA-DWG-INF-CVL-02	SOLAR FRAME FOUNDATION DETAIL - SHEET 2	-	-	-	-	-	02				
GRN-DEUA-DWG-INF-CVL-03	GENERATOR FOUNDATION DETAIL - SHEET 1	-	-	-	-	-	02				
GRN-DEUA-DWG-INF-CVL-04	GENERATOR FOUNDATION DETAIL - SHEET 2	-	-	-	-	-	01				
GRN-DEUA-DWG-INF-CVL-05	EQUIPMENT SHELTER BASE FRAME CONNECTIONS	-	-	-	-	-	01				

COMPANY	REPRESENTATIVE	COPIES									
NSWTA	GARRETH ETHERINGTON	1	1	1	1	1	1				
VISIONSTREAM	PAUL PETTINGILL	1	1	1	1	-	-				
CATALYST ONE	CHRIS McCAMBRIDGE	-	-	-	-	1	1				

NSW GOVERNMENT | Telco Authority

ACMA # 10026863

DEUA

PLUMWOOD FIRE TOWER TRACK,
OFF LITTLE SUGARLOAF RD, DEUA, NSW 2537

catalyst
managers.advisors

Drawing Status: FOR CONSTRUCTION

Drawing No. GRN-DEUA-DWG-INF-STE-01

CAD File: P:\NSW TA\ERE\Deua\CAD\In Progress Drawings\GRN-10026863-DEUA_FC_Ver06.dwg
Print By: James Follett Date: 12/13/2022 3:58 PM

A3 Original Size
0mm 50mm 100mm

DATE OF ISSUE	31.07.19	10.09.19	07.10.19	14.11.19	21.03.22	09.06.23				
DRAWING PACKAGE VERSION	1	2	3	4	5	6				

P19101-P02-10016839-IS-01	INSTALLATION SPECIFICATIONS	-	-	-	-	-	B				
P19101-P02-10016839-PL-01	NEW PARTS LIST	-	-	-	-	-	C				
P19101-P02-10016839-CS01	CABLE SCHEDULE PG1	-	-	-	-	-	B				
P19101-P02-10016839-CS02	CABLE SCHEDULE PG2	-	-	-	-	-	B				
P19101-P02-10016839-CTMOD-01	DC-AC-SLD COMMTEL MODIFIED	-	-	-	-	-	C				
P19101-P02-10016839-SAL-01	SOALR DIESEL HYBRID: SOLAR ARRAY LAYOUT	-	-	-	-	-	B				
P19101-P02-10016839-ASTRL-01	ARRAY STRING LAYOUT	-	-	-	-	-	B				
P19101-P02-10016839-LABELS	LABELS	-	-	-	-	-	B				
P19101-P02-10016839-SSGNSTPLN	SOLAR DIESEL HYBRID: SAFETY SIGNAGE SITE PLAN	-	-	-	-	-	B				
P19101-P02-10016839-SSGNLOUT	SOLAR DIESEL HYBRID: SAFETY SIGNAGE LAYOUT	-	-	-	-	-	C				
C10085ES-M10T4-1-25TP	LEBLANC 25m TYPE 4 MONOPOLE GENERAL ARANGEMENT	-	-	-	-	-	0				
C10085ES-M10T4-3-25FND	LEBLANC 25m TYPE 4 MONOPOLE ROCK ANCHOR FOUNDATION DETAILS	-	-	-	-	-	0				
MM-2-UMRA	UNIVERSAL MONOPOLE ANTENNA MOUNT ERECTION DETAIL	-	-	-	-	-	0				
MM-2-MAM	UNIVERSAL STANDARD MOUNT-MONOPOLE MICROWAVE STANDOFF	-	-	-	-	-	0				
MM-2-MAM-3200	STANDARD MOUNT-MONOPOLE MICROWAVE STANDOFF	-	-	-	-	-	0				
MM-2-MAM-48	STANDARD MOUNT-MONOPOLE MICROWAVE STANDOFF	-	-	-	-	-	0				

REFERENCE DOCUMENTS

TA-STD-000	GRN EXTERNAL SIGNAGE	-	-	-	-	-	05				
TA-STD-001	RF EME SAFETY SIGNAGE SHEET	-	-	-	-	-	03				
TA-STD-002	STANDARD NOTES SHEET 1 GENERAL AND PRELIMINARY	-	-	-	-	-	02				
TA-STD-003	STANDARD NOTES SHEET 2 UG SERVICES, FOUNDATIONS, EARTHWORKS AND ACCESS TRACKS	-	-	-	-	-	03				
TA-STD-006	STANDARD NOTES SHEET 5 MASONRY AND CONCRETE	-	-	-	-	-	02				
TA-STD-007	STANDARD NOTES SHEET 6 STRUCTURAL STEELWORK	-	-	-	-	-	04				
TA-STD-008	STANDARD NOTES SHEET 7 FENCING AND BOLLARDS	-	-	-	-	-	05				
TA-STD-009	STANDARD NOTES SHEET 8 ELECTRICAL	-	-	-	-	-	02				
TA-STD-010	STANDARD NOTES SHEET 9 EARTHING	-	-	-	-	-	03				
TA-STD-031	TYPICAL COMMUNICATION PUT DETAILS ('P' TYPE PLASTIC PITS)	-	-	-	-	-	02				
TA-STD-090	TYPICAL CHAINLINK FENCE AND GATE DETAILS "STANDARD SECURITY" (SHEETS 1 AND 2)	-	-	-	-	-	06				

COMPANY	REPRESENTATIVE	COPIES									
NSWTA	GARRETH ETHERINGTON	1	1	1	1	1	1				
VISIONSTREAM	PAUL PETTINGILL	1	1	1	1	-	-				
CATALYST ONE	CHRIS McCAMBRIDGE	-	-	-	-	1	1				

NSW GOVERNMENT | Telco Authority

ACMA # 10026863

DEUA

PLUMWOOD FIRE TOWER TRACK,
OFF LITTLE SUGARLOAF RD, DEUA, NSW 2537

catalyst
managers.advisors

Drawing Status: FOR CONSTRUCTION

Drawing No. GRN-DEUA-DWG-INF-STE-01

CAD File: P:\NSW TA\ER\Deua\CAD\In Progress Drawings\GRN-10026863-DEUA_FC_Ver06.dwg
Print By: James Follett Date: 12/13/2022 3:58 PM

A3 Original Size
0mm 50mm 100mm

DATE OF ISSUE	31.07.19	10.09.19	07.10.19	14.11.19	21.03.22	09.06.23				
DRAWING PACKAGE VERSION	1	2	3	4	5	6				

REFERENCE DOCUMENTS

TA-STD-203	TYPICAL CABLE LADDER FIXING AND GLAND PLATE (TYPE 2) TO EQUIPMENT SHELTER	-	-	-	-	-	06				
TA-STD-204	CABLE LADDER FIXING DETAILS	-	-	-	-	-	09				
TA-STD-205	TYPICAL CABLE LADDER SUPPORT POST DETAILS	-	-	-	-	-	08				
TA-STD-330	RFI DIPOLE ANTENNA SPECIFICATIONS & MOUNTING REQUIREMENTS	-	-	-	-	-	05				
TA-STD-501	EQUIPMENT SHELTER SURGE PROTECTION DEVICE PANEL WIRING EXTRA LOW VOLTAGE VOLTAGE PANEL WITH MODULAR GENERATOR	-	-	-	-	-	01				
TA-STD-502	EQUIPMENT SHELTER SURGE PROTECTION DEVICE PANEL WIRING LOW VOLTAGE VOLTAGE PANEL	-	-	-	-	-	01				
TA-STD-503	GENERATOR SHELTER SURGE PROTECTION PANEL WIRING EXTRA LOW VOLTAGE VOLTAGE PANEL	-	-	-	-	-	01				
TA-STD-712	SHELTER INTERNAL EARTHING DIAGRAM (SPC)	-	-	-	-	-	07				
TA-STD-720	FEEDER EARTH BAR AND SERVICE EARTH BAR DETAILS	-	-	-	-	-	04				
TA-STD-721	SINGLE POINT EARTH BAR DETAILS	-	-	-	-	-	03				
TA-STD-722	TYPICAL EARTHING CONNECTION DETAILS	-	-	-	-	-	02				
TA-STD-723	GLAND WINDOW DETAILS	-	-	-	-	-	02				
TA-STD-724	SURGE PROTECTION MOUNTING PLATE DETAILS	-	-	-	-	-	02				
TA-STD-725	EARTHING GENERAL ARRANGEMENT	-	-	-	-	-	01				
TA-STD-1122	CONTAINERIZED DIESEL GENERATOR CONCRETE PIER DETAILS	-	-	-	-	-	05				
TA-STD-1201	EATON LITHIUM ION BATTERY RACK LAYOUT	-	-	-	-	-	01				
TA-STD-1202d	EATON DC POWER RACK LAYOUT FOR SINGLESITE / MODULAR EQUIPMENT SHELTER	-	-	-	-	-	02				
TA-STD-1203b	COMMTEL MODULAR AND SINGLESITE SOLAR - HYBRID AC-DC SLD DIAGRAM LITHIUM	-	-	-	-	-	02				
TA-STD-1204d	COMMTEL-NSWTA 6m SOLAR HYBRID SINGLESITE SOLUTION (GRN + AGENCIES)	-	-	-	-	-	02				
TA-STD-1205	SURGE PROTECTION MOUNTING PLATE DETAILS	-	-	-	-	-	01				
TA-STD-1206	SITE BATTERY CB TRIP-SLD	-	-	-	-	-	01				
NSWTA-STD-4010b	GENERATOR CHANGE OVER SWITCH BOX SINGLE PHASE - OPTION B	-	-	-	-	-	02				
NSWTA-STD-4201	NEW TYPE 36 PANEL SOLAR ARRAY - STAND ALONE 1m EXTENSION	-	-	-	-	-	01				
NSWTA-STD-4208	NEW TYPE 36 x 330W - 370W PANEL ARRAY GROUND MOUNTED STAND	-	-	-	-	-	02				
	ALONE - 1m, 2m & 3m EXTENSION - FOOTING DETAILS										

REPORT

C10085ES-CERT	LEBLANC MONOPOLE CERTIFICATE	-	-	-	-	-	0				
-	FORM 1 - NSWTA STRUCTURAL CERTIFICATION	-			-	-	01				

NSW GOVERNMENT | Telco Authority

ACMA # 10026863

DEUA

PLUMWOOD FIRE TOWER TRACK,
OFF LITTLE SUGARLOAF RD, DEUA, NSW 2537

catalyst
managers.advisors

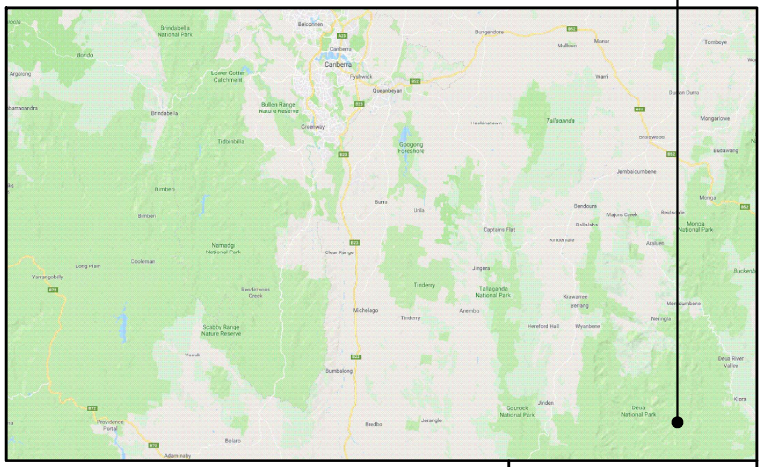
Drawing Status: FOR CONSTRUCTION

Drawing No. GRN-DEUA-DWG-INF-STE-02

CAD File: P:\NSW TA\ERE\Deua\CAD\In Progress Drawings\GRN-10026863-DEUA_FC_Ver06.dwg
Print By: James Follett Date: 12/13/2022 3:58 PM

A3 Original Size
0mm 50mm 100mm

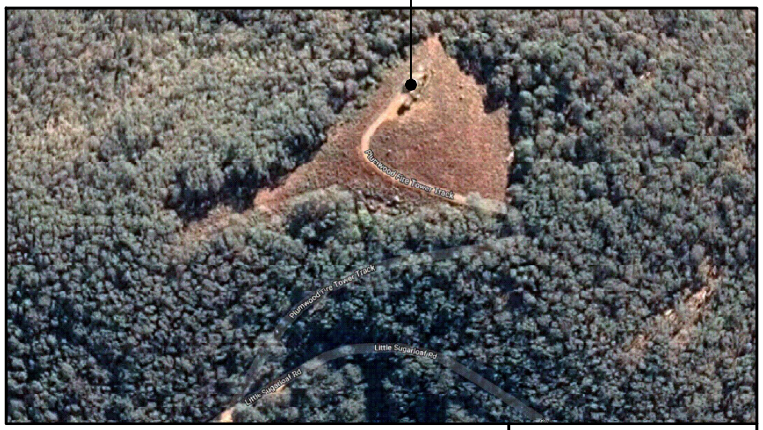
SITE LOCATION



Copyright © Google Maps

REGIONAL MAP
NOT TO SCALE

SITE LOCATION



Copyright © Google Maps

LOCALITY MAP
NOT TO SCALE

SITE CO-ORDINATES			
DATUM:	GDA94	ZONE:	55
EASTING:	757 761	LATITUDE:	-35.976313°
NORTHING:	6 014 895	LONGITUDE:	149.858782°
SITE LOCALITY DETAILS			
REGION:	SOUTH COAST	LOT:	DEUA NATIONAL PARK
PARISH:	COONDELLA	DP/PLAN:	DEUA NATIONAL PARK
COUNTY:	DAMPIER		
TA DESIGN CRITERIA			
ACCESS CLASSIFICATION		SEMI-RESTRICTED	
TA BAL		BAL-29	
WIND REGION		A2 (AS1170.2)	
REGIONAL WIND SPEED		46 m/s	
TERRAIN CATEGORY		3.0	
TOPOGRAPHICAL MULTIPLIER		1.68 (NE)	
DIRECTIONAL MULTIPLIER		1.0	

SITE ADDRESS

PLUMWOOD FIRE TOWER TRACK,
OFF LITTLE SUGARLOAF RD, DEUA, NSW 2537
ACMA SITE ID: 10026863
GRN SITE CODE: DEUA
RFNSA SITE NUMBER: 2537020

EXISTING INFRASTRUCTURE DETAILS

OWNER: NPWS
OWNER SITE NAME: PLUMWOOD

SITE ACCESS

1. FROM PRINCES HWY A1, TAKE WESTERN BOUNDARY ROAD WEST APPROX. 11.3km. TURN LEFT ONTO LITTLE SUGARLOAF ROAD, FOLLOW APPROX. 5.3km. AT JUNCTION WITH LITTLE BUMBO FIRETRAIL, VEER RIGHT TO STAY ON LITTLE SUGARLOAF ROAD, FOLLOW APPROX. 17km. TAKE SHARP RIGHT ONTO PLUMWOOD FIRE TOWER TRACK, FOLLOW APPROX. 350m TO SITE. 4WD VEHICLE REQUIRED.
2. ACCESS TO SITE REQUIRES NPWS ACCESS AND APPROVAL, AND NPWS KEY COLLECTION. SUBMIT NPWS ACCESS REQUEST TO JOANNE ISSAVERDIS - AREA MANAGER, KATHERINE SALE - TEAM LEADER RANGERS - NPWS.EUROBODALLA@ENVIRONMENT.NSW.GOV.AU. KEYS FOR ACCESS GATE LOCATED AT NPWS NAROOMA.
3. ACCESS TO RFS SHELTER REQUIRES FORMAL ACCESS REQUEST SUBMISSION TO RFS. RFS INDUCTION REQUIRED. EMAIL REQUEST TO CCEP@RFS.NSW.GOV.AU
4. MAJOR WORKS ON SITE AND ANY ACCESS TO EXISTING FIRE WATCH TOWER TO BE REQUESTED VIA FORESTRY CORP NSW. CONTACT TROY DARCY E: TROY.DARCY@FCNSW.COM.AU.

STRUCTURE DETAILS

1. NEW NSWTA 25m HIGH MONOPOLE ON NEW CONCRETE PAD FOOTING WITH ROCK ANCHORS HAS BEEN CERTIFIED BY LEBLANC. REFER TO LEBLANC CERTIFICATE C10085ES-CERT FOR DETAILS.
2. ANTENNA MAINTENANCE ACCESS VIA NEW STEP-PEGS WITH FALL ARREST OR EWP (BY QUALIFIED PERSONNEL ONLY).

EQUIPMENT SHELTER

1. EXISTING RFS EQUIPMENT SHELTER (3.7m x 2.5m) TO BE REUSED TO ACCOMMODATE NSWTA EQUIPMENT.
2. NEW NSWTA COMMTEL FIRE RATED GENERATOR SHELTER (3.026m x 2.438m) ON NEW CONCRETE PIER FOUNDATION.

EXISTING SITE HAZARDS

1. 4WD ACCESS ONLY
2. BUSHFIRE
3. EXISTING OPERATING ANTENNAS
4. FLORA AND FAUNA
5. REMOTE WORKING CONDITIONS

ELECTRICAL INSTALLATION

1. NEW SOLAR POWER WITH PERMANENT GENERATOR BACKUP.
2. NEW 36 x 370W SOLAR PANELS TO BE INSTALLED ON NEW 3m ELEVATED STAND ALONE FRAME ON NEW PIER FOUNDATION. REFER TO NSWTA-STD-4203 FOR SOLAR FRAME DETAILS. PIER FOUNDATION TO BE CUSTOM DESIGN TO ACCOMMODATE NATURAL GROUND SLOPE, REFER DRG.CVL-01 FOR MORE DETAILS
3. NSWTA TO PROVIDE DC POWER TO RFS EQUIPMENT.
4. NEW NSWTA COMMTEL MODULAR GENERATOR SHELTER WITH 20kVA JEG1-20K-LR GENERATOR AND 2000L FUEL TANK ON NEW FOOTINGS.

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
02	09.06.23	FOR CONSTRUCTION	TA	CATALYST	CD	VG	SL	CMc
C	21.03.22	PRELIMINARY	TA	CATALYST	CD	VG	SL	CMc
01	14.11.19	FOR CONSTRUCTION	TA	VPL	AC	JMB	MI	BL
B	10.09.19	PRELIMINARY	TA	VPL	HI	JMB	MI	BL
A	31.07.19	PRELIMINARY	TA	VPL	KED	ML	MI	BL

Department Logo: NSW GOVERNMENT Telco Authority

DEUA
10026863

PLUMWOOD FIRE TOWER TRACK,
OFF LITTLE SUGARLOAF RD,
DEUA, NSW 2537

catalyst managers.advisors

Drawing Title:
SITE SPECIFICATION AND LOCALITY PLAN
SHEET 1 OF 2

Drawing Status:	Drawing No.	Revision
FOR CONSTRUCTION	GRN-DEUA-DWG-INF-STE-03A	02

CAD File: P:\NSW TA\ERE\Deua\CAD\In Progress Drawings\GRN-10026863-DEUA_FC_Ver06.dwg
Print By: James Follett Date: 6/22/2023 10:01 AM

A3 Original Size
0mm 50mm 100mm

SCOPE OF WORKS

1. 36 x 370W SOLAR PANELS TO BE INSTALLED ON STANDARD SOLAR 3m ELEVATED SUPPORT FRAME WITH CUSTOM FOUNDATION.
2. NEW NSWTA GENERATOR SHELTER (3.0m x 2.5m) WITH FUEL TANK ON BORED PIERS.
3. NEW GROUND POWER CABLES FROM SOLAR PANELS TO RFS SHELTER AND FROM GENERATOR SHELTER TO RFS SHELTER.
4. NEW NSWTA 25m HIGH MONOPOLE ON CONCRETE RAFT FOUNDATION
5. NEW NSWTA BA8080-67 DIPOLE ANTENNA (GRNA01) ON NEW MOUNT @ 25m TO BE MULTICOUPLED WITH RFS.
6. NEW NSWTA Ø600 PARABOLIC ANTENNA (GRNA02) ON NEW STRAP MOUNT TO 9008790 JERANGLE.
7. NEW NSWTA Ø600 PARABOLIC ANTENNA (GRNA03) ON NEW STRAP MOUNT TO 8980 MT WANDERA.
8. EXISTING RFS BA40-67 DIPOLE ARRAY (ANT1) ANTENNA ON EXISTING LOOKOUT TOWER TO BE RECOVERED.
9. INSTALL NEW RFS YAGI (TO REPLACE EXISTING) ON NEW NSWTA MONOPOLE TO 403848 MT WANDERA.
10. RECOVER EXISTING RFS YAGI AND BA40-67 ONCE NEW TOWER AND EQUIPMENT IS OPERATIONAL.
11. PROVISION FOR 48V TO 12V DC-DC CONVERTER (MICROPACK DC-DC, 480W, NSWTA PRODUCT CODE HO-E118-RSS122-0017 OR EQUIVALENT) TO BE MADE AVAILABLE ON SITE DURING CONSTRUCTION TO ENSURE NPWS EQUIPMENT CAN BE MAINTAINED DURING INSTALLATION OF NSWTA SOLAR SYSTEM.
12. EXISTING RFS SOLAR ARRAY TO BE RECOVERED ON INSTALLATION OF NEW NSWTA SOLAR POWER SUPPLY.
13. TEMPORARY POWER SOURCE TO BE INSTALLED TO MAINTAIN RFS POWER AS REQUIRED DURING POWER CONSOLIDATION WORKS.
14. RFS TO BE ENGAGED DURING CONSTRUCTION TO SUPPORT WITH ACCESS, EQUIPMENT RECOVERY, TESTING AND INTEGRATION OF NEW ANTENNA AND POWER SYSTEM BEFORE RECOVERY OF EXISTING RFS EQUIPMENT.
15. EXISTING APZ TO BE MAINTAINED BY NPWS. REFER TO THE REF AND FIGURE 21 OF THE ECOLOGICAL ASSESSMENT FOR ANY CLEARING WITHIN THE EXISTING APZ.

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
01	09.06.23	FOR CONSTRUCTION	TA	CATALYST	CD	VG	SL	CMc

Department Logo: NSW GOVERNMENT Telco Authority

DEUA
10026863

PLUMWOOD FIRE TOWER TRACK,
OFF LITTLE SUGARLOAF RD,
DEUA, NSW 2537

catalyst managers.advisors

Drawing Title:
SITE SPECIFICATION AND LOCALITY PLAN
SHEET 2 OF 2

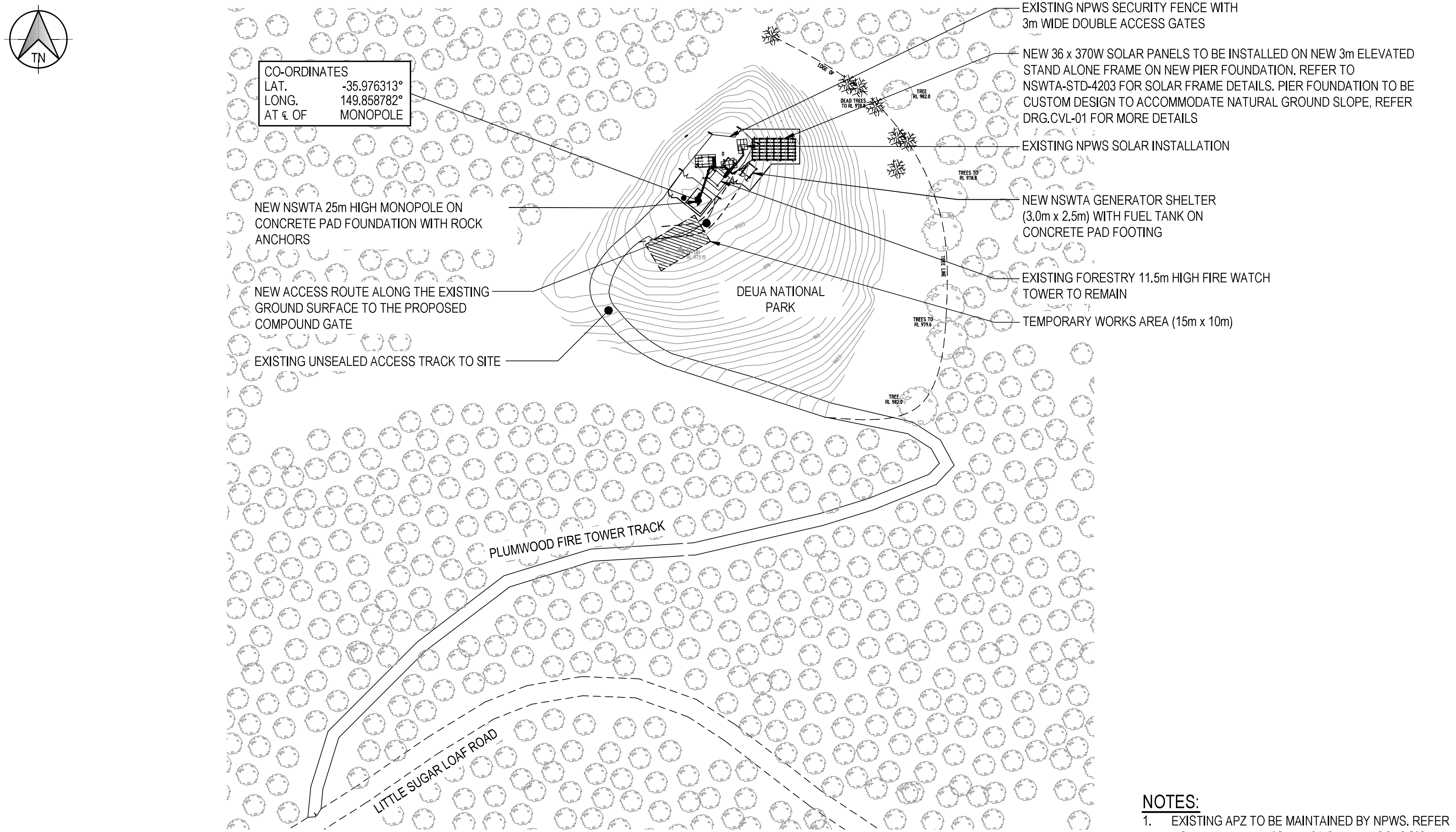
Drawing Status: FOR CONSTRUCTION

Drawing No. GRN-DEUA-DWG-INF-STE-03B

Revision 01

CAD File: P:\NSW TA\ERE\Deua\CAD\In Progress Drawings\GRN-10026863-DEUA_FC_Ver06.dwg
Print By: James Follett Date: 6/22/2023 10:01 AM

A3 Original Size
0mm 50mm 100mm



OVERALL SITE PLAN

SCALE 1:1000

NOTES:

1. EXISTING APZ TO BE MAINTAINED BY NPWS. REFER TO THE REF AND FIGURE 21 OF THE ECOLOGICAL ASSESSMENT FOR ANY CLEARING WITHIN THE EXISTING APZ.

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
02	09.06.23	FOR CONSTRUCTION	TA	CATALYST	CD	VG	SL	CMc
D	21.03.22	PRELIMINARY	TA	CATALYST	CD	VG	SL	CMc
01	14.11.19	FOR CONSTRUCTION	TA	VPL	AC	JMB	MI	BL
C	07.10.19	PRELIMINARY	TA	VPL	KED	JMB	MI	BL
B	10.09.19	PRELIMINARY	TA	VPL	HI	JMB	MI	BL
A	31.07.19	PRELIMINARY	TA	VPL	KED	ML	MI	BL

Department Logo:

NSW GOVERNMENT Telco Authority

DEUA
10026863

PLUMWOOD FIRE TOWER TRACK, OFF LITTLE SUGARLOAF RD, DEUA, NSW 2537

catalyst managers,advisors

Drawing Title:
OVERALL SITE PLAN

Drawing Status:
FOR CONSTRUCTION

Drawing No.
GRN-DEUA-DWG-INF-STE-04

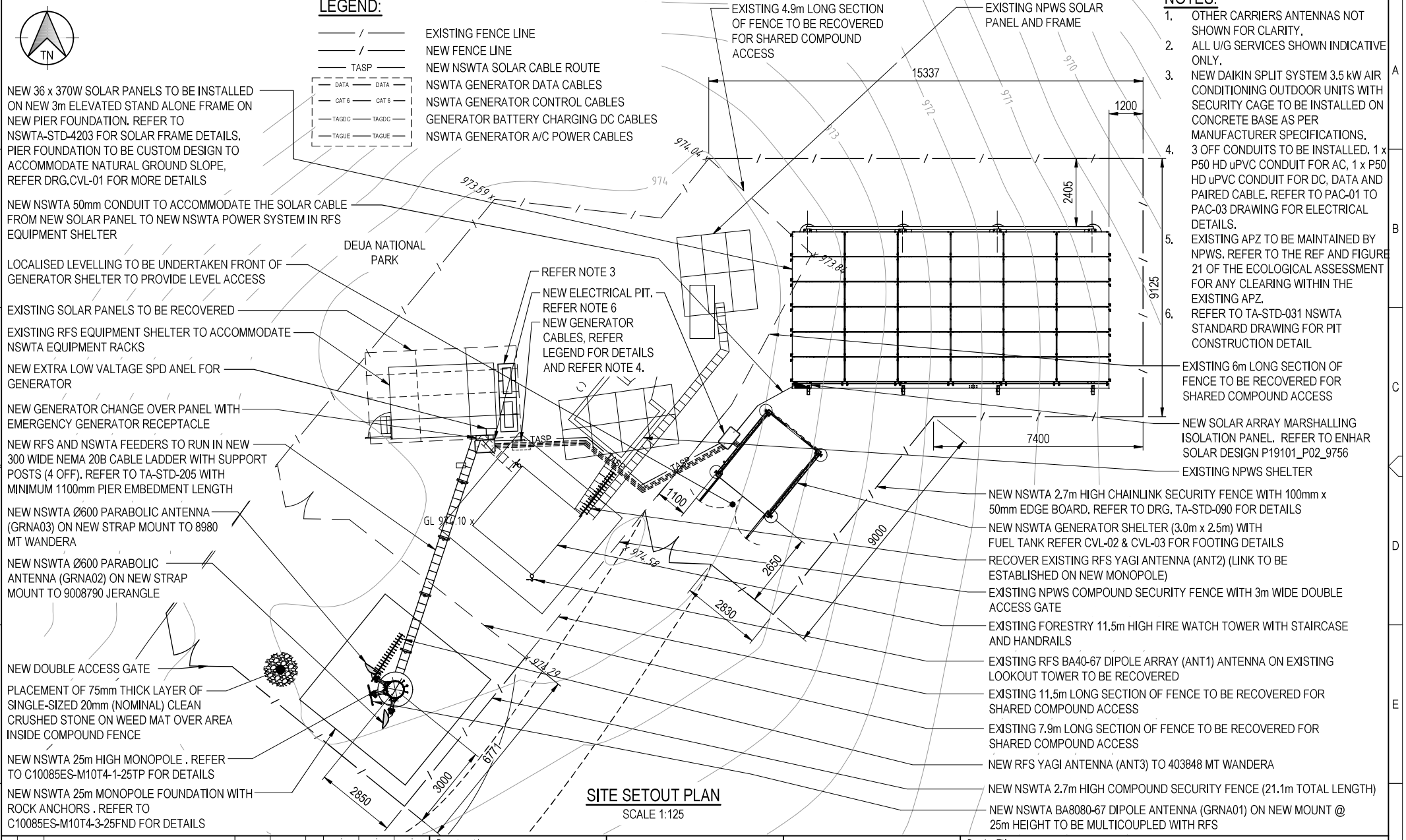
Revision
02

A3 Original Size 0mm 50mm 100mm

CAD File: P:\NSW TA\EIRE\Deua\CAD\In Progress Drawings\GRN-10026863-DEUA_FC_Ver06.dwg
Print By: James Follett Date: 6/22/2023 10:01 AM

LEGEND:

- EXISTING FENCE LINE
- NEW FENCE LINE
- TASP — NEW NSWTA SOLAR CABLE ROUTE
- DATA — DATA — NSWTA GENERATOR DATA CABLES
- CAT 6 — CAT 6 — NSWTA GENERATOR CONTROL CABLES
- TAGDC — TAGDC — GENERATOR BATTERY CHARGING DC CABLES
- TAGUE — TAGUE — NSWTA GENERATOR A/C POWER CABLES



SITE SETOUT PLAN

SCALE 1:125

NOTES:

1. OTHER CARRIERS ANTENNAS NOT SHOWN FOR CLARITY.
2. ALL U/G SERVICES SHOWN INDICATIVE ONLY.
3. NEW DAIKIN SPLIT SYSTEM 3.5 kW AIR CONDITIONING OUTDOOR UNITS WITH SECURITY CAGE TO BE INSTALLED ON CONCRETE BASE AS PER MANUFACTURER SPECIFICATIONS.
4. 3 OFF CONDUITS TO BE INSTALLED. 1 x P50 HD uPVC CONDUIT FOR AC, 1 x P50 HD uPVC CONDUIT FOR DC, DATA AND PAIRED CABLE. REFER TO PAC-01 TO PAC-03 DRAWING FOR ELECTRICAL DETAILS.
5. EXISTING APZ TO BE MAINTAINED BY NPWS. REFER TO THE REF AND FIGURE 21 OF THE ECOLOGICAL ASSESSMENT FOR ANY CLEARING WITHIN THE EXISTING APZ.
6. REFER TO TA-STD-031 NSWTA STANDARD DRAWING FOR PIT CONSTRUCTION DETAIL

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
03	09.06.23	FOR CONSTRUCTION	TA	CATALYST	DRC	JF	SL	CMc
02	09.06.23	FOR CONSTRUCTION	TA	CATALYST	CD	VG	SL	CMc
D	21.03.22	PRELIMINARY	TA	CATALYST	CD	VG	SL	CMc
01	14.11.19	FOR CONSTRUCTION	TA	VPL	AC	JMB	MI	BL
C	07.10.19	PRELIMINARY	TA	VPL	KED	JMB	MI	BL
B	10.09.19	PRELIMINARY	TA	VPL	HI	JMB	MI	BL
A	31.07.19	PRELIMINARY	TA	VPL	KED	ML	MI	BL

Department Logo: NSW GOVERNMENT Telco Authority

DEUA
10026863

PLUMWOOD FIRE TOWER TRACK, OFF LITTLE SUGARLOAF RD, DEUA, NSW 2537

catalyst managers.advisors

Drawing Title: SITE SETOUT PLAN

Drawing Status: FOR CONSTRUCTION

Drawing No. GRN-DEUA-DWG-INF-STE-05

Revision 03

CAD File: P:\NSW TA\ER\EDeua\CAD\In Progress Drawings\GRN-10026863-DEUA_FC_Ver06.dwg
Print By: James Follett Date: 6/22/2023 10:01 AM

A3 Original Size
0mm 50mm 100mm

NSWTA ANTENNA CONFIGURATION

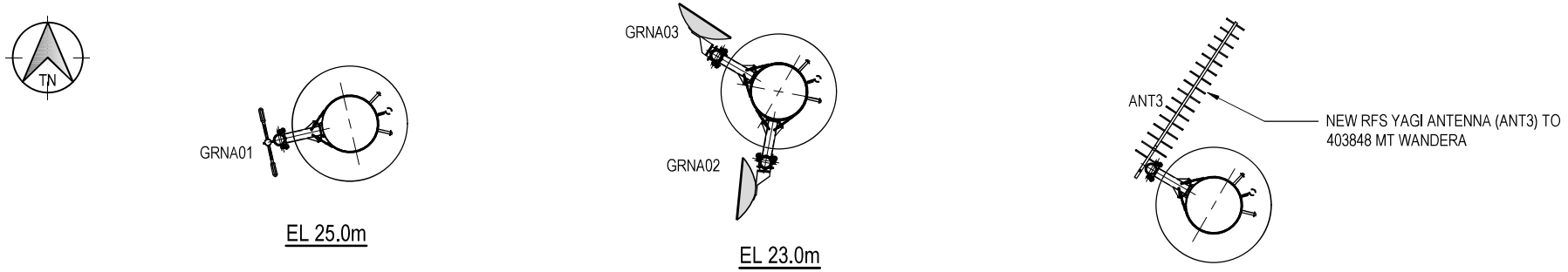
NSWTA ANTENNA NO.	OTHER ID (AS REQUIRED)	ANTENNA TYPE	ANTENNA HEIGHT AGL (m)*	BEARING (°TN)	ANTENNA SIZE (mm) (H x W x D) or (H x Ø)	ANTENNA TILT (°)	ANTENNA OWNER	ANTENNA ACTION REQUIRED	FEEDER SIZE & TYPE	FEEDER ACTION REQUIRED	FEEDER QTY	DESCRIPTION	FEEDER NUMBER	FEEDER LENGTH (m)
GRNA01	N/A	BA8080-67 DIPOLE ARRAY	25.0	0	5700 x 380	+0.0	NSWTA	NEW	AVA5-50	NEW	1	UHF UPPER (RX)	GRN001	40
									AVA5-50	NEW	1	UHF LOWER (TX)	GRN002	40
GRNA02	N/A	VHLP2-7 PARABOLIC	23.0	275.63	600	+0.0	NSWTA	NEW	LDF4-50	NEW	1	MAIN	GRN011	28
									LDF4-50	NEW	1	MAIN	GRN012	28
GRNA03	N/A	VHLP2-11 PARABOLIC	23.0	33.48	600	+0.0	NSWTA	NEW	LDF4-50	NEW	1	MAIN	GRN013	28

*DIPOLE ARRAY AND COLLINEAR ANTENNA ELEVATION IS PROVIDED AT BASE OF ANTENNA.
PARABOLIC AND YAGI ANTENNA ELEVATION IS PROVIDED AT CENTRE LINE OF ANTENNA.
LTE ANTENNA ELEVATION IS PROVIDED AT BASE OF ANTENNA.

AGENCY ANTENNA CONFIGURATION

NSWTA ANTENNA NO.	OTHER ID (AS REQUIRED)	ANTENNA TYPE	ANTENNA HEIGHT AGL (m)*	BEARING (°TN)	ANTENNA SIZE (mm) (H x W x D) or (H x Ø)	ANTENNA TILT (°)	ANTENNA OWNER	ANTENNA ACTION REQUIRED	FEEDER SIZE & TYPE	FEEDER ACTION REQUIRED	FEEDER QTY	DESCRIPTION	FEEDER NUMBER	FEEDER LENGTH (m)
-	ANT1	BA40-67 DIPOLE ARRAY	14.0	0	2100 x 380	+0.0	RFS	RECOVER	AVA5-50	RECOVER	1	UHF UPPER (RX)	-	40
									AVA5-50	RECOVER	1	UHF LOWER (TX)	-	40
-	ANT2	POLAR 328X YAGI ANTENNA	21.0	33.53		+0.0	RFS	RECOVER	LDF4-50	RECOVER	1	MAIN	-	28
-	ANT3	POLAR 328X YAGI ANTENNA	21.0	33.53		+0.0	RFS	NEW	LDF4-50	NEW	1	MAIN	-	28
									LDF4-50	NEW	1	MAIN	-	28

*DIPOLE ARRAY AND COLLINEAR ANTENNA ELEVATION IS PROVIDED AT BASE OF ANTENNA.
PARABOLIC AND YAGI ANTENNA ELEVATION IS PROVIDED AT CENTRE LINE OF ANTENNA.
LTE ANTENNA ELEVATION IS PROVIDED AT BASE OF ANTENNA.



ANTENNA PLAN CONFIGURATION
NOT TO SCALE

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
02	09.06.23	FOR CONSTRUCTION	TA	CATALYST	CD	VG	SL	CMc
B	21.03.22	PRELIMINARY	TA	CATALYST	CD	VG	SL	CMc
01	14.11.19	FOR CONSTRUCTION	TA	VPL	AC	JMB	MI	BL
A	31.07.19	PRELIMINARY	TA	VPL	KED	ML	MI	BL

Department Logo: NSW GOVERNMENT Telco Authority

DEUA
10026863

PLUMWOOD FIRE TOWER TRACK,
OFF LITTLE SUGARLOAF RD,
DEUA, NSW 2537

catalyst managers.advisors

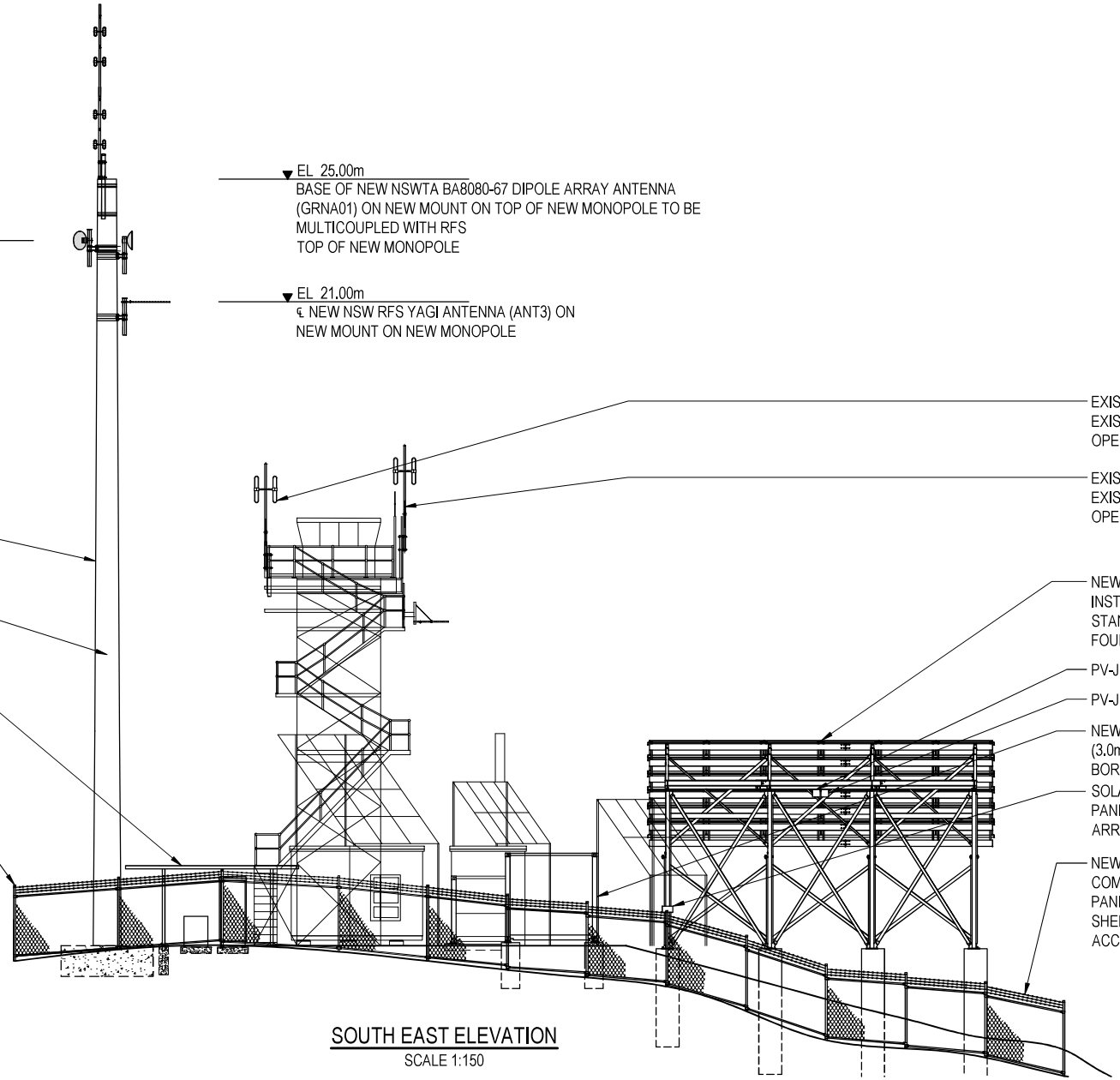
Drawing Title:
ANTENNA TABLE AND
ANTENNA PLAN CONFIGURATION

Drawing Status: FOR CONSTRUCTION
Drawing No. GRN-DEUA-DWG-INF-STE-06
Revision 02

A3 Original Size
0mm 50mm 100mm

CAD File: P:\NSW TA\ERE\Deua\CAD\In Progress Drawings\GRN-10026863-DEUA_FC_Ver06.dwg
Print By: James Follett Date: 6/22/2023 10:01 AM

NOTES:
EXISTING OTHER CARRIERS EQUIPMENT
SHOWN INDICATIVELY ONLY.



SOUTH EAST ELEVATION
SCALE 1:150

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
02	09.06.23	FOR CONSTRUCTION	TA	CATALYST	CD	VG	SL	CMc
D	21.03.22	PRELIMINARY	TA	CATALYST	CD	VG	SL	CMc
01	14.11.19	FOR CONSTRUCTION	TA	VPL	AC	JMB	MI	BL
C	07.10.19	PRELIMINARY	TA	VPL	KED	JMB	MI	BL
B	10.09.19	PRELIMINARY	TA	VPL	HI	JMB	MI	BL
A	31.07.19	PRELIMINARY	TA	VPL	KED	ML	MI	BL

Department Logo: NSW GOVERNMENT Telco Authority

DEUA
10026863

PLUMWOOD FIRE TOWER TRACK,
OFF LITTLE SUGARLOAF RD,
DEUA, NSW 2537

catalyst managers.advisors

Drawing Title:
SITE ELEVATION

Drawing Status: FOR CONSTRUCTION

Drawing No. GRN-DEUA-DWG-INF-TWR-01

Revision 02

CAD File: P:\NSW TA\ERE\DeuaICAD\In Progress Drawings\GRN-10026863-DEUA_FC_Ver06.dwg
Print By: James Follett Date: 6/22/2023 10:01 AM

A3 Original Size
0mm 50mm 100mm

Appendix B – Environmental EME Report

Environmental EME Report

Location	PLUMWOOD FIRE TOWER TRACK, OFF LITTLE SUGARLOAF RD, DEUA NSW 2537		
Date	11/04/2023	**RFNSA No.**	2537020

How does this report work?

This report provides a summary of levels of radiofrequency (RF) electromagnetic energy (EME) around the wireless base station at PLUMWOOD FIRE TOWER TRACK, OFF LITTLE SUGARLOAF RD, DEUA NSW 2537. These levels have been calculated by Catalyst One using methodology developed by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA).

A document describing how to interpret this report is available at ARPANSA's website:
A Guide to the Environmental Report.

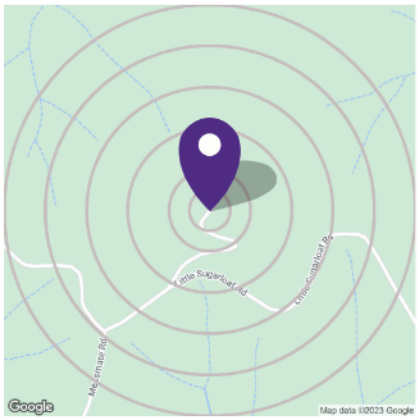
A snapshot of calculated EME levels at this site

There are currently no existing radio systems for this site.

The maximum EME level calculated for the **proposed** changes at this site is

0.07%

out of 100% of the public exposure limit, 21 m from the location.



EME levels with the proposed changes

Distance from the site	Percentage of the public exposure limit
0-50 m	0.07%
50-100 m	0.05%
100-200 m	0.06%
200-300 m	0.04%
300-400 m	0.03%
400-500 m	0.02%

For additional information please refer to the EME ARPANSA Report annexure for this site which can be found at *http://www.rfnsa.com.au/2537020*.

Radio systems at the site

This base station currently has equipment for transmitting the services listed under the existing configuration.
The proposal would modify the base station to include all the services listed under the proposed configuration.

	Existing		Proposed	
Carrier	**Systems**	**Configuration**	**Systems**	**Configuration**
NSW Government - Telco Authority				Gov. Radio Network (proposed)

An in-depth look at calculated EME levels at this site

This table provides calculations of RF EME at different distances from the base station for emissions from existing equipment alone and for emissions from existing equipment and proposed equipment combined. All EME levels are relative to 1.5 m above ground and all distances from the site are in 360° circular bands.

	Existing configuration			Proposed configuration		
Distance from the site	Electric field (V/m)	Power density (mW/m^2)	Percentage of the public exposure limit	Electric field (V/m)	Power density (mW/m^2)	Percentage of the public exposure limit
0-50m				0.80	1.70	0.07%
50-100m				0.63	1.07	0.05%
100-200m				0.70	1.29	0.06%
200-300m				0.62	1.00	0.04%
300-400m				0.49	0.63	0.03%
400-500m				0.38	0.38	0.02%

Calculated EME levels at other areas of interest

This table contains calculations of the maximum EME levels at selected areas of interest, identified through consultation requirements of the Communications Alliance Ltd Deployment Code C564:2020 or other means. Calculations are performed over the indicated height range and include all existing and any proposed radio systems for this site.

Maximum cumulative EME level for the proposed configuration

Location	Height range	Electric field (V/m)	Power density (mW/m^2)	Percentage of the public exposure limit
No locations identified				

Appendix C – TISEPP consultation

Our Ref: DEUA

5 April 2023

Mr Warwick Winn
General Manager
Eurobodalla Shire Council
PO Box 99
Moruya NSW 2537

Via Email: council@esc.nsw.gov.au

Dear Mr Winn,

State Environmental Planning Policy (Transport and Infrastructure) 2021 **(TISEPP) Notification**

Notice of intention to carry out development by NSW Telco Authority (NSWTA) to install a new radiocommunications facility at an existing radiocommunications site at the Plumwood Fire Tower Track, off Little Sugarloaf Road, Deua National Park, Deua NSW 2537

NSW Telco Authority is proposing a new radiocommunications facility at an existing site located at Plumwood Fire Tower Track, off Little Sugarloaf Road, Deua National Park, Deua NSW 2537.

Key features of the proposed installation will generally consist of the following:

- A new 25m monopole approximately 10m to the east of the existing fire watch tower. The new monopole would accommodate the following equipment:
    - 1 x dipole array antenna (5700mm vertical length) at an elevation of 25m
    - 2 x 600mm parabolic antennas at an elevation of 23m
    - 1 x yagi antenna for the RFS at an elevation of 21m.
- Re-use of the existing RFS equipment shelter.
- A new generator equipment shelter measuring 3m x 2.5m.
- A new solar array containing 36 panels on a proposed steel frame.
- Cable ladder and feeders between the equipment shelter and the monopole.
- Expanded secure compound consisting of a 2.7m high chain link security fence with double access to be installed around the proposed and existing equipment.
- Removal of redundant equipment including the existing RFS solar panels.

A set of drawings of the proposal which includes the site location, proposed site layout and details of the monopole and its ancillary facilities are enclosed for your reference in Attachment A. An aerial image showing the location of the proposal is provided in Attachment B.

The purpose of this letter is to formally notify Council of the proposal in accordance with Division 21 Clause 2.141(2) of *State Environmental Planning Policy (Transport and Infrastructure) 2021* (TISEPP).

The proposal is development permitted without consent in accordance with Division 21, Clause 2.141(1) of TISEPP which states "*Development for the purposes of telecommunications facilities (including radio facilities) may be carried out by a public authority without consent on any land*".

An assessment of the proposal is being carried out in accordance with Part 5 of the *Environmental Planning and Assessment Act 1979* and will examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment. Based on the preliminary assessment and proposed implementation of safeguards, it is anticipated that the proposal is unlikely to pose a risk to the environment.

In accordance with TISEPP, NSW Telco Authority will take into consideration any response to this notice that is received within 21 days after the notice is given. If Eurobodalla Shire Council would like to comment on this proposal, please make a submission in writing by 1 May 2023 to the following:

Jodie Leeds
Email: jleeds@catalystone.com.au
Mobile: 0420 310 857

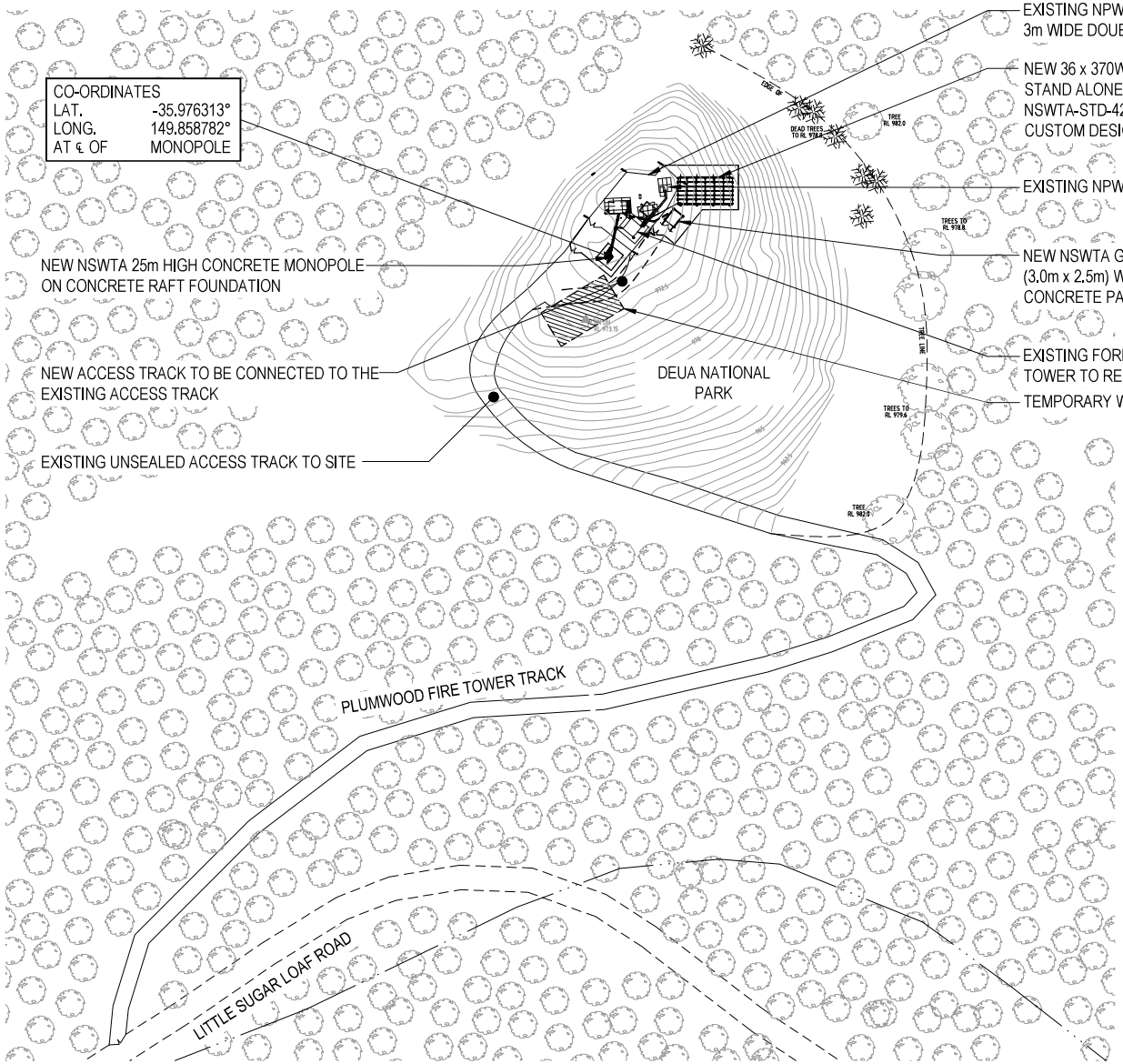
Should you require more information or wish to discuss the matter further, please do not hesitate to contact me on 0420 310 857.

Yours sincerely,

[redacted]

Jodie Leeds
Senior Town Planner
Catalyst ONE Pty Ltd, on behalf of the NSW Telco Authority

Attachment A: Design Drawings



DRAFT

OVERALL SITE PLAN

SCALE 1:1000

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
02	12.01.23	FOR CONSTRUCTION	TA	CATALYST	CD	VG	SL	CMc
D	21.03.22	PRELIMINARY	TA	CATALYST	CD	VG	SL	CMc
01	14.11.19	FOR CONSTRUCTION	TA	VPL	AC	JMB	MI	BL
C	07.10.19	PRELIMINARY	TA	VPL	KED	JMB	MI	BL
B	10.09.19	PRELIMINARY	TA	VPL	HI	JMB	MI	BL
A	31.07.19	PRELIMINARY	TA	VPL	KED	ML	MI	BL

Department Logo: NSW GOVERNMENT Telco Authority

DEUA
10026863

PLUMWOOD FIRE TOWER TRACK,
OFF LITTLE SUGARLOAF RD,
DEUA, NSW 2537

catalyst managers.advisors

Drawing Title: OVERALL SITE PLAN

Drawing Status: FOR CONSTRUCTION

Drawing No. GRN-DEUA-DWG-INF-STE-04

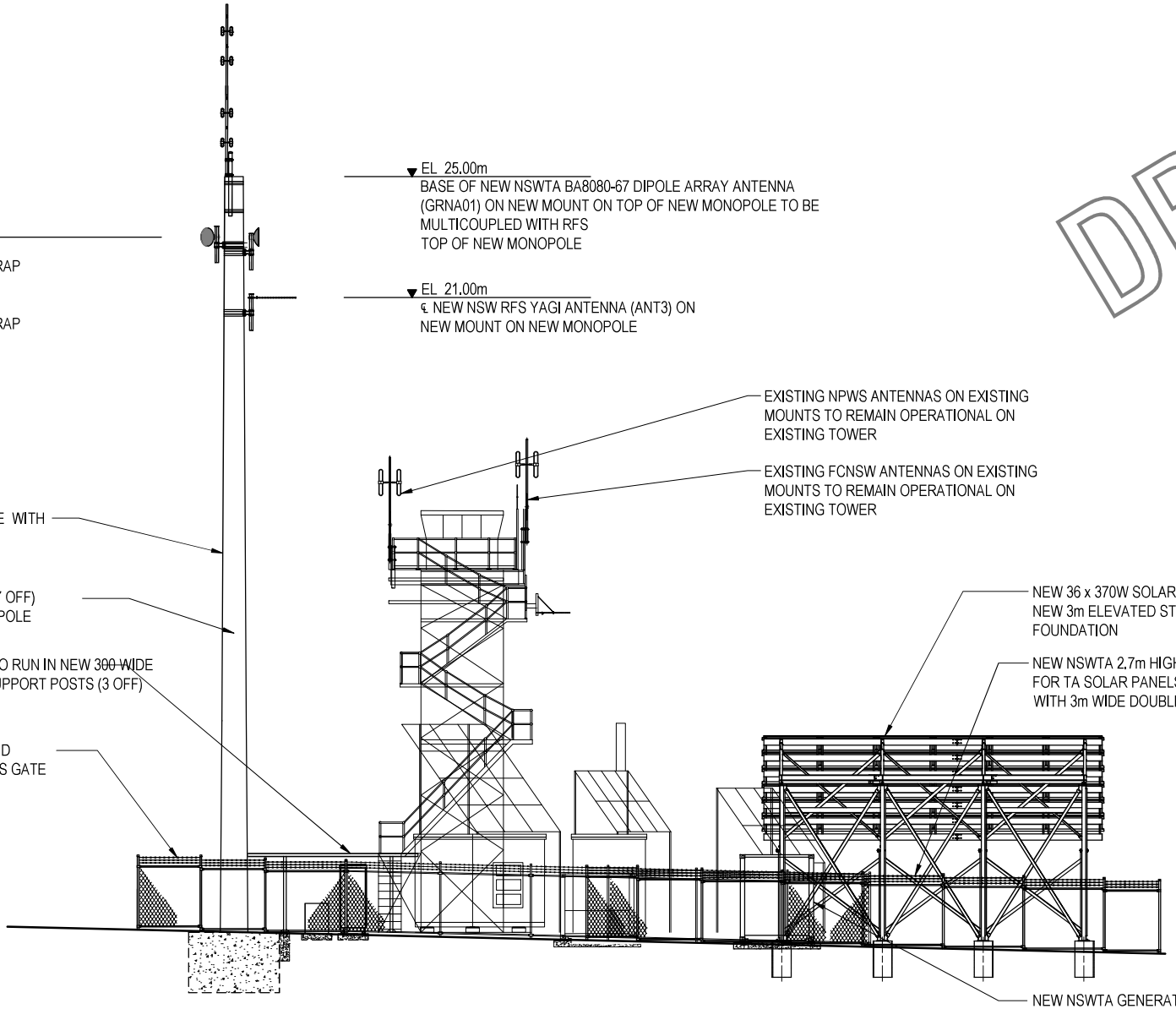
Revision 02

CAD File: P:\NSW TA\ERE\Deua\CAD\In Progress Drawings\GRN-10026863-DEUA_FC_Ver07.dwg
Print By: Daniel Clifford Date: 3/27/2023 12:06 PM

A3 Original Size
0mm 50mm 100mm

NOTES:
EXISTING OTHER CARRIERS EQUIPMENT SHOWN INDICATIVELY ONLY.

DRAFT



SOUTH EAST ELEVATION
SCALE 1:150

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
02	12.01.23	FOR CONSTRUCTION	TA	CATALYST	CD	VG	SL	CMc
D	21.03.22	PRELIMINARY	TA	CATALYST	CD	VG	SL	CMc
01	14.11.19	FOR CONSTRUCTION	TA	VPL	AC	JMB	MI	BL
C	07.10.19	PRELIMINARY	TA	VPL	KED	JMB	MI	BL
B	10.09.19	PRELIMINARY	TA	VPL	HI	JMB	MI	BL
A	31.07.19	PRELIMINARY	TA	VPL	KED	ML	MI	BL

Department Logo: NSW GOVERNMENT Telco Authority

DEUA
10026863

PLUMWOOD FIRE TOWER TRACK,
OFF LITTLE SUGARLOAF RD,
DEUA, NSW 2537

catalyst managers.advisors

Drawing Title:
SITE ELEVATION

Drawing Status: FOR CONSTRUCTION

Drawing No. GRN-DEUA-DWG-INF-TWR-01

Revision 02

CAD File: P:\NSW TA\ERE\Deua\CAD\In Progress Drawings\GRN-10026863-DEUA_FC_Ver07.dwg
Print By: Daniel Clifford Date: 3/27/2023 12:06 PM

A3 Original Size
0mm 50mm 100mm

Attachment B: Aerial image of the proposal site location

Appendix D – Consultation with NPWS

DEUA NATIONAL PARK – ACMA SITE 9726

TENURE REVIEW

SITES ACCESSED VIA NPWS TRAIL	
1. Existing access routes through park are shown on enclosed map - if NSWTA requires use of any of these trails it must be discussed with the local NPWS Area as part of the REF process.	
SITES ON NPWS LAND	
2. Tower owner has current primary user licence from NPWS	☐ Y ☐ N ☒ N/A
3. Site is in a wilderness area *Tower is approximately 17m from wilderness area boundary	☐ Y ☒ N ☐ N/A
4. Site is subject to an ILUA ***NSWTA is responsible for making its own enquiries to confirm this***	☐ Y ☒ N ☐ N/A
5. Site is subject to a pending Native Title claim ***NSWTA is responsible for making its own enquiries to confirm this***	☒ Y ☐ N ☐ N/A
6. Site is subject to Native Title determination ***NSWTA is responsible for making its own enquiries to confirm this***	☐ Y ☒ N ☐ N/A
SITES ON NPWS TOWER	
7. Off Park sites - NPWS holds current tenure from landowner	☐ Y ☐ N ☒ N/A

APPROVAL IN PRINCIPLE

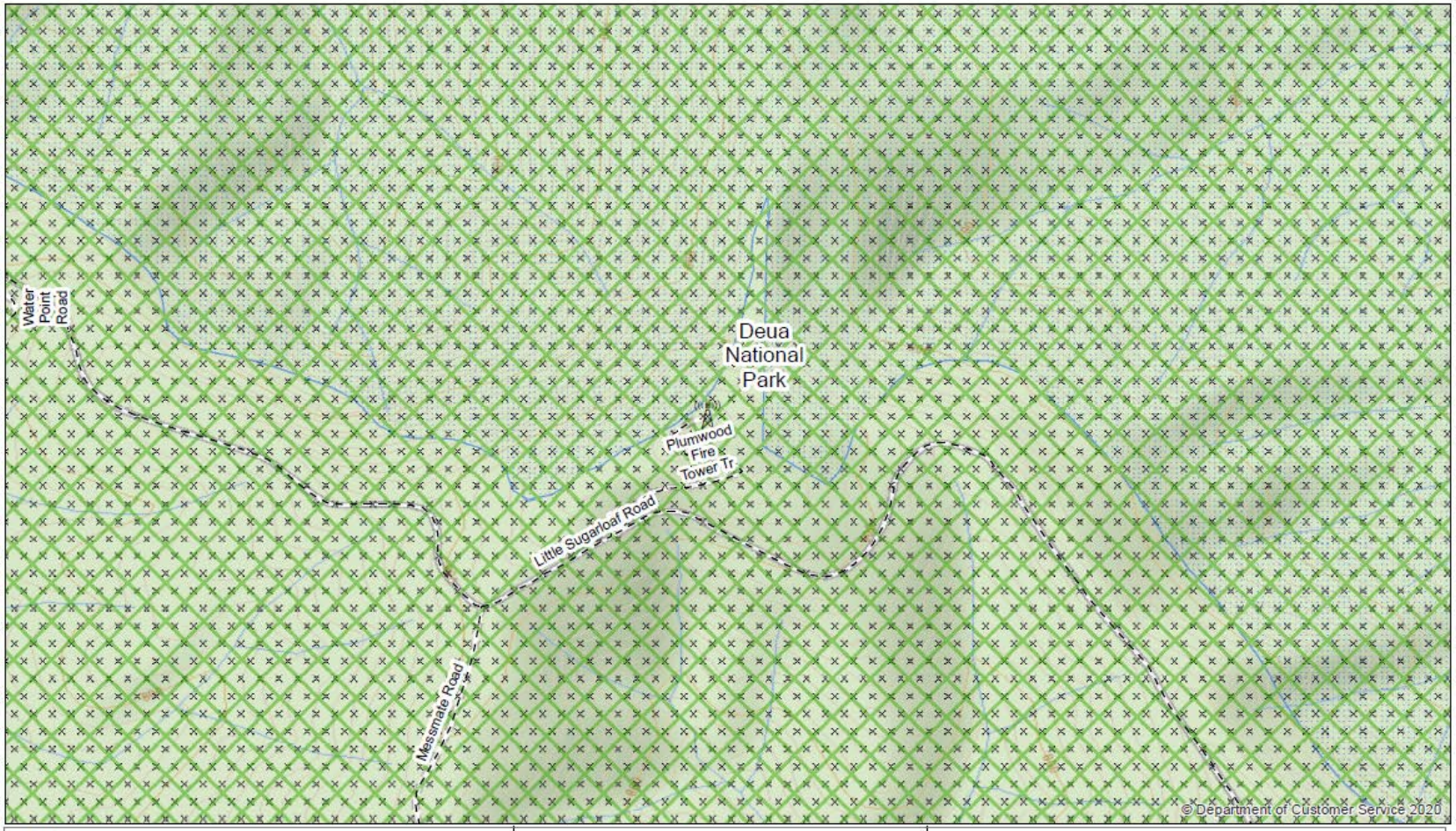
Approval in principle is given for a licence under Section 153D of the *National Parks and Wildlife Act 1974* (**NPW Act**) to install a new tower (owner – NSWTA) at Plumwood Fire Tower Track in Deua National Park as described in the AIP request email dated 20/04/22. **Approval Pathway 3 (NPWS Land - Other Tower)** applies.

Please note the following:

SITES ON NPWS LAND			
1. If any equipment / infrastructure being installed will be owned by an entity other than NSWTA (eg, new powerlines owned by energy provider), that entity must obtain tenure from NPWS.			
2. Application meets the following criteria of the NPW Act: ***NB: criteria in subsections (b), (c), (d), (e) and (h) will not be assessed until the REF is submitted***			
	s153D(4)(a) – no feasible off-park sites for facility	☒ Y	☐ N ☐ N/A
	s153D(4)(f) – facility is essential for proving PSN coverage to park and surrounding land	☒ Y	☐ N ☐ N/A
	s153D(4)(g) – facility is to be removed after it becomes redundant	☒ Y	☐ N ☐ N/A
	s153D(4)(i) – facility is to be co-located with an existing structure	☒ Y	☐ N ☐ N/A
SITES ON / REPLACING NPWS TOWER			
3. If NSWTA and NPWS Radio Network Team agree that the new tower will be owned by NSWTA, this must be agreed in writing before the final licence application is submitted.			

Pending

Planning, Industry & Environment



Communications Site *(-35.976412°, 149.858776)*

Local Road

Vehicle Trail

Land reserved under the National Parks and Wildlife Act 1974

Declared Wilderness

Native Title Claims

ACMA Site 9726
DEUA NATIONAL PARK

Date generated: 9/06/2022

N

0 60 120 180 240 300 360 Meters

Datum/Projection: GCS GDA 1994

Jodie Leeds

From: Julie Buckle <Julie.Buckle@environment.nsw.gov.au> on behalf of NPWS CCEP EGRN Radio Mailbox <npws.ccepradio@environment.nsw.gov.au>
Sent: Friday, 17 June 2022 4:20 PM
To: Chris McCambridge; Dylan Mead; Garreth Etherington; Scott Chapman; James Follett; Venkat Gutta; Kathy McGeoch; Jodie Leeds; NPWS CCEP EGRN Radio Mailbox
Subject: NPWS AIP: 9726 Deua (Plumwood) - Request for NPWS AIP
Attachments: Deua Tenure review and Property AIP checklist.PDF; GRN-9726-DEUA_PD_Ver05_220412_with comments.pdf

HI Chris,

Please see below and attached **AIP for Deua (Plumwood) (9726)**:

Property: see attached

Technical: No impact to NPWS tech equipment on this site.

Environment: see attached PDv5 comments embedded on p2.

Other:
- ACH surveys will be required due to extent of sub-surface impacts expected.
- Road upgrades may take place with FAFT, but no timing is known yet – if TA will need to upgrade road this needs to be included in REF.
- The REF must address potential impacts to wilderness area. Even though the site is not in the wilderness there may be impacts such as visual impacts or access.
- Form 3 - second page – the first dot point says lattice tower, then its referred to as a monopole after that. All other documents and drawings refer to a monopole.

Thanks, Julie

From: Julie Buckle <Julie.Buckle@environment.nsw.gov.au> **On Behalf Of** NPWS CCEP EGRN Radio Mailbox
Sent: Tuesday, 31 May 2022 1:43 PM
To: Joanne Issaverdis <Joanne.Issaverdis@environment.nsw.gov.au>; Emma Danby <Emma.Danby@environment.nsw.gov.au>; Lucy Gibson <Lucy.Gibson@environment.nsw.gov.au>; Mathew Sharwood <Mathew.Sharwood@environment.nsw.gov.au>; Meredith Junor <Meredith.Junor@environment.nsw.gov.au>
Cc: Rebecca Owen <Rebecca.Owen@environment.nsw.gov.au>; Sarah Chubb <Sarah.Chubb@environment.nsw.gov.au>; Kenneth Jones <ken.jones@environment.nsw.gov.au>; NPWS CCEP EGRN Radio Mailbox <npws.ccepradio@environment.nsw.gov.au>
Subject: FOR REVIEW AND RESPONSE: 9726 Deua (Plumwood) - Request for NPWS AIP

Morning all,

Please see attached and below AIP request from Catalyst One for **Deua (Plumwood) ACMA ID#9726**.

This site teleconference was held 19/5/2022. They have included the comments and conversation from the teleconference and this is shown in the AIP minutes attachment.

Joanne/Emma/Lucy - Please review and respond. If you require further information please do not hesitate to ask. I can arrange further discussion with Catalyst One or others as required.

Meredith – Cat One have included Form 1 and Form 3. Please note that **Tenure Review** may not have been fully completed -maybe we can chat about this and I can also update the spreadsheet with the correct Approval Pathway.

Mat / Ken – please review and respond.

Bec - FYI

Thanks, Julie

From: Chris McCambridge <CMcCambridge@catalystone.com.au>
Sent: Friday, 27 May 2022 3:55 PM
To: NPWS CCEP EGRN Radio Mailbox <npws.ccepradio@environment.nsw.gov.au>
Cc: Dylan Mead <Dylan.Mead@customerservice.nsw.gov.au>; Garreth Etherington <Garreth.Etherington@customerservice.nsw.gov.au>; Scott Chapman <Scott.Chapman@customerservice.nsw.gov.au>; James Follett <jfollett@catalystone.com.au>; Venkat Gutta <VGutta@catalystone.com.au>; Kathy McGeoch <KMcGeoch@catalystone.com.au>; Jodie Leeds <JLeeds@catalystone.com.au>
Subject: RE: 9726 Deua (Plumwood) - Request for NPWS AIP

Good Afternoon Julie,

Thanks again for arranging the telecon last week for Deua/Plumwood.

So support a formal AIP request, please find attached the meeting minutes, along with the previously provided supporting documents.

- Meeting Minutes
- Preliminary Drawings
- NPWS Form 1
- NPWS Form 3
- Map of existing site locations
- RF Coverage Map

To address one query that was raised in the meeting- We can confirm that NPWS operate off a 12V system at Plumwood. In the case of an emergency event where NPWS required rapid support from the NSWTA power system, 48V to 12V DC-DC converter would be required (Micropack DC-DC, 480w, NSW product code HO-E118-RSS122-0017 or equivalent).

Kind regards,

catalyst
Chris McCambridge | SAED Manager
m 0418 296 317
Catalyst ONE Pty Limited | **www.catalystone.com.au** | cmccambridge@catalystone.com.au
Postal Address: PO Box 1119 Crows Nest NSW 1585
Project Office: Level 6, 3 Thomas Holt Drive, Macquarie Park NSW 2113

From: Chris McCambridge
Sent: Tuesday, 26 April 2022 2:29 PM
To: OEH NPWS CCEP EGRN Radio Mailbox <npws.ccepradio@environment.nsw.gov.au>
Cc: Dylan Mead <Dylan.Mead@customerservice.nsw.gov.au>; Garreth Etherington <Garreth.Etherington@customerservice.nsw.gov.au>; Scott Chapman <Scott.Chapman@customerservice.nsw.gov.au>; James Follett <jfollett@catalystone.com.au>; Venkat Gutta <VGutta@catalystone.com.au>; Kathy McGeoch <KMcGeoch@catalystone.com.au>; Jodie Leeds <JLeeds@catalystone.com.au>
Subject: 9726 Deua (Plumwood) - Request for NPWS AIP Teleconference

Hi Julie,

We'd like to thank you and the team for the support facilitating the site access to the Duea (Plumwood) radio site earlier this year.

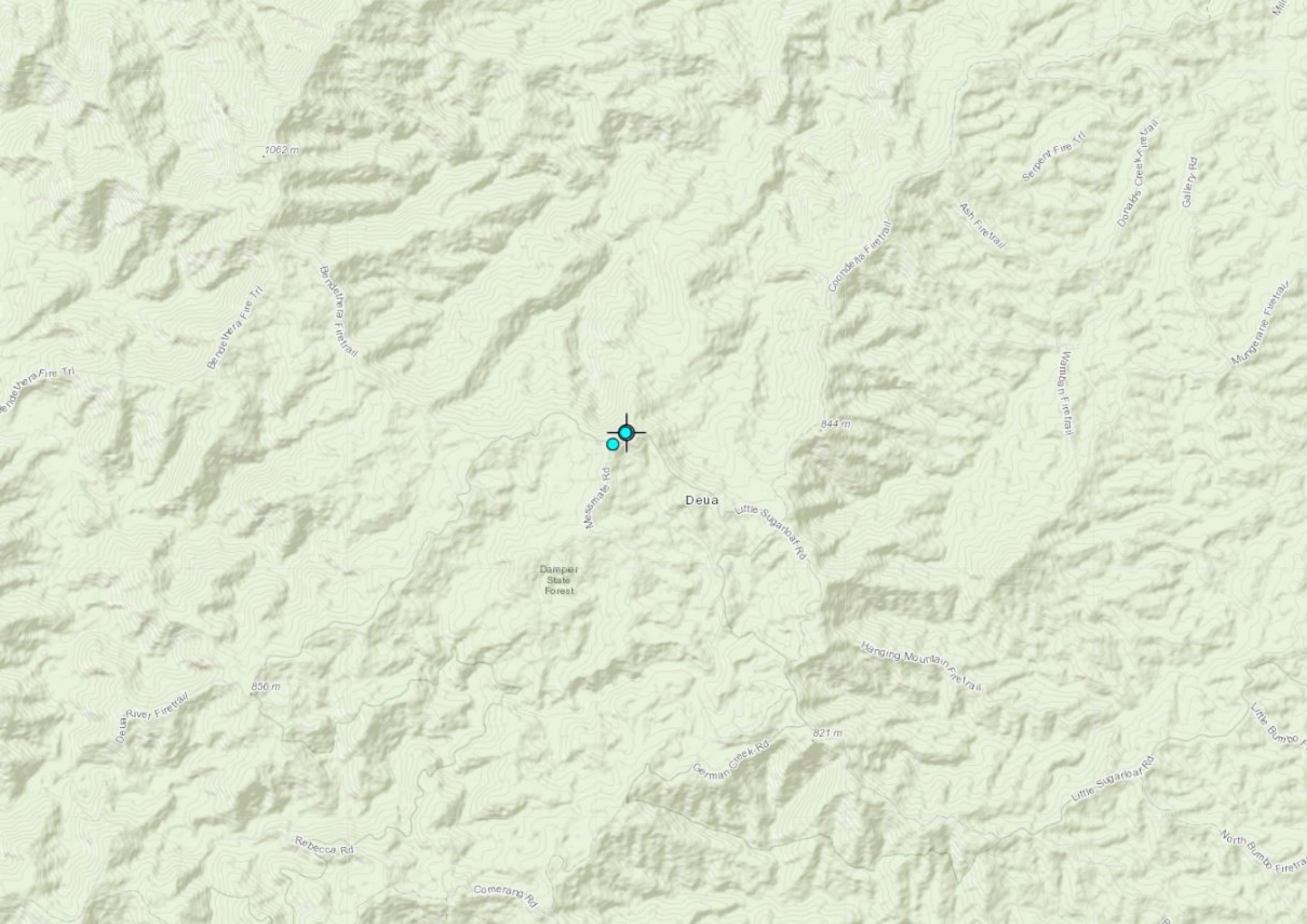
We have now completed our preliminary design for the CCEP proposal, for presentation and progression of the AIP process. In this regard, please find attached:

- Previous AIP
- Preliminary Drawings
- Slide Package for Presentation
- NPWS Form 1
- NPWS Form 3
- Map of existing site locations
- RF Coverage Map

When appropriate, could I kindly request your assistance in setting up a teleconference to present the proposal, preliminary findings and next steps.

Kind regards,

catalyst
Chris McCambridge | SAED Manager
m 0418 296 317
Catalyst ONE Pty Limited | **www.catalystone.com.au** | cmccambridge@catalystone.com.au
Postal Address: PO Box 1119 Crows Nest NSW 1585
Project Office: Level 6, 3 Thomas Holt Drive, Macquarie Park NSW 2113


1062 m
Bendletrera Fire Trl
Bendletrera Firetrail
Coondella Firetrail
Ash Firetrail
Serpent Fire Trl
Donalds Creek Firetrail
Gallery Rd
Wamban Firetrail
844 m
Messmate Rd
Deua
Little Sugarloaf Rd
Damper State Forest
Hanging Mountain Firetrail
856 m
Deua River Firetrail
821 m
German Creek Rd
Little Sugarloaf Rd
Rebecca Rd
Comerang Rd
North Bumbo Firetrail

minutes

NPWS Site: 9726 Plumwood (Deua)	19/05/22	MS Teams Meeting
Meeting called by	Catalyst / NSWTA	
Type of meeting	Discussion: AIP meeting	
Facilitator	Chris McCambridge / Julie Buckle	
Attendees	NPWS – Meredith Junor, Kenneth Jones, Timothy Cashman, Emi Yasuda, Mathew Sharwood, Sarah Chubb, Emma Danby, Lucy Gibson, Joanne Issaverdis Catalyst - Chris McCambridge, Venkat Gutta, James Follett, James McIver, Kathy McGeoch NSWTA –Garreth Etherington, Ian Shorey	
Apology	-	
Agenda Topic 1		
Discussion	CCEP Proposal at NPWS Site: Plumwood (NSWTA Ref: Deua)	
Land Owner	NPWS	
Tower Owner	Existing FCNSW fire watch tower, new NSWTA monopole proposed	
Shelter Owner	Existing RFS/Council + new NSWTA generator shelter	
Solar Site	Yes	
Area	Deua National Park	
Description of Proposal	▪ Installation of new NSWTA 25.0m monopole, to south-west of existing compound – compound expansion and new access gate. ▪ Installation of new solar array and generator shelter to east of existing compound – compound expansion and new security fence installation ▪ Co-location within existing RFS shelter ▪ Recovery of existing solar arrays from RFS shelter ▪ Relocation of existing RFS yagi from watch tower to new monopole ▪ Recovery of existing RFS UHF dipole array from watch tower ▪ No proposed impact to existing NPWS or FCNSW antennas, equipment, solar arrays or fire-watch tower. ▪ Monopole placement design with consideration to existing NPWS/FCNSW directional yagi's, access and utilisation of existing cleared area ▪ Solar frame and generator shelter placement designed with consideration to wilderness area to north-west, solar shading, access	

minutes

Comments:
General ▪ Site solution as detailed above presented. ▪ Site has previously been progressed by VPL, the current proposal differs from that previously presented to NPWS. ▪ The location is critical for the NSWTA Public Safety Network (PSN). ▪ The existing Forestry fire watch tower structure is unviable for co-location as a long-term solution for the PSN. ▪ Site would provide enhanced coverage for RFS, and new coverage solution for other ESOs ▪ Compound expansion required to accommodate solar array and generator shelter. ▪ NSWTA power and antennas to be consolidated with RFS. NSWTA equipment to be installed in existing RFS shelter. RFS antenna to be removed from fire watch tower and relocated to new monopole. RFS have provided their support of the proposal. ▪ No current proposal to relocate any NPWS equipment. ▪ GeoTech is required, GeoTech REF was potentially submitted in 2019, but further review and assessment required. ▪ Monopole height required to provide sufficient clearance from fire watch tower. ▪ There are no immediate plans for fire watch tower monitoring to be replaced by camera, however NSWTA structural analysis should cater for future camera provision with 360° range. ▪ Proposed monopole will have internal cable installation. ▪ Solar studies completed to ensure generator refueling is required maximum 2 times per year. NPWS currently operate solely on solar. Action ▪ NPWS to advise if relocation of NPWS equipment from fire watch tower to new monopole is desired. ▪ NSWTA to advise requirements to allow for NPWS generator connection in the event of an emergency for NPWS records. ▪ NSWTA to update RFNSA and ACMA references

minutes

Access ▪ Little Sugarloaf Road is unsealed 2WD dry weather accessible. Part 11 Access Road. ▪ Part section jointly managed with Forestry, planned for upgrade (potentially Category 1 – TBC), upgrade unlikely to occur this year. ▪ It is part of the FAFT project ▪ Some remedial works anticipated but no major upgrades anticipated. To be qualified in REF.
Environmental Considerations ▪ APZ on site currently maintained by EBMP on behalf of NPWS. ▪ Requirement for some vegetation clearance anticipated to the north-east due to compound expansion. Eco and Bushfire Assessments to be completed for REF submission, noting proximity to Declared Wilderness Area. ▪ NPWS not aware of any existing AHIMS studies, survey will be required as part of due diligence assessment and to determine any further requirements. ▪ Noted that the PoM mentioned a cultural heritage management strategy but we had not seen a copy.
Other ▪ N/A

SITE PROPOSAL:
CCEP SITE ON NPWS LAND OR FACILITY

About this form

Use this form to submit a proposal to install a communications facility on:

- Land that is reserved or held under the National Parks and Wildlife Act 1974 (**NPW Act**), or
- A radiocommunications site owned by the National Parks and Wildlife Service (**NPWS**)

Send completed form to npws.ccepradio@environment.nsw.gov.au. Fees apply.

Section A: Applicant Details

Entity name	NSW Telco Authority				
ACMA Client ID	9011737	**ACN**	430 594 829	**ABN**	85 430 594 829
Address	L10 McKell Building, 2-24 Rawson Pl, Sydney NSW 2000				
Contact name	Chris McCambridge		**Contact position**	SAED Manager	
Contact email	cmccambridge@catalystone.com.au		**Contact phone**	0418 296 317	

Section B: Site Details

ACMA Site ID	9726	**GRN Site Code**	DEUA
Site location **Eg: Mt Mumbulla*	NPWS Site 'Plumwood', Plumwood Fire Tower Track		
Reserve name **If facility is on park*	Deua National Park **Communications facilities are prohibited in Aboriginal Areas (s.153D(5) NPW Act)*		
Lot and DP	Untitled parcel within Deua National Park		
Latitude	-35.976412	**Longitude**	149.858776
Landowner	NPWS	**Access track**	Plumwood Fire Tower Track (NPWS)
Tower owner	New NSWTA Proposed	**Hut owner**	RFS

Section C: Supporting Documentation

The following documents must be attached to application:

☐ Tower / hut owner consent (if not NPWS) – In-Prog with RFS

☐ Title search for land - NA

APPLICATION FOR LICENCE:
NEW CCEP FACILITY ON NPWS LAND

About this form

Use this form to request a licence under section 153D of the *National Parks and Wildlife Act 1974* (**NPW Act**) to install a new communications facility on land reserved or held under that Act. Send completed forms to npws.ccepradio@environment.nsw.gov.au.

Please note:

- Before a licence can be issued, the environmental impact of the Proposed Facility must be assessed under the *Environmental Planning and Assessment Act 1979* (**EPA Act**). Development consent under the EPA Act is **not** required, except for facilities in Kosciuszko National Park. Once this application has been reviewed, you will be advised in relation to completing an environmental assessment. Fees apply to NPWS's review and determination of the completed assessment.
- If the environmental assessment is determined in favour of the Proposed Facility, a deed of licence will be issued to the Applicant. Deed preparation and annual licence fees apply.

Section A: Site Details

Site location **Eg Mt Mumbulla*	NPWS Site 'Plumwood', Plumwood Fire Tower Track		
ACMA Site ID	9726	**GRN Site Code**	DEUA

Section B: Plan of Management

Is the site within an area designated in the POM as a remote natural area:

☒ N ☐ Y Page of POM:

**Communications facilities are prohibited in remote natural area (s.153D(5) NPW Act)*

Section C: Proposed Facility Details

Expected lifespan of Proposed Facility	The proposed site would generally be tenured for a period of 20 years. However, the lifespan of the site would be extended for as long as practical/agreeable where there is an ongoing required use for the site. Should the use no longer be required, the site would be decomissioned.

Infrastructure to be constructed for purposes of Proposed Facility:
**Provide details including dimensions of each structure*

The proposal would comprise the following features:

- Installation of new NSWTA 25.0m high lattice tower, in level area to south of existing fire watch tower
- Installation of new NSWTA antennas on new monopole (BA8080-67 Dipole array, 2 x 0.6m microwave dishes)
- Installation of new RFS yagi on new monopole (to replace existing RFS yagi on watch tower)
- Co-location of internal radio equipment within RFS shelter
- Installation of new NSWTA 36 x 370 solar panels on new standalone frame to east of compound
- Installation of new 3.0m x 2.5m generator shelter on new footing to east of existing compound
- New 300mm wide cable ladder from RFS shelter to new NSWTA monopole
- New undergorund power supply and solar cable route between RFS shelter and new genertor shelter.
- Recovery of existing RFS mount, dipole array and yagi from fire watch tower
- Existing NPWS and FCNSW radio equipment and shelter to remain as is and operational
- Implementation of an Asset Protection Zone (APZ) for the NSWTA equipment; extent of APZ subject to specialist ecological and bushfire risk assessment reports

Section D: Network Details

1. **Describe the nature and type of communications services to be provided by Proposed Facility:**

   The Public Safety Network (PSN) provides secure and reliable radio communications for emergency service organisations. It is used by frontline responders day-to-day and in emergency situations.

2. **Identify the coverage area of the Proposed Facility:**

   Refer enclosed coverge map

   **Coverage map/s must be provided (see Section G)*

3. **Identify the type of customers to be serviced by the Proposed Facility:**
   **Eg – public / private, residents / visitors*

   PSN users include a range of NSW law enforcement, public safety and essential services including the NSW Police, NSW Rural Fire Service and NSW Ambulance, and other approved government agencies.

4. **If existing facilities within the coverage area of the Proposed Facility provide similar communications services, identify why they do not meet the Applicant's requirements:**

☒ Existing facilities are not available to Applicant's customers:

**Provide details*

Refer enclosed ACMA Mapping showing existing licenced radio locations (blue dots represent active licences). There is no other facilities within the required coverage area. As shown in the enclosed ACMA map, the licences facility adjacent to the FCNSW site is a small BoM station which is unfit for colocation.

☐ Existing facilities do not have sufficient capacity to service Applicant's customers

**Provide details*

☐ Other

**Provide details*

**Under section 153D of the NPW Act a licence cannot be granted unless the Applicant has demonstrated that there are no existing facilities that provide communications services to the coverage area of the Proposed Facility.*

Section E: Alternative Sites on Unreserved Land

5. List each alternative site on land that is not reserved under the NPW Act that could be considered for the proposed Facility:

**Add rows if required*

➢ No alternative sites exist that could be considered for the proposed facility.

6. Complete Annexure 1 in relation to each site identified above.

**Under section 153D of the NPW Act a licence cannot be granted unless the Applicant has demonstrated that all other alternative sites for the Proposed Facility are not feasible. Annexure 1 must be completed for all alternative sites, including those that the Applicant considers are not feasible.*

Section F: Alternative Sites Within Reserve

7. If the Proposed Facility is to be co-located with an existing structure / easement, provide the following details and go to Section G:

Owner: Structure type: ACMA ID (if applicable):

**Consent of structure owner must have been obtained (see Section G)*

8. If the Proposed Facility is not to be co-located, list each existing structure / easement within the coverage area of the Proposed Facility:

**Add rows if required*

a. Site name

b. Site name

9. Complete Annexure 2 in relation to each structure / easement identified above.

**Under section 153D of the NPW Act a licence cannot be granted unless the Applicant has demonstrated that all other existing structures are not feasible for the Proposed Facility. Annexure 2 must be completed for all existing structures, including those that the Applicant considers are not feasible.*

Section G: Supporting Documentation

The following documents must be attached to this Application:

☒ Coverage map for Proposed Facility	☒ Design drawings for Proposed Facility
☐ Consent of Owner (co-located sites)	
☐ Annexure 1 – Alternative Sites	☐ Map/s of alternative site/s
☒ Annexure 2 – Existing Facilities	☒ Map/s of existing facility / facilities

Section H: Applicant Declaration

I have completed this application on behalf of the Applicant and confirm that the information contained herein is true and accurate to the best of my knowledge.

Name:	Chris McCambridge	Position:	SAED Manager
Signature:	[redacted]	Date:	20/04/22

Appendix E – Future Act Notice

7 March 2023

South Coast People
Native Title Claim (NC2017/003)

c/- NTSCORP Limited
Notifications Office
PO Box 2105
Strawberry Hills NSW 2012

By Email: information@ntscorp.com.au

Dear South Coast People

"Future Act" Notification regarding proposed works on land subject to Native Title Claim

This letter is to advise you of NSW Telco Authority's (NSWTA) Critical Communications Enhancement Program (CCEP) which is expanding and enhancing the Public Safety Network (PSN) to improve operational communications for emergency services organisations and essential service providers.

The network provides critical, secure and reliable radio communications to emergency services organisations and PSN sites were pivotal in protecting communities and supporting the emergency response to the 2019-20 bushfires and the widespread floods of 2021 and 2022 across NSW.

NSWTA understands that site activities are proposed on land which is subject to Native Title Claim NC2017/003, made by the South Coast People.

NSWTA would like to extend the opportunity to comment on the proposal at the existing radiocommunications site located at the Plumwood Fire Tower Track, off Sugar Loaf Road, Deua National Park, Deua NSW 2537.

The proposed NSWTA radiocommunications facility would involve the installation of a new 25m monopole, a new generator equipment shelter, solar array and re-use of the existing Rural Fire Service (RFS) equipment shelter and all within an expanded secure compound. .

This "Future Act" notice is provided under S24KA of the *Native Title Act 1993* (Cth), indicating the work proposed is characterised by *'facilities for services to the public'*.

Works to be undertake for the proposed radiocommunications facility includes:

- Installation of a new 25m monopole.
- Installation of new and existing antennas on the new monopole.
- Installation of a new generator equipment shelter measuring 3m x 2.5m.
- Installation of a new solar array containing 36 panels on a proposed steel frame.

- Re-use of the existing RFS equipment shelter.
- Installation of a cable tray between the monopole and the existing RFS equipment shelter.
- Expanded secure compound consisting of a 2.7m high chain link fence with double access gates around the proposed and existing radiocommunications equipment.
- Removal of redundant equipment including the existing RFS solar panels.
- Provision of a temporary works area within a cleared area to the south of the compound location.

Appendix A provides further information regarding the preliminary design drawings.

It has been determined that clearing of some ground storey vegetation would be required, however does not involve removal of any tall trees.

NSWTA would like to extend the opportunity to the South Coast People to comment on the proposed works by **6 April 2023**.

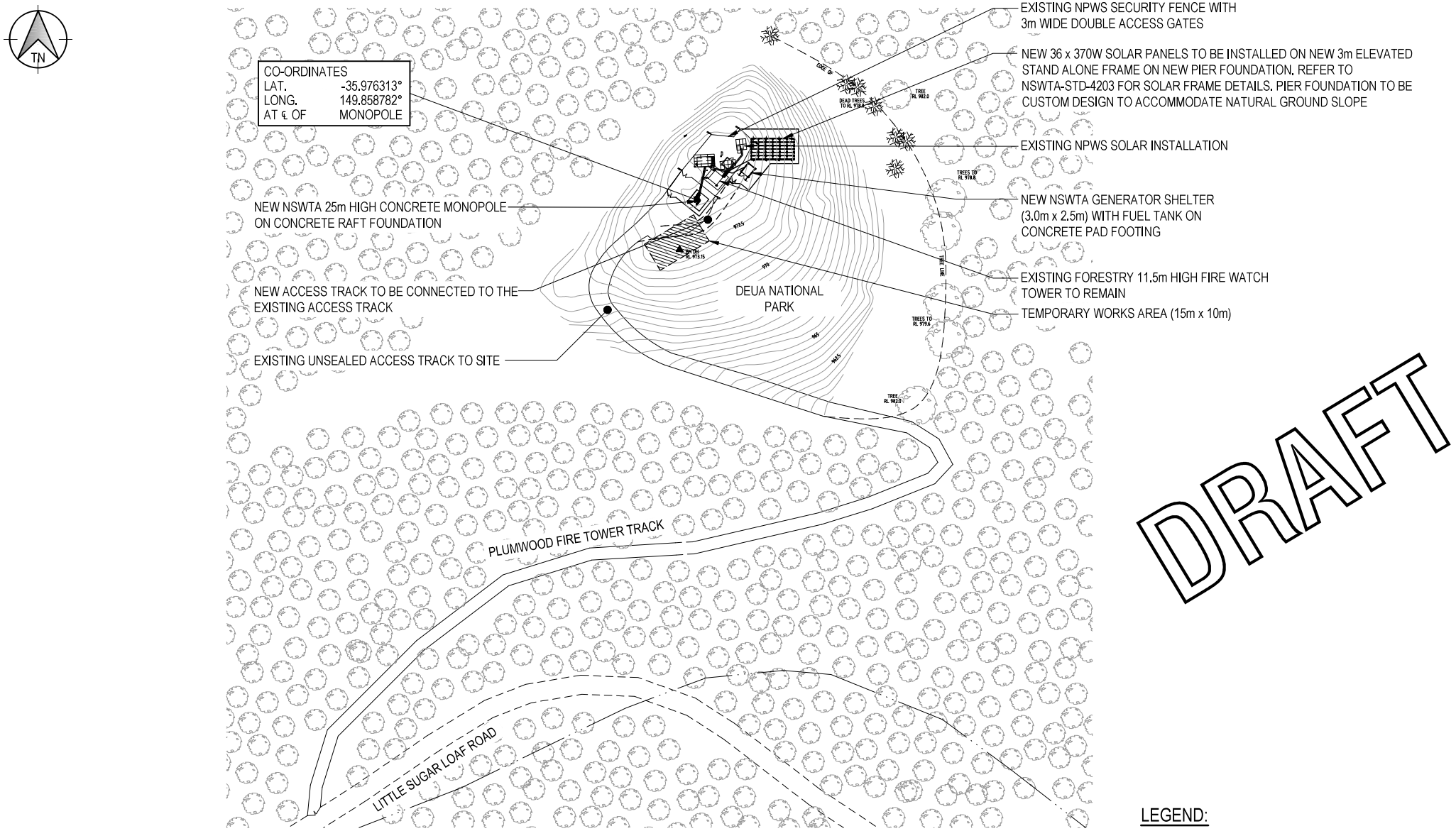
Should you have any queries in relation to the proposal, please do not hesitate to contact me on 0420 310 857 or jleeds@catalystone.com.au.

Kind regards,

[redacted]

Jodie Leeds
Senior Planner
Catalyst ONE Pty Ltd, on behalf of the NSW Telco Authority

Appendix A – Preliminary design drawings



OVERALL SITE PLAN

SCALE 1:1000

LEGEND:

EXISTING PROPERTY BOUNDARY

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
02	12.01.23	FOR CONSTRUCTION	TA	CATALYST	CD	VG	SL	CMc
D	21.03.22	PRELIMINARY	TA	CATALYST	CD	VG	SL	CMc
01	14.11.19	FOR CONSTRUCTION	TA	VPL	AC	JMB	MI	BL
C	07.10.19	PRELIMINARY	TA	VPL	KED	JMB	MI	BL
B	10.09.19	PRELIMINARY	TA	VPL	HI	JMB	MI	BL
A	31.07.19	PRELIMINARY	TA	VPL	KED	ML	MI	BL

Department Logo: NSW GOVERNMENT Telco Authority

DEUA
10026863

PLUMWOOD FIRE TOWER TRACK, OFF LITTLE SUGARLOAF RD, DEUA, NSW 2537

catalyst managers.advisors

Drawing Title: OVERALL SITE PLAN

Drawing Status: FOR CONSTRUCTION

Drawing No. GRN-DEUA-DWG-INF-STE-04

Revision 02

CAD File: P:\NSW TA\ER\DeuaiCAD\In Progress Drawings\GRN-10026863-DEUA_FC_Ver06.dwg
Print By: Craig Daniels Date: 1/11/2023 11:15 AM

A3 Original Size
0mm 50mm 100mm

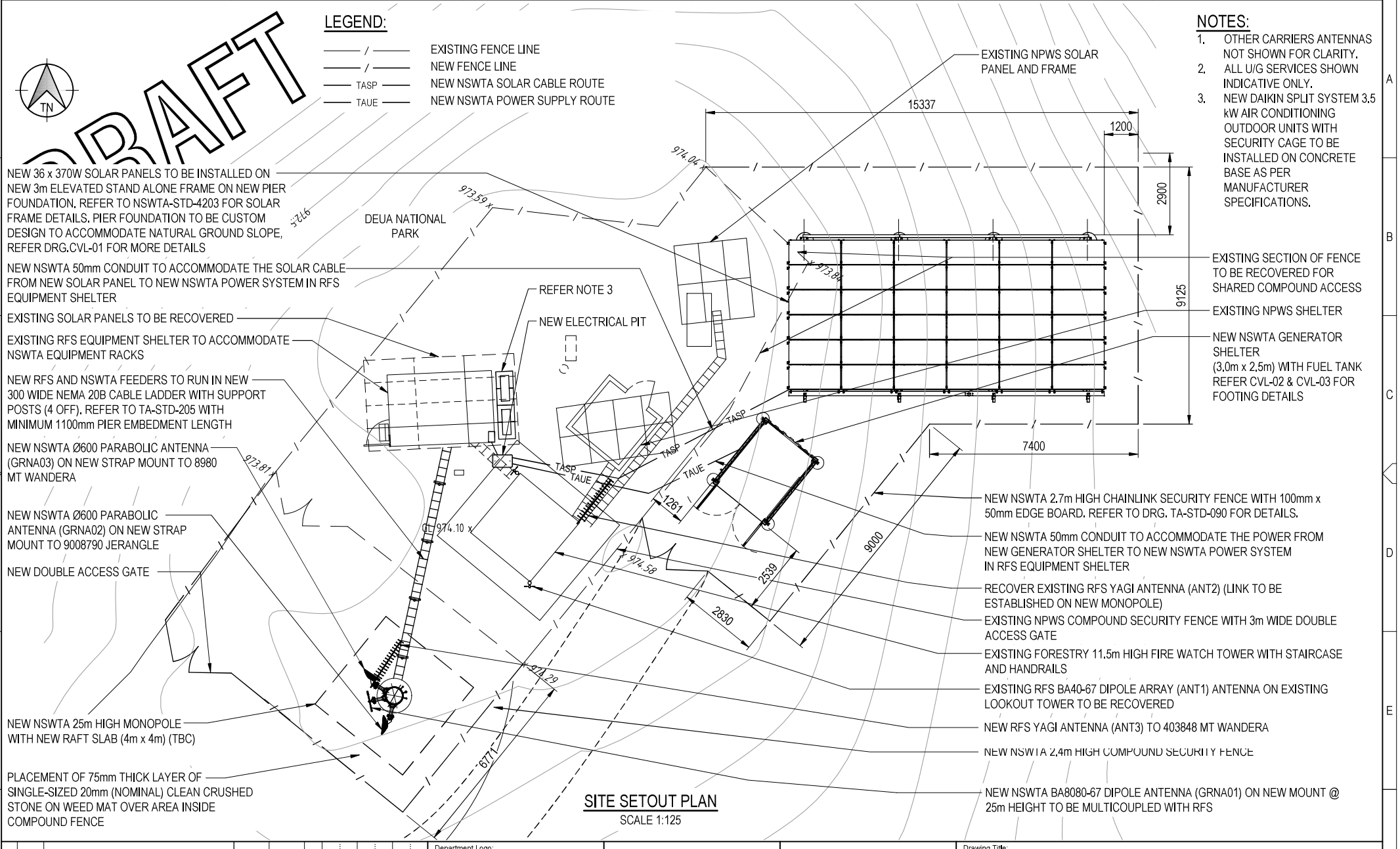
DRAFT

LEGEND:

- EXISTING FENCE LINE
- NEW FENCE LINE
- TASP — NEW NSWTA SOLAR CABLE ROUTE
- TAUE — NEW NSWTA POWER SUPPLY ROUTE

NOTES:

1. OTHER CARRIERS ANTENNAS NOT SHOWN FOR CLARITY.
2. ALL U/G SERVICES SHOWN INDICATIVE ONLY.
3. NEW DAIKIN SPLIT SYSTEM 3.5 kW AIR CONDITIONING OUTDOOR UNITS WITH SECURITY CAGE TO BE INSTALLED ON CONCRETE BASE AS PER MANUFACTURER SPECIFICATIONS.



NEW 36 x 370W SOLAR PANELS TO BE INSTALLED ON NEW 3m ELEVATED STAND ALONE FRAME ON NEW PIER FOUNDATION. REFER TO NSWTA-STD-4203 FOR SOLAR FRAME DETAILS. PIER FOUNDATION TO BE CUSTOM DESIGN TO ACCOMMODATE NATURAL GROUND SLOPE, REFER DRG.CVL-01 FOR MORE DETAILS

NEW NSWTA 50mm CONDUIT TO ACCOMMODATE THE SOLAR CABLE FROM NEW SOLAR PANEL TO NEW NSWTA POWER SYSTEM IN RFS EQUIPMENT SHELTER

EXISTING SOLAR PANELS TO BE RECOVERED

EXISTING RFS EQUIPMENT SHELTER TO ACCOMMODATE NSWTA EQUIPMENT RACKS

NEW RFS AND NSWTA FEEDERS TO RUN IN NEW 300 WIDE NEMA 20B CABLE LADDER WITH SUPPORT POSTS (4 OFF). REFER TO TA-STD-205 WITH MINIMUM 1100mm PIER EMBEDMENT LENGTH

NEW NSWTA Ø600 PARABOLIC ANTENNA (GRNA03) ON NEW STRAP MOUNT TO 8980 MT WANDERA

NEW NSWTA Ø600 PARABOLIC ANTENNA (GRNA02) ON NEW STRAP MOUNT TO 9008790 JERANGLE

NEW DOUBLE ACCESS GATE

NEW NSWTA 25m HIGH MONOPOLE WITH NEW RAFT SLAB (4m x 4m) (TBC)

PLACEMENT OF 75mm THICK LAYER OF SINGLE-SIZED 20mm (NOMINAL) CLEAN CRUSHED STONE ON WEED MAT OVER AREA INSIDE COMPOUND FENCE

EXISTING NPWS SOLAR PANEL AND FRAME

EXISTING SECTION OF FENCE TO BE RECOVERED FOR SHARED COMPOUND ACCESS

EXISTING NPWS SHELTER

NEW NSWTA GENERATOR SHELTER (3.0m x 2.5m) WITH FUEL TANK REFER CVL-02 & CVL-03 FOR FOOTING DETAILS

NEW NSWTA 2.7m HIGH CHAINLINK SECURITY FENCE WITH 100mm x 50mm EDGE BOARD. REFER TO DRG. TA-STD-090 FOR DETAILS.

NEW NSWTA 50mm CONDUIT TO ACCOMMODATE THE POWER FROM NEW GENERATOR SHELTER TO NEW NSWTA POWER SYSTEM IN RFS EQUIPMENT SHELTER

RECOVER EXISTING RFS YAGI ANTENNA (ANT2) (LINK TO BE ESTABLISHED ON NEW MONOPOLE)

EXISTING NPWS COMPOUND SECURITY FENCE WITH 3m WIDE DOUBLE ACCESS GATE

EXISTING FORESTRY 11.5m HIGH FIRE WATCH TOWER WITH STAIRCASE AND HANDRAILS

EXISTING RFS BA40-67 DIPOLE ARRAY (ANT1) ANTENNA ON EXISTING LOOKOUT TOWER TO BE RECOVERED

NEW RFS YAGI ANTENNA (ANT3) TO 403848 MT WANDERA

NEW NSWTA 2.4m HIGH COMPOUND SECURITY FENCE

NEW NSWTA BA8080-67 DIPOLE ANTENNA (GRNA01) ON NEW MOUNT @ 25m HEIGHT TO BE MULTICOUPLED WITH RFS

SITE SETOUT PLAN

SCALE 1:125

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
02	12.01.23	FOR CONSTRUCTION	TA	CATALYST	CD	VG	SL	CMc
D	21.03.22	PRELIMINARY	TA	CATALYST	CD	VG	SL	CMc
01	14.11.19	FOR CONSTRUCTION	TA	VPL	AC	JMB	MI	BL
C	07.10.19	PRELIMINARY	TA	VPL	KED	JMB	MI	BL
B	10.09.19	PRELIMINARY	TA	VPL	HI	JMB	MI	BL
A	31.07.19	PRELIMINARY	TA	VPL	KED	ML	MI	BL

Department Logo: NSW GOVERNMENT Telco Authority

DEUA
10026863

PLUMWOOD FIRE TOWER TRACK, OFF LITTLE SUGARLOAF RD, DEUA, NSW 2537

catalyst managers.advisors

Drawing Title: SITE SETOUT PLAN

Drawing Status: FOR CONSTRUCTION

Drawing No. GRN-DEUA-DWG-INF-STE-05

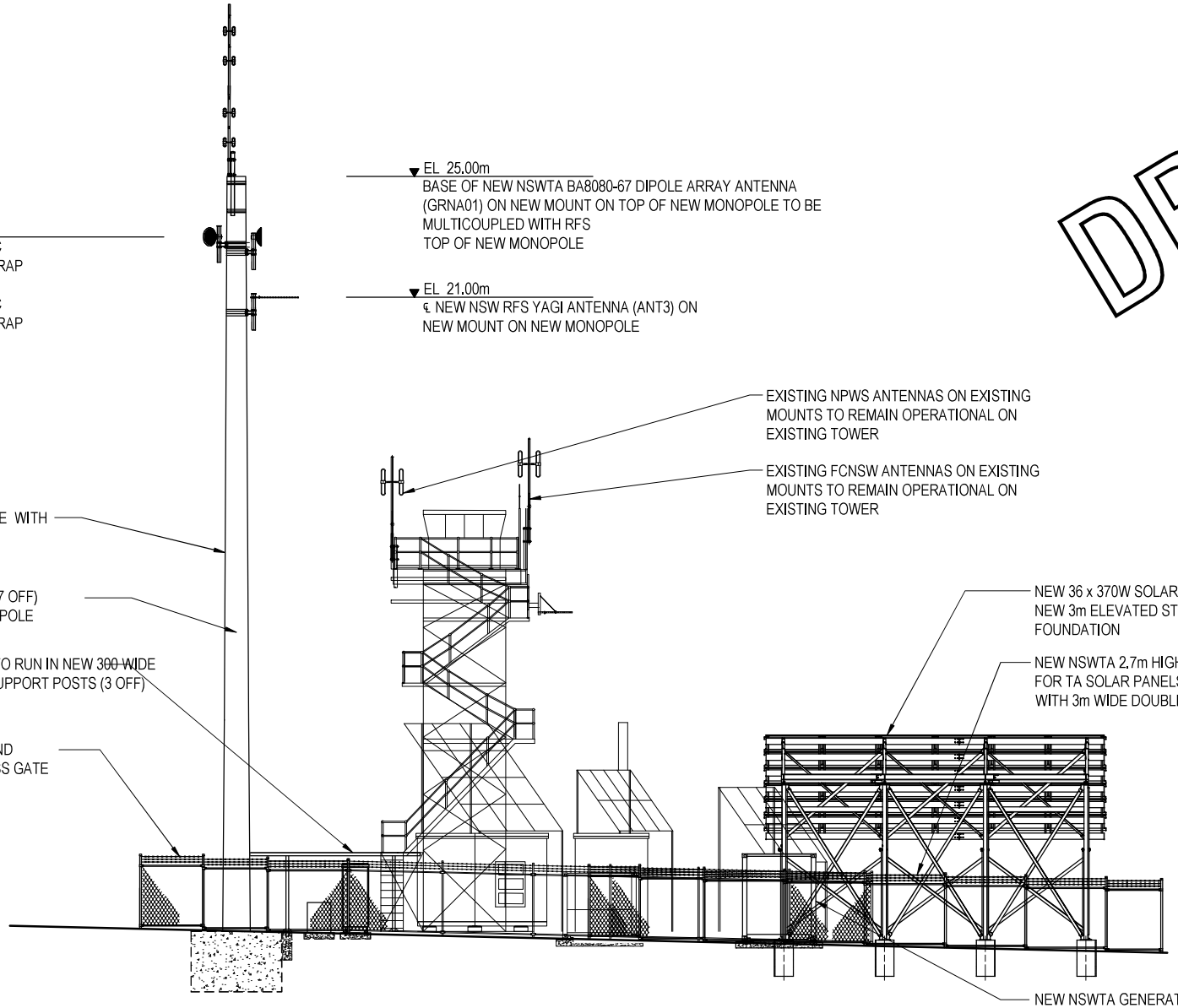
Revision 02

CAD File: P:\NSW TA\ER\DeuaICAD\In Progress Drawings\GRN-10026863-DEUA_FC_Ver06.dwg
Print By: Craig Daniels Date: 1/11/2023 11:15 AM

A3 Original Size
0mm 50mm 100mm

NOTES:
EXISTING OTHER CARRIERS EQUIPMENT
SHOWN INDICATIVELY ONLY.

DRAFT



SOUTH EAST ELEVATION
SCALE 1:150

Rev	Date	Revision Details	Department	Consultant	CAD	Designer	Verifier	Approver
02	12.01.23	FOR CONSTRUCTION	TA	CATALYST	CD	VG	SL	CMc
D	21.03.22	PRELIMINARY	TA	CATALYST	CD	VG	SL	CMc
01	14.11.19	FOR CONSTRUCTION	TA	VPL	AC	JMB	MI	BL
C	07.10.19	PRELIMINARY	TA	VPL	KED	JMB	MI	BL
B	10.09.19	PRELIMINARY	TA	VPL	HI	JMB	MI	BL
A	31.07.19	PRELIMINARY	TA	VPL	KED	ML	MI	BL

Department Logo: NSW GOVERNMENT Telco Authority

DEUA
10026863

PLUMWOOD FIRE TOWER TRACK,
OFF LITTLE SUGARLOAF RD,
DEUA, NSW 2537

catalyst managers.advisors

Drawing Title:
SITE ELEVATION

Drawing Status: FOR CONSTRUCTION

Drawing No. GRN-DEUA-DWG-INF-TWR-01

Revision 02

CAD File: P:\NSW TA\ERE\Deua\CAD\In Progress Drawings\GRN-10026863-DEUA_FC_Ver06.dwg
Print By: Craig Daniels Date: 1/11/2023 11:15 AM

A3 Original Size
0mm 50mm 100mm

Appendix B – Proposed compound expansion

Appendix C – Proposal location

Appendix F – Ecological and Bushfire Risk Assessment

Mobile: 0429 727 010
steve@florafauna.com.au
www.florafauna.com.au

Ecological & Bush Fire Risk Assessment

Proposed Radiocommunications Facility at Deua National Park (Plumwood Fire Tower Site)

Prepared for NSW Telco Authority

Project No. EA170822

Title	Ecological and Bush Fire Risk Integrated Assessment
Project	Radiocommunications Site – Deua National Park (Plumwood Fire Tower)
Client	NSW Telco Authority
Report No.	EA170822
Draft/Final	Final – 4 May 2023

The preparation of this report has been undertaken in accordance with the project brief provided by the client and has relied upon the information, data and results provided or collected from the sources and under the conditions outlined in the report.

All information contained within this report are prepared for the exclusive use of the client and with respect to the land described herein and are not to be used for any other purpose or by any other person or entity. No reliance should be placed on the information contained in this report for any purposes other than those stated herein.

Prepared by:	Steve Britt *Bachelor of Science (Botany)* *Graduate Diploma in Design for Bushfire Prone Areas (BPAD9334 – Level 3)* *Master of Wildlife Management. (Habitat)*
Signed:	
Date:	4 May 2023

Cover photo: *Veronica notabilis* (Forest Speedwell)

Table of Contents

1. Executive Summary

This report describes the methods and results of an integrated ecological and bush fire risk assessment in relation to a proposed NSW Telco Authority (NSWTA) radiocommunications facility at the Plumwood Fire Tower site, located within Deua National Park. The proposal is at a brownfield site involving an existing National Parks and Wildlife Service (NPWS) and NSW Rural Fire Service (RFS) radiocommunications facility situated adjacent to the Forestry Corporation Fire Tower, at Plumwood within Deua National Park. The proposed NSWTA facility will comprise reuse of the existing RFS shelter to accommodate NSWTA equipment and a new generator shelter, stand-alone frame-mounted solar panels, 20 metre high monopole, associated electrical installation and extension of the existing compound.

The ecological assessment was undertaken in accordance with Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). In this regard, the proponent is to consider the environmental factors listed in clause 171 of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation). In addition, under the provisions of section 7.2 of the *Biodiversity Conservation Act 2016* (BC Act), proponents of Part 5 activities must apply the Test of Significance as per section 7.3 to determine whether the proposed activity is likely to significantly affect threatened species or ecological communities, or their habitats. If the activity is likely to have a significant impact or will be conducted in a declared area of outstanding biodiversity value, the proponent must either prepare a Species Impact Statement (SIS) or a Biodiversity Development Assessment Report (BDAR).

The geology mapping indicates that the study area occurs on the Abercrombie Formation, which is comprised of brown and buff to grey, thin to thick-bedded, fine to coarse-grained mica-quartz (feldspar) sandstone, interbedded with laminated siltstone and mudstone, as well as sporadic chert-rich units. The Australian Soil Classification (ASC) soil type map of NSW indicates most of the site is situated on a Dermosol soil landscape, except for the western end (start) of the site access (Plumwood Fire Tower Trail), which is situated on a Kandosol soil landscape. Exposed rock and soil observed onsite during the field survey support the geology and soil landscape mapping. The State Vegetation Type Map (SVTM) indicates that the land within most of the study area and surrounds is occupied by a Wet Sclerophyll Forest Formation (Grassy sub-formation) that is identified as Plant Community Type (PCT) 3310: Gulaga Silvertop Ash Moist Forest. The SVTM indicates that part of the southern part of the Plumwood Fire Tower Trail occurs within an adjacent Wet Sclerophyll Forest Formation (Shrubby sub-formation) that is identified as PCT 3197: Southeast Hinterland Monkey Gum Moist Shrub Forest.

The flora survey could not verify the SVTM with confidence due to the modified condition of the site, including previous land clearing in conjunction with the associated changes in environmental conditions, primarily associated with the remnant vegetation's exposure to frost and direct sun. In addition, the 2019-2020 bush fire that impacted the site and surrounding land was a high intensity fire that severely affected the vegetation, which has resulted in numerous trees in the canopy being killed and those that are still alive being in a post regenerative condition. The understorey was essentially removed and is currently in a relatively early stage of regeneration. Overall, there has been a change in the species

composition, with those species adapted to disturbance thriving in the post fire conditions while other species that may have formed a significant portion of the species assemblage now being absent or less abundant. Eventually, the plant communities are likely to recover, and the typical species assemblage restored. In the lower section of the site access, several species recorded during the flora survey are diagnostic species associated with PCT 3197: Southeast Hinterland Monkey Gum Moist Shrub Forest, which is indicated in the SVTM. However, in the remaining parts of the study area there was an absence of diagnostic species recorded during the flora survey to support the SVTM. Other PCTs occurring in the surrounding landscape were assessed for comparable diagnostic species, however no conclusive matches were found. It is considered that the species assemblage at the site is atypical of any particular locally occurring PCT and that this is largely due to the modified nature of the site as well as the post fire, regenerative condition of the vegetation. The landscape position and underlying geology suggest that the plant communities located within the study area are unlikely to be associated with any listed TEC. Furthermore, while it is acknowledged that the survey almost certainly failed to detect some species of flora, it is considered unlikely that any threatened species were present within the study area.

The habitat assessment determined that habitat features such as fallen trees and other woody debris were common in the surrounding forest habitats but were only observed infrequently within the existing cleared footprint. The entire existing cleared footprint other than the existing development footprint, immediately adjacent managed land and access track surface, contains a rocky habitat comprised of exposed rock outcrops and rock fragments in which numerous crevices were observed. Some of this rock fragment habitat occurs right up to the existing compound, however the significant areas of exposed outcropping with crevices is located well clear of the proposed development footprint. Due to the longstanding cleared condition of the site, no other significant terrestrial habitat features such as fallen trees, hollow logs and other woody debris were recorded within the existing cleared footprint. At the margins and adjacent to the site access, terrestrial habitat features typically associated with forest habitats were observed. Those that were present prior to 2019-2020 were impacted by the bush fire, while in many instances the features, such as fallen trees and woody debris are a direct result of the bush fire. Some trees in the adjacent forest contained visible hollows that may be utilised by a number of arboreal species. No trees are likely to be impacted by the proposed works. The proposed development footprint has been managed in association with the existing radiocommunications and fire tower infrastructure to prevent regrowth for a considerable period of time. The Biodiversity Values Map indicates that no part of the site or immediately adjacent land is mapped as high biodiversity value.

The bush fire risk assessment was undertaken in consideration of *Planning for Bush Fire Protection 2019* (PBP) and *Practice Note 1/11 – Telecommunication Towers in Bushfire Prone Areas* (RFS Practice Note), which has been prepared by the NSW Rural Fire Service to provide direction on the provision of bush fire protection measures that must be applied. Bush fire protection measures, including design, asset protection zones, design for recovery/emergency planning and site reinstatement process as per *The Critical Communications Enhancement Program – Bush Fire Risk Management Framework* (CCEP) prepared by the NSW Telco Authority (NSWTA) will be initiated as required. The bush fire risk assessment has determined that the bushfire attack level that the development is likely to be exposed to as per Table A1.12.5 of PBP is BAL-FZ. This is despite an existing cleared area that is significantly larger than the

minimum 10 metre wide APZ required under the Practice Note. The characteristics of BAL-FZ are that significant radiant heat and significantly higher likelihood of flame contact from the fire front will threaten the integrity of infrastructure. The provision of a 10 wide APZ around the proposed infrastructure in accordance with the RFS Practice Note will help to reduce these impacts. There is no intention of undertaking further clearing, nor should there be given the ecological significance of the site's location within a national park estate.

In consideration of the findings of the ecological assessment, it was determined that 10 threatened species listed under the BC Act and five threatened species listed under the EPBC Act could potentially utilise the habitat within the study area. The Significance Tests prepared in accordance with section 7.3 of the BC Act and Assessments of Significance prepared in accordance with the EPBC Act Matters of National Environmental Significance concluded that subject to the recommendations of this report, the proposed works are unlikely to have a significant impact on any threatened species, threatened ecological community or areas of outstanding biodiversity value.

2. Glossary

ABRS: Australian Biological Resources Study

Abundance: Means a quantification of the population of the species or community

AFD: Australian Faunal Directory

Affected Species: Means subject species likely to be affected by the proposal

AHD: Australian height datum

APZ: Asset Protection Zone (for bushfire protection purposes)

AOBV: Area of outstanding biodiversity value

Area of Outstanding Biodiversity Value: Areas that contain irreplaceable biodiversity values that are important to the whole of NSW, Australia or globally

ASC: Australian Soil Classification

ASL: Above sea level

BAL: Bush Fire Attack Level

BAM: Biodiversity Assessment Method

BC Act: *Biodiversity Conservation Act 2016*

BCAR: Biodiversity Certification Assessment Report

BDAR: Biodiversity Development Assessment Report

BSAR: Biodiversity Stewardship site Assessment Report

BCT: Biodiversity Conservation Trust

Biodiversity and Conservation SEPP: State Environmental Planning Policy (Biodiversity and Conservation) 2021

BSA: Biodiversity Stewardship site Agreement

BOS: Biodiversity Offset Scheme

CCEP: Critical Communications Enhancement program

Conservation Status: Is an indicator of how likely a species is to remain alive at present or in the future

DBH: Diameter at breast height

DCCEEW: Department of Climate Change, Energy, the Environment and Water

Development: The erection of a building on that land, the conducting of work in, on, over or under that land, the use of that land or of a building or work on that land, and the subdivision of that land

Diameter at Breast Height: The measurement of a tree's trunk at 1.3 metres above ground level

DPIE: NSW Department of Planning and Environment

EP&A Act: *Environmental Planning and Assessment Act, 1979*

EP&A Regulation: *Environmental Planning and Assessment Regulation 2000*

EPBC Act: *Environment Protection and Biodiversity Conservation Act 1999*

FFDI: Forest Fire Danger Index

Field survey: Means on the ground flora, fauna and habitat assessment

Habitat: An area or areas occupied, or periodically or occasionally occupied by a species, population or ecological community and includes any abiotic component

HBT: Hollow-bearing tree

IBRA: Interim Biogeographic Regionalisation for Australia

Key Threatening Process: Is a threatening process listed under the *Biodiversity Conservation Act 2016*

KFT: Koala food tree

LEP: Local Environmental Plan

Locality: The general area surrounding the study area described by its main characteristics and features

Ma: 'Mega annum' i.e. one-million years

MNES: EPBC Act Matters of National Environmental Significance

OEH: NSW Office of Environment and Heritage

PBP: *Planning for Bushfire Protection 2019*

PCT: NSW Plant Community Type classification

PKFT: Preferred koala food tree

PMST: Protected matters search tool

PSN: Public Safety Network

Recovery and Threat Abatement Plan: A plan to promote the recovery of threatened species, population or an ecological community with the aim of returning the species, population, or ecological community to a position of viability in nature

RFS: NSW Rural Fire Service

ROTAP: Rare or threatened Australian plant

SEPP: State Environmental and Planning Policy

Serious and Irreversible Impacts: A concept aimed at protecting species and ecological communities that are most at risk of extinction from potential development

SAII: Serious and Irreversible Impacts

SIS: Species Impact Statement

Study Area: The geographic extent of the ecological assessment (may be the subject site or a part of it)

SVTM: State Vegetation Type Map

Subject Site: The identified land, e.g. Lot(s) and DP(s)

Threatened Ecological Community: An ecological community specified under Schedule 2 of the *Biodiversity Conservation Act 2016* (may be listed as critically endangered, endangered or vulnerable)

Threatened Population: A population specified under Schedule 1 of the *Biodiversity Conservation Act 2016* (may be listed as critically endangered, endangered or vulnerable)

Threatened Species: A species listed in Schedule 1 of the *Biodiversity Conservation Act 2016* (may be listed as critically endangered, endangered or vulnerable)

Threatening Process: Means a threatening process that threatens, or could potentially threaten, the survival or evolutionary development of a species, population or ecological community

Tree: A perennial plant having a trunk diameter at breast height (DBH) of not less than 100 mm where DBH is the measurement of the trunk at 1.3 metres above ground level

VIS: NSW Vegetation Information System (classification database)

VMP: Vegetation Management Plan

3. Introduction

3.1 Background

The NSW Telco Authority is responsible for the coordination of radiocommunications for the NSW Government and is currently undertaking a works program to integrate the individual operational radiocommunication networks used by the various emergency services and Government agency personnel into a single shared network. This includes a Critical Communications Enhancement Program (CCEP) involving acquisition of new radiocommunications sites and upgrading, replacing or co-locating Public Safety Network (PSN) infrastructure with existing radiocommunications facilities. Under clause 2.41 of *State Environmental Planning Policy (Transport and Infrastructure) 2021* (Transport and Infrastructure SEPP), radiocommunications facilities are identified as development permissible without consent. As such, CCEP proposals are either exempt development or require assessment under Part 5 of the EP&A Act.

3.2 Proposed Development

The proposed development is at a brownfield site involving an existing National Parks and Wildlife Service (NPWS) and NSW Rural Fire Service (RFS) radiocommunications facility situated adjacent to the Forestry Corporation Fire Tower, at Plumwood within Deua National Park. The proposed NSWTA facility will comprise reuse of the existing RFS shelter to accommodate NSWTA equipment and a new generator shelter, stand-alone frame-mounted solar panels, 20 metre high monopole, associated electrical installation and extension of the existing compound. The general layout of the facility is indicated on the site setout plan prepared by Catalyst ONE (ref: GRN-DEUA-DWG-INF-STE-05), which is appended to this report as Appendix A.

3.3 Purpose of Report

Radiocommunications (otherwise known as telecommunications) sites are considered to be essential infrastructure and therefore should be designed to minimise the impact of bush fire and ensure that communications capabilities are not compromised. As the site is situated on bush fire prone land there is a potential risk of the site being impacted by bush fire. In consideration of bush fire protection of the proposed radiocommunications facility, a bush fire attack assessment guided by the RFS Practice Note and PBP (the current development standard for designing and building on bush fire prone land in NSW) will inform the report. The purpose of the ecological assessment is to determine if any ecological constraints exist that would impede the ability to remove vegetation and any associated habitat for the proposed new infrastructure.

3.4 Legislative Context

3.4.1 State Legislation

This assessment has been undertaken in accordance with Part 5 of the EP&A Act. Section 5.5(1) of the Act states; *For the purpose of attaining the objects of this Act relating to the protection and enhancement of the environment, a determining authority in its consideration of an activity shall,*

notwithstanding any other provisions of this Act or the provisions of any other Act or of any instrument made under this or any other Act, examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity. In this regard, the proponent is to consider the environmental factors listed in clause 171(2) of the EP&A Regulation, which include:

a. any environmental impact on a community;
b. any transformation of a locality;
c. any environmental impact on the ecosystems of the locality;
d. any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality;
e. any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations;
f. any impact on the habitat of protected animals (within the meaning of the *Biodiversity Conservation Act 2016*);
g. any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air;
h. any long-term effects on the environment;
i. any degradation of the quality of the environment;
j. any risk to the safety of the environment;
k. any reduction in the range of beneficial uses of the environment;
l. any pollution of the environment;
m. any environmental problems associated with the disposal of waste;
n. any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply;
o. any cumulative environmental effect with other existing or likely future activities;
p. any impact on coastal processes and coastal hazards, including those under projected climate change conditions;
q. applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1; and
r. other relevant environmental factors.

Under the provisions of section 7.2 of the BC Act, proponents of Part 5 activities must apply the Test of Significance as per section 7.3 to determine whether the proposed activity is likely to significantly affect threatened species or ecological communities, or their habitats. If the activity is likely to have a significant impact or will be carried out in a declared area of outstanding biodiversity value, the proponent must prepare a SIS or a BDAR.

3.4.2 Bush Fire Legislation

PBP is the current legislated document for specifying the requirements for building on bush fire prone land (BFPL) in NSW. PBP contains provisions specific to 'telecommunications towers' (radiocommunications facilities), which states they should be designed in such a way as to minimise the impact of bush fire. In addition, the NSW Rural Fire Service (RFS) has produced the RFS Practice Note, which provides direction on the provision of bush fire protection measures that should be applied.

3.4.3 Matters of National Environmental Significance

Under the EPBC Act, actions that have, or are likely to have, a significant impact on a matter of national environmental significance require approval from the Australian Government Minister for the Environment (the Minister). The Minister will decide whether assessment and approval are required under the EPBC Act. The nine matters of National Environmental Significance protected under the EPBC Act are:

- world heritage properties;
- national heritage places;
- wetlands of international importance (listed under the Ramsar Convention);
- listed threatened species and ecological communities;
- migratory species protected under international agreements
- Commonwealth marine areas;
- the Great Barrier Reef Marine Park;
- nuclear actions (including uranium mines); and
- a water resource, in relation to coal seam gas development and large coal mining development.

Other matters protected by the EPBC Act that may require approval for an activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land also require consideration. These matters include:

- Commonwealth Lands;
- Commonwealth Heritage Places;
- Listed Marine Species;
- Whales and other Cetaceans;
- Critical Habitats;
- Commonwealth Reserves Terrestrial;
- Australian Marine Parks;
- Habitat Critical to the Survival of Marine Turtles.

3.5 Locality

The subject site is located within Deua National Park, on the coastal ranges of south-eastern NSW to the west of Moruya. The park has an area of 122,033 hectares and is a component of the South Coast Escarpment Parks comprising Monga National Park, Deua National Park, Wadbilliga National Park, Gourock National Park and Badja Swamps Nature Reserve. Collectively, these reserves cover an area of more than 250,000 hectares. The Escarpment Parks are part of a 535 kilometre corridor of protected land between the Illawarra region and the Victorian border. The creation of Monga National Park closed what had been a significant gap in this corridor. Land adjoining the Escarpment Parks is a mixture of state forests, other national parks and reserves, and agricultural land (typically sheep and cattle grazing activities). The relative position of the proposed radiocommunications site within the landscape is shown on the locality map at Figure 1 on the following page.

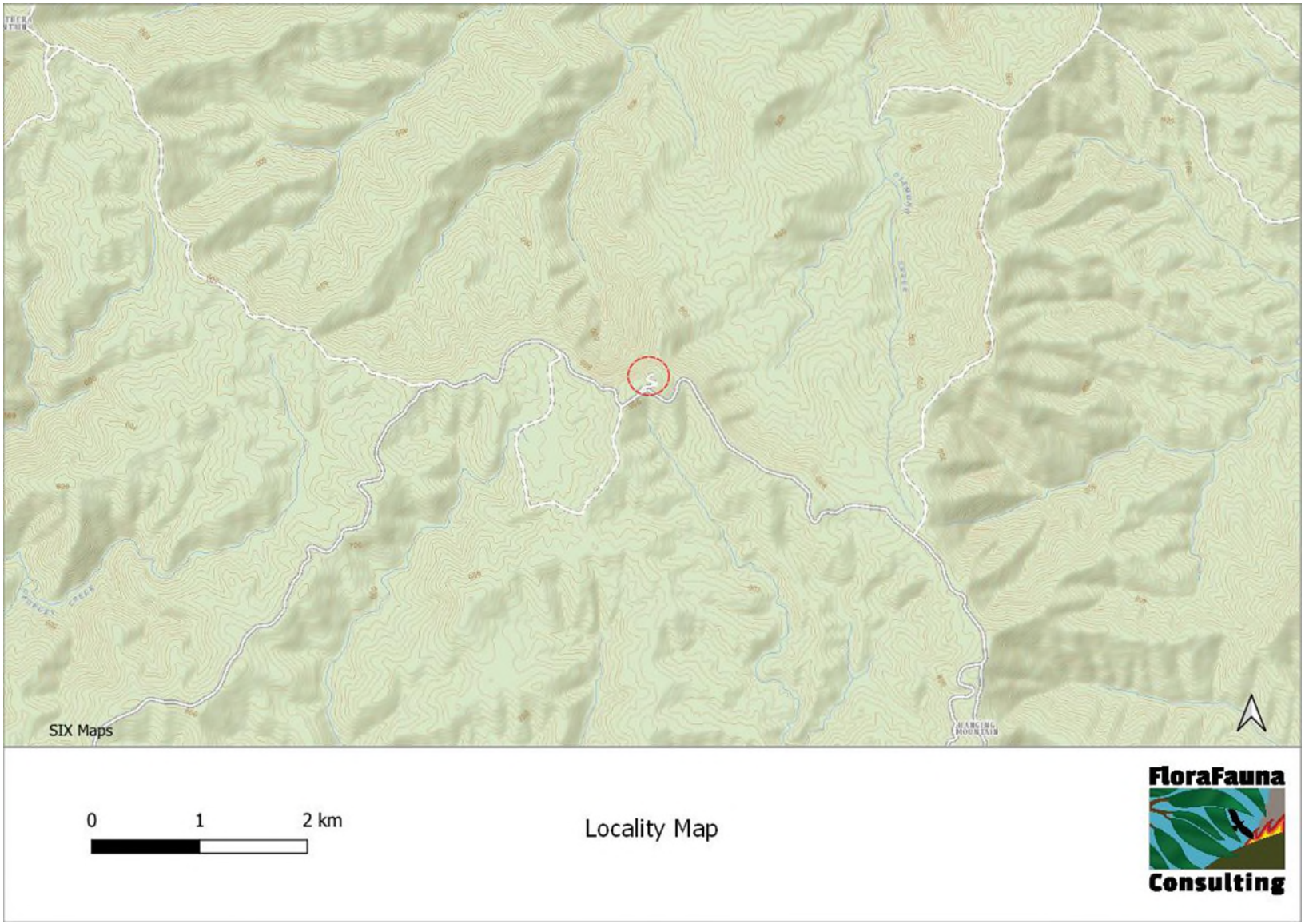


Figure 1: Locality map (site location circled)

3.6 Site Location

The proposed NSWTA radiocommunications facility is located approximately 21 kilometres southwest of Moruya on the summit of a hill at an elevation of approximately 980 metres asl and is accessed from Little Sugarloaf Road via the Plumwood Fire Tower Trail. The approximate centre point of the proposed facility footprint is located at latitude -35.976324, longitude 149.858943.

3.7 Development Footprint and Study Area

The footprint of the proposed NSWTA radiocommunications facility is indicated on the overall site plan and site setout plan prepared by Catalyst O. N. E. Pty Ltd (reference no. GRN-DEUA-DWG-INF-STE-04/05), which are appended to this report as Appendix A. The study area had an area of approximately 7,500 m^2 and comprised the development footprint, including the position of the proposed new infrastructure, the site access and its margins. The adjacent land was also investigated to inform the ecological and bush fire risk assessments. The extent of the study area and its relative position in the landscape is shown in Figure 2.

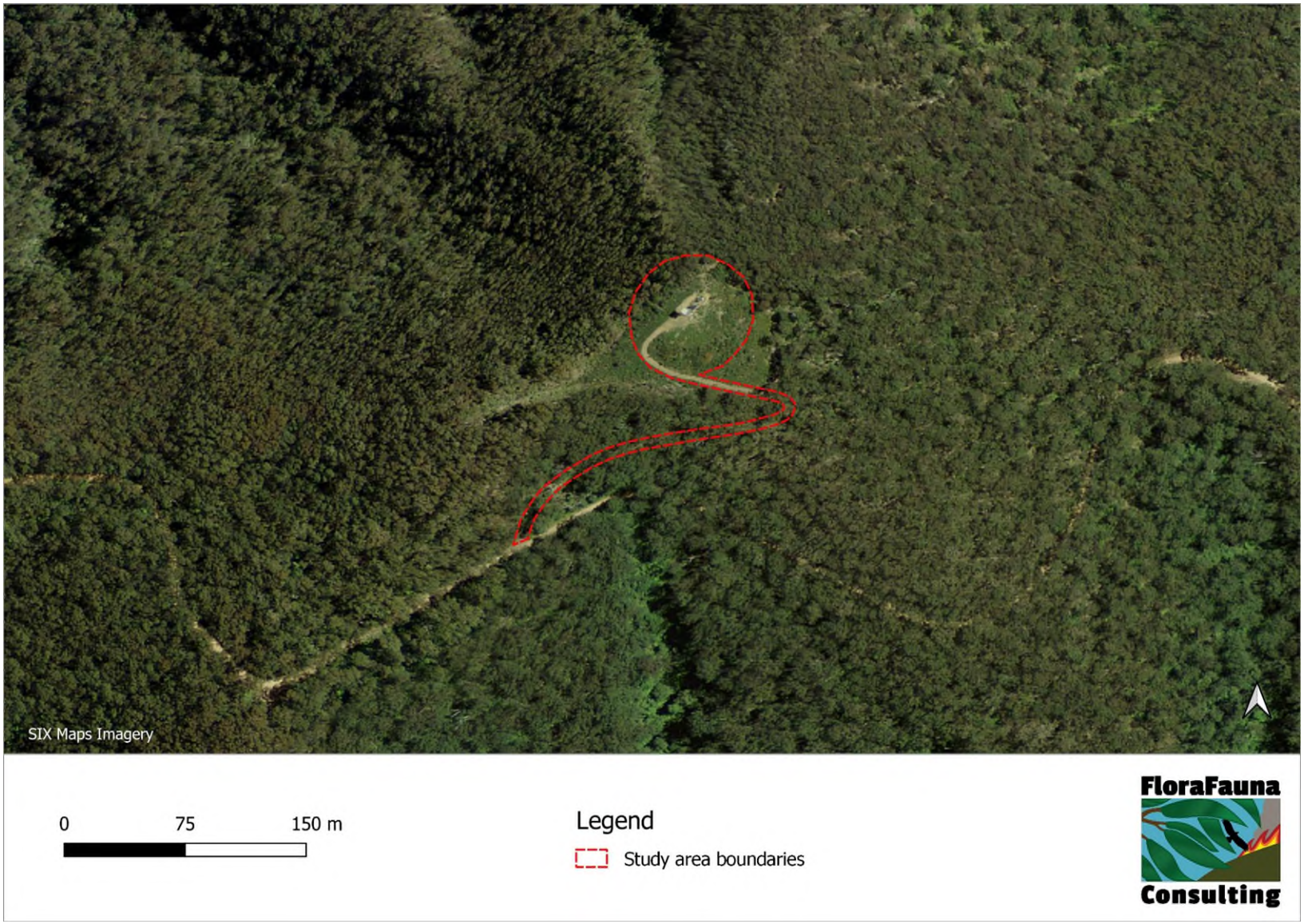


Figure 2: Extent of the study area and its relative position in the landscape

4. Methodology

4.1 Nomenclature

The names of plants used in this document follow the Flora of New South Wales (Harden, 2000) with updates from the PlantNet website (Royal Botanic Gardens Sydney, 2019).

The description of plant communities used in this document follow the NSW Plant Community Type (PCT) classification, which is maintained in the BioNet Vegetation Classification application (Environment, Energy and Science Group – NSW Department of Planning, Industry and Environment).

Tree growth stage descriptions used in this document are adapted from Jacobs, M.R. (1955) Growth Habits of the Eucalypts, Woodgate et al, 1994, A Study of Old-growth Forests of East Gippsland, and the Joint Old Growth Forest Project (JOGFP), 1996. Table 1 sets out the growth stages adopted for this document:

Table 1: Tree growth stages used in this document

Jacobs (1955) Growth Stages	Woodgate et al (1994) Growth Stages	Amalgamated Major Growth Stages
Juvenile		Regrowth
Sapling	Sapling	
Pole	Pole	
Mature	Early-mature	Mature
	Mature	
	Late-mature	Senescing
Overmature	Overmature	

The systematic arrangement and species nomenclature of vertebrate animals used in this document broadly follow that of Strahan (1995) and the Australian Faunal Directory (FDS) database maintained by the Australian Government, Department of Climate Change, Energy, the Environment and Water (DCCEEW).

4.2 Licencing

All work in relation to this fauna survey was undertaken with appropriate licences and authorisations including:

- A Scientific Licence to conduct field surveys of flora and fauna for environmental assessment purposes issued subject to the provisions of Part 2 of the BC Act; and
- An Animal Research Authority issued by the Department of Industries and Investment (formerly the Department of Primary Industries) Director-General's Animal Care and Ethics Committee to conduct biodiversity survey and habitat assessment at various locations throughout New South Wales.

4.3 Survey Timing and Weather Conditions

The field survey was conducted on Thursday, 13 October 2022. Weather conditions at the time were warm with no rain falling in the days prior to the work being conducted.

4.4 Desktop Assessment

The desktop assessment involving database searches and reviews of relevant mapping as summarised in Table 2.

Table 2: Database searches and mapping reviews

Database/Dataset	Source
Australian Soil Classification mapping dataset	NSW Department of Planning and Environment
State Vegetation Type Map (SVTM)	NSW Department of Planning and Environment
BioNet Atlas (0.1° by 0.1°, i.e. 10 km x 10 km search area)	NSW Department of Planning and Environment
Biodiversity Values Map	NSW Department of Planning and Environment
PlantNet: Plant name, ROTAP/Threatened Species, Spatial Search (10 km radius)	National Herbarium of New South Wales
EPBC Act Protected Matters Search Tool (10 km buffer)	Department of Climate Change, Energy, the Environment and Water

The following data was interrogated for the ecological assessment.

4.4.1 Geology

The NSW Seamless Geology dataset was compiled by Geoscience NSW (Department of Regional NSW) from the best available mapping for the whole of NSW. The mapping was reviewed in QGIS to investigate the geology of the study area and surrounding land.

4.4.2 Soil and Land Information

The *Australian Soil Classification Soil Type map of NSW*, Version 4, prepared by the Department of Planning, Industry and Environment, which provides soil types across NSW using the Australian Soils Classification (ASC) at Order level was reviewed to inform the soil landscapes that occur in proximity to the study area.

4.4.3 Vegetation Mapping

The State Vegetation Type Map (SVTM) is a regional-scale map of NSW Plant Community Types (PCTs). This map represents the current extent of each PCT, Vegetation Class and Vegetation Formation across all tenures in NSW. The map is updated periodically as part of the Integrated BioNet Vegetation Data program to improve quality and alignment to the NSW vegetation classification hierarchy. The current release represents the first state-wide vegetation coverage using the NSW vegetation classification hierarchy, including the revised eastern NSW PCT classification C1.1. This mapping data may be used as a guide to the occurrence and distribution of PCTs, Vegetation Classes, and Vegetation Formations, before and after clearing. It should be noted that the mapping has several issues that will be addressed in future SVTM versions, including:

- PCT attribution errors – corrected as better information becomes available;
- Spatial errors or omissions (gaps and slithers or mapping linework inaccuracies);
- Eastern NSW PCT classification topologies differ from central and western NSW classification topologies;
- Some PCTs mapped as part of earlier regional coverages have since been discontinued;
- Some PCTs approved in BioNet have not been mapped due to technical issues;
- Spatial and data gaps and discontinuities may occur at the edges of former regional coverages; and
- Pre-clearing coverage for central NSW is not currently available.

4.4.4 BioNet Atlas and Vegetation Classification

The BioNet Atlas database was searched to inform of threatened species records within a 0.1° by 0.1° (approximately 10 km x 10 km) default search area around the study area. This information was used to inform:

- The threatened species recorded locally; and
- The proximity of any threatened species records to the study area.

The Bionet Vegetation Classification application was used in conjunction with the SVTM to identify and assign Plant Community Type (PCT) designation to the plant communities occurring in proximity to the study area. Flora assemblage data collected during the field survey was subsequently used to verify the PCT(s) occurring within the study area.

4.4.5 Biodiversity Values Map

The Biodiversity Offsets Scheme does not apply to Part 5 developments. However, in order to exercise due diligence, the Biodiversity Values Map was reviewed to determine if any land mapped as being of high biodiversity value occurred in proximity to the study area.

4.4.6 PlantNet Database

The PlantNet database, which provides botanical information derived from the *Flora of New South Wales* was utilised for identification of flora species.

4.4.7 EPBC Act Matters of National Environmental Significance

The Protected Matters Search Tool (PMST) was utilised to generate a report that provides general guidance on Matters of National Environmental Significance (MNES) and other matters protected by the EPBC Act around the study area employing a ten kilometre buffer. This included consideration of the *EPBC Act referral guidelines for the vulnerable koala* where potential impacts to koala habitat or preferred koala food trees are likely to occur.

4.4.8 EPBC Act Koala Referral Guidelines Assessment

Koala (*Phascolarctos cinereus*) populations in Queensland (QLD), New South Wales (NSW) and the Australian Capital Territory (ACT) have been listed as endangered under the EPBC Act. The Department of Climate Change, Energy, the Environment and Water (DCCEEW) has prepared guides to assist proponents in deciding whether a proposed action is likely to have a significant impact on the koala. In assessing the potential negative impacts of an action on the koala, the following points must be considered:

- the scale of the action and its impacts;
- the intensity of the action and its impacts;
- the duration and frequency of the action and its impacts;
- the environmental context, for example, the sensitivity, value, quality and size of the environment, the site's connectivity to other habitats in the broader landscape and its importance in the conservation of the environment;
- the nature of the potential impacts that are likely to result from your actions; and
- whether mitigation measures will avoid or reduce these impacts.

Referral Guidance:
These considerations should be analysed in the context of the endangered species criteria outlined in the *Significant Impact Guidelines 1.1*. In undertaking an assessment, a proponent must document their analysis and retain any records. Impacts to the environment must be avoided wherever possible. If environmental impacts resulting from a project are unavoidable, proposed mitigation measures and offset strategies need to be described as part of the assessment process. The *National Recovery Plan for the Koala* provides information on direct threats and ecologically threatening processes for the koala.

Following avoidance and mitigation of impacts, any unavoidable significant residual impacts must be compensated for through environmental offsets in accordance with the EPBC Environmental Offsets Policy. Offsets are typically designed to improve habitat values, create new areas of habitat and/or improve the connectivity of habitat in the landscape.

Significant Impact on the Listed Koala:
The *Significant Impact Guidelines 1.1* provide overarching guidance on determining whether an action is likely to have a significant impact on a matter protected under the EPBC Act. To determine if an action is likely to have a significant impact on an endangered species, a proponent must consider if there is a real chance or possibility that it will:

- lead to a long-term decrease in the size of a population;
- reduce the area of occupancy of the species;
- fragment an existing population into two or more populations;
- adversely affect habitat critical to the survival of a species;
- disrupt the breeding cycle of a population;
- modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;
- result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat;
- introduce disease that may cause the species to decline; or
- interfere with the recovery of the species.

Projects Not Requiring Referral:
Types of actions that involve clearing of koala habitat, but which do not generally need to be referred include:

- an action that has been granted an EPBC Act exemption on the grounds that the action is being undertaken to preserve human life or property or prevent those risks;

- clearing land for fire emergencies;
- clearing works to reduce the risk of bushfire outside of emergency situations, where the impact is not likely to have a significant impact on a matter of national environmental significance;
- clearing of individual or small groups (less than 10) of paddock trees, provided that these are not the only dispersal link between patches of habitat;
- certain agricultural activities;
- other minister issued exemptions.

Koala Habitat Identification:

For the purposes of the EPBC Act koala listing, locally important koala tree species can be used as a starting point to determine whether an area is likely to contain koala habitat. The *Review of Koala Habitat Assessment Criteria and Methods* guide includes information on feed trees in different regions, as well as survey methods to assess habitat. As koalas typically travel between trees via the ground, it too forms an essential component of koala habitat, as without the ground, movement between trees would be hindered or impossible.

Depending on the site and the extent of the proposed impact, surveys for koala by suitably qualified specialists may be necessary to identify sensitive areas and may help planning and engineering design teams to avoid or mitigate potential impacts. The survey methods and level of survey effort required will depend on the size and nature of the action and the availability and quality of information already available.

4.5 Ecological (Field) Survey

An investigation of the study area was undertaken on Thursday, 27 October 2022 to assess the flora and habitat within the study area as detailed below.

4.5.1 Flora Survey

The survey effort was focussed on the parts of the study area containing native vegetation, including those that were disturbed or comprised regrowth. Where native vegetation occurred within the study area, the following tasks (where applicable) were undertaken:

- Identification of the plant communities;
- Identification of species and populations;
- Targeted survey of threatened species where suitable habitat existed;
- Spatial distribution of the vegetation in the survey area;
- Assessment of the vegetation's condition; and
- Determination of the vegetation's conservation significance.

For the purposes of this ecological assessment a tree is defined as a perennial plant having a trunk diameter at breast height (DBH) of not less than 100 mm where DBH is the measurement of the trunk at 1.3 metres above ground level.

4.5.2 Habitat Assessment

The habitat assessment focused on the potential for species to occur within the survey area based on the type, suitability and condition of the habitat, and the habitat features present. Although recording threatened species during field survey can confirm their presence in an

area, the lack of threatened species records does not necessarily indicate that threatened species are absent. Threatened species tend to be rare and in many cases, are cryptic by nature, consequently they are often difficult to detect. Therefore, suitable habitat is a useful indicator and an important matter for consideration when determining the potential for the presence of threatened species. During the field survey, the following information was collected:

- Habitat type;
- Habitat features;
- Threatened species and populations likely to be present based on the type of habitat and the habitat features present; and
- Habitat connectivity and conservation significance (in relation to individuals, species, populations and communities where applicable).

4.6 Bush Fire Risk Assessment

The bush fire risk assessment was undertaken in accordance with the methodology prescribed under Appendix 1 of PBP. The following steps to determine the applicable bush fire attack level were undertaken:

- The vegetation formation was determined in all directions around the development site to a distance of 140 metres as per Keith (2004),
- The effective slope of the land around the development site over a distance of 100 metres was determined. Slopes were determined on site utilising a Suunto Tandem 360PC/360R DG clinometer. Slopes were verified by analysis of the topographic data from SIX Maps (NSW Spatial Services). Where the slopes exceeded the acceptable solutions (i.e. >20^{o}) or where greater detail was deemed necessary in relation to potential radiant heat levels, a performance approach was taken utilising the FLAMESOL calculator (as per Method 2 in AS 3959) to determine the radiant heat exposure;
- The relevant FFDI for the council area in which the development is to be undertaken was determined (as per A1.6 of PBP); and
- The applicable FFDI, vegetation formation and effective slope were matched to determine the BAL using the relevant tables in Appendix A of PBP (A1.12.5, A1.12.6 and A1.12.7).

4.7 Survey Limitations

The conclusions drawn in this report are based upon information obtained from the review of literature and database searches in conjunction with the findings of the ecological assessment undertaken of the study area at the time of the field investigation. These results are not exhaustive but rather are indicative of the environmental conditions, including the presence or otherwise of threatened species, populations and ecological communities. It should also be recognised that environmental conditions are dynamic and will change over the course of time. Habitat assessments were completed for all threatened species and populations identified in the database searches to determine whether suitable habitat exists within the study area. This is a precautionary approach that is likely to include cryptic species as well those that are otherwise difficult to detect.

4.8 Significance Tests and Assessments

Significance tests were carried out for threatened species, populations and ecological communities listed under the BC Act and Assessments of Significance prepared under the EPBC Act. In relation to the BC Act, the Test of Significance was undertaken in accordance with the *Threatened Species Test of Significance Guidelines* (NSW Office of Environment and Heritage, 2018). In relation to the EPBC Act, the significance assessments were undertaken in accordance with the *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* (Department of the Environment, Water, Heritage and the Arts, 2013).

5. Ecological Assessment Results

5.1 Desktop Analysis

5.1.1 Basement Geology

The geology mapping indicates that the study area occurs on the Abercrombie Formation from the early Ordovician Period, with an age range of 479.4 Ma to 458.4 Ma. The Abercrombie Formation is comprised of brown and buff to grey, thin to thick-bedded, fine to coarse-grained mica-quartz (feldspar) sandstone, interbedded with laminated siltstone and mudstone, as well as sporadic chert-rich units. An extract of the NSW Seamless Geology mapping in proximity to the study area is shown in Figure 3.

5.1.2 Soil Landscape Mapping

The Australian Soil Classification (ASC) soil type map of NSW indicates the study area is situated on a Dermosol soil landscape. Under the ASC, Dermosol soils are defined as soils other than Vertosols, Hydrosols, Calcarosols and Ferrosols that have B2 horizons with structure more developed than weak throughout the major part of the horizon and do not have clear or abrupt textural B horizons. The parent materials of Dermosols range from siliceous, intermediate to mafic in composition. Dermosols are moderately deep and well-drained soils that occur in the mountainous high rainfall zones of south-eastern Australia. They may be strongly acid in the high rainfall areas or highly alkaline if they contain calcium carbonate. Dermosols generally have high agricultural potential with good structure and moderate to high chemical fertility and water-holding capacity (Australian Soil Resource Information System).

The ASC soil type map indicates a Kandosol soil landscape occurs to the west of the study area, with the start of the site access (Plumwood Fire Tower Trail) occurring at the soil landscape margin. Kandosols are described as soils that lack strong texture contrast, have massive or only weakly structured B horizons, and are not calcareous throughout. The soils of this order range throughout the continent, often occurring locally as very large areas. Typically, these soils are found in poorly drained sites (yellow and grey kandosol) with rainfall between 300 mm and 1400 mm and in well-drained sites (brown and red kandosol) with rainfall between 250 mm and 1400 mm. Generally, Kandosols have low to moderate agricultural potential with moderate chemical fertility and water-holding capacity. An extract of the Australian Soil Classification Soil Type map of NSW for the land in proximity to the proposed NSWTA facility within the subject site is shown in Figure 4.

5.1.3 State Vegetation Type Map

The SVTM indicates that the land within most of the study area and surrounds is occupied by a Wet Sclerophyll Forest Formation (Grassy sub-formation) that is identified as PCT 3310: Gulaga Silvertop Ash Moist Forest. Under the Bionet Vegetation Classification, PCT 3310 is described as a very tall moist sclerophyll open forest restricted to rocky north-facing slopes of Mount Dromedary within the South East Corner bioregion. This PCT occurs at elevations of 300-750 metres asl in areas receiving 1050-1350 mm mean annual rainfall, on soils derived from monzonite of the Mount Dromedary Igneous Complex. A mid-dense tree canopy very frequently includes *Eucalyptus sieberi* (Silvertop Ash) with high cover, occasionally with

scattered *Eucalyptus cypellocarpa* (Monkey Gum). The mid-stratum almost always includes *Acacia longifolia* (Sydney Golden Wattle), commonly *Synoum glandulosum* subsp. *glandulosum* (Scentless Rosewood) and *Ozothamnus diosmifolius* (White Dogwood), occasionally with *Senecio linearifolius* (Fireweed Groundsel), *Persoonia linearis* (Narrow-leaved Geebung) or *Polyscias sambucifolia* (Elderberry Panax). The mid-dense to closed ground layer is commonly dominated by a high cover of *Pteridium esculentum* (Common Bracken) and a high diversity and cover of vines that very frequently includes *Billardiera scandens* (Hairy Apple Berry), *Eustrephus latifolius* (Wombat Berry), *Hibbertia dentata* (Trailing Guinea Flower) and *Smilax australis* (Lawyer Vine), commonly *Clematis aristata* (Old Man's Beard), *Kennedia rubicunda* (Dusky Coral pea) and *Tylophora barbata* (Bearded Tylophora), occasionally with *Geitonoplesium cymosum* (Scrambling Lily). Other ground layer plants commonly include *Tetrarrhena juncea* (Wiry Ricegrass), *Dianella caerulea* (Blue Flax-lily), *Schelhammera undulata* and *Viola hederacea* (Ivy-leaved Violet), occasionally with *Goodenia ovata* (Hop Goodenia).

The SVTM indicates that part of the southern part of the Plumwood Fire Tower trail occurs within an adjacent Wet Sclerophyll Forest Formation (Shrubby sub-formation) that is identified as PCT 3197: Southeast Hinterland Monkey Gum Moist Shrub Forest. Under the Bionet Vegetation Classification, PCT 3197 is described as a very tall moist shrubby sclerophyll open forest of minor headwater gullies and moist sheltered slopes on coastal and hinterland hills and ranges of the lower South East Corner bioregion. This PCT is distributed from Nadgee west to Nungatta, and north to Mount Donovan in Deua National Park. It occurs at elevations of 50-750 metres asl in locations receiving 850-1300 mm mean annual rainfall, on granitoid, acid volcanic and sandstone substrates. A mid-dense tree canopy very frequently includes *Eucalyptus cypellocarpa* (Monkey Gum) and or *Eucalyptus muelleriana* (Yellow Stringybark), with occasional *Eucalyptus obliqua* (Messmate). A sparse to mid-dense shrub stratum very frequently includes *Leucopogon lanceolatus*, occasionally with *Notelaea venosa* (Veined Mock-olive), *Elaeocarpus reticulatus* (Blueberry Ash), *Acacia cognata* (Bower Wattle), *Goodia lotifolia* (Golden Tip), *Coprosma quadrifida* (Prickly Currant Bush), *Cyathea australis* (Rough Tree-fern) or *Exocarpos strictus* (Pale-fruit Ballart). The ground layer is mid-dense to dense and includes a diverse mix of ferns, grasses, vines and forbs that very frequently includes *Pteridium esculentum* (Common Bracken), *Tylophora barbata* (Bearded Tylophora), *Viola hederacea* (Ivy-leaved Violet) and *Poa meionectes*. Other common species include *Clematis aristata* (Old Man's Beard), *Tetrarrhena juncea* (Wiry Ricegrass), *Goodenia ovata* (Hop Goodenia), *Billardiera scandens* (Hairy Apple Berry), *Gonocarpus teucrioides* (Raspwort), *Hierochloe rariflora* (Scented Holygrass), *Smilax australis* (Lawyer Vine), *Hibbertia dentata* (Trailing Guinea Flower) and *Lomandra longifolia* (Spiny-headed Mat-rush). Occasionally *Dianella caerulea* (Blue Flax-lily), *Blechnum cartilagineum* (Gristle Fern) or *Calochlaena dubia* (Rainbow Fern) may be present. This community often grades into PCT 3196 on nearby relatively dry exposed aspects. The State Vegetation Type Mapping in proximity to the study area is shown in Figure 5.

5.1.4 Biodiversity Values Map

The Biodiversity Values Map indicates that the development footprint (i.e. the existing cleared footprint containing the radiocommunications facility and fire tower) and adjacent land is not mapped as being of high biodiversity value. The nearest areas of mapped high biodiversity is a strip of riparian land associated with the Deua River, the nearest point of which is situated

approximately 250 metres to the south of the start of existing site access track (Plumwood Fire Tower Trail). The mapping indicates that this land is biodiverse riparian land. An extract of the Biodiversity Values Map showing the mapped high biodiversity value land in proximity to the site is shown in Figure 6.

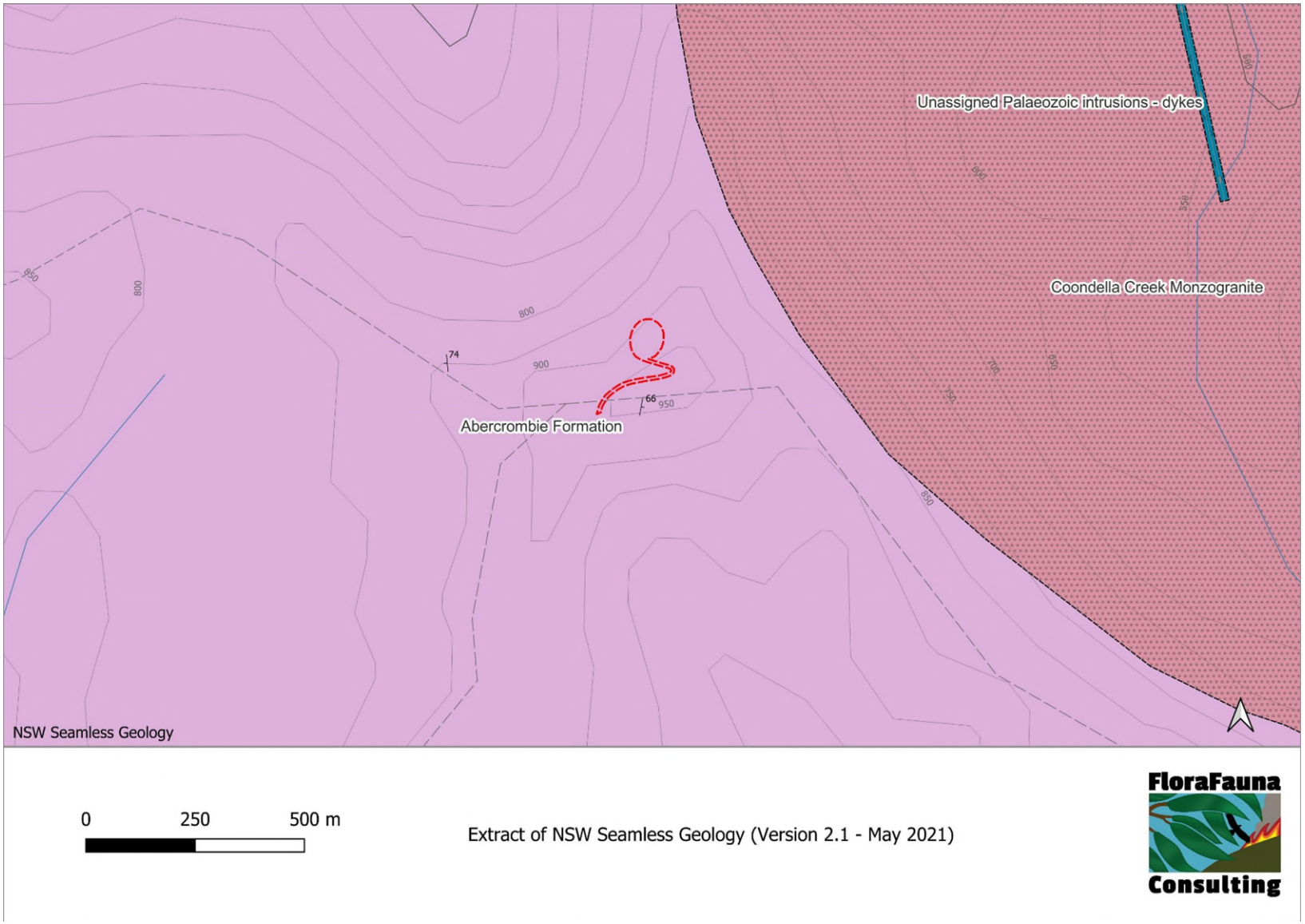


Figure 3: Extract of the NSW Seamless Geology mapping showing the geology occurring in proximity to the study area

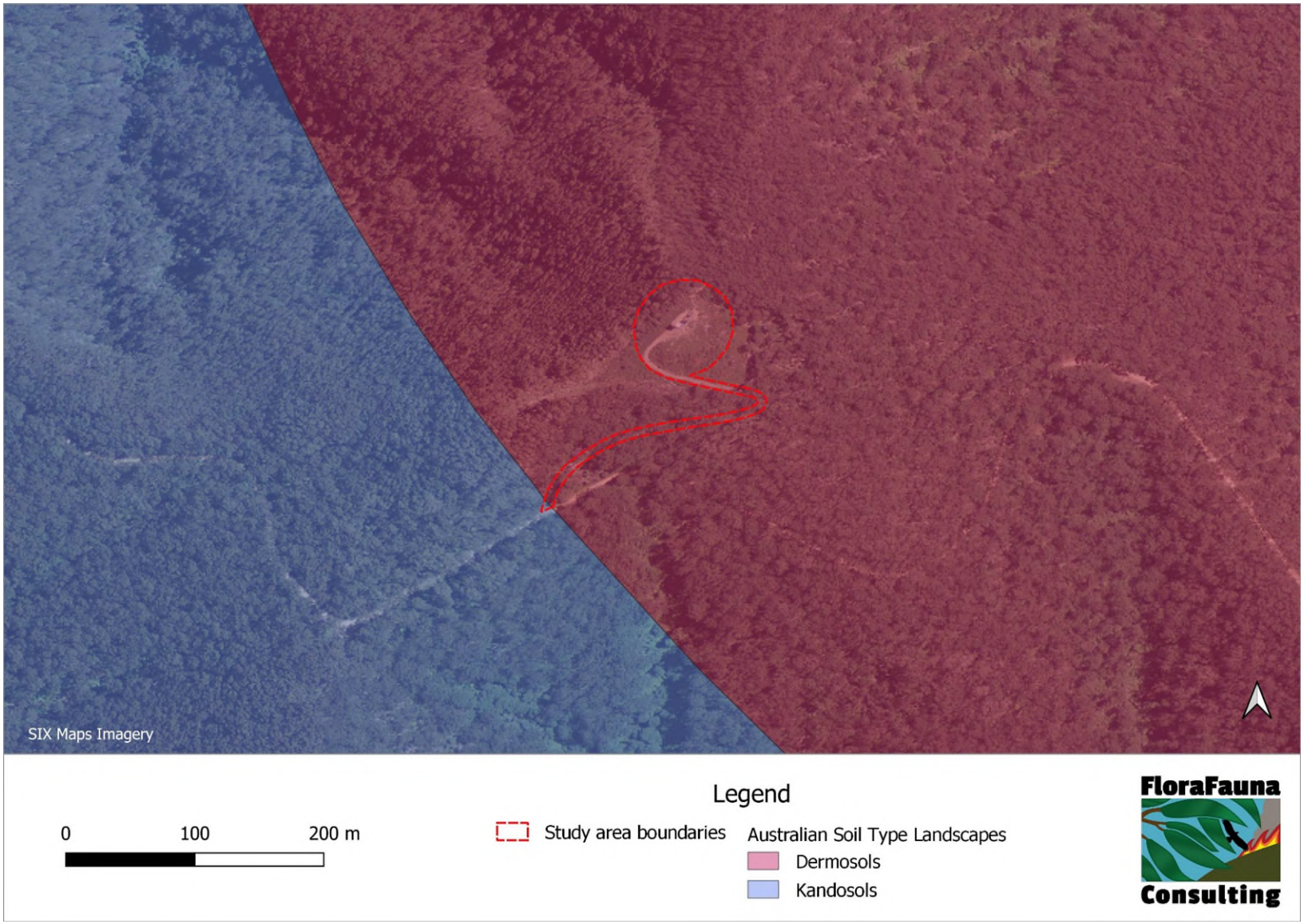


Figure 4: Australian Soil Type mapping in proximity to the study area

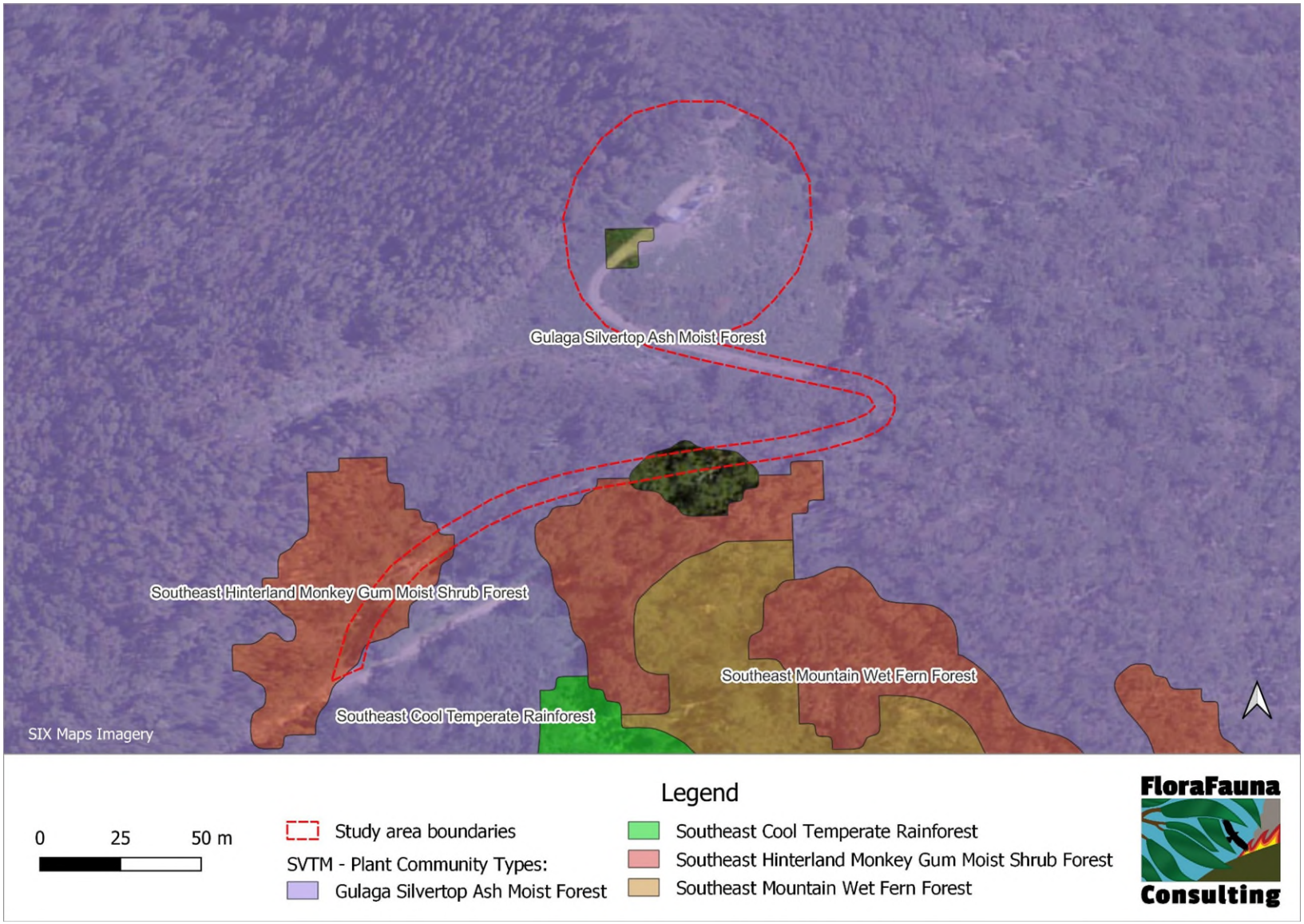


Figure 5: Extract of the State Vegetation Type Map showing the Plant Community Types (PCTs) in proximity to the study area

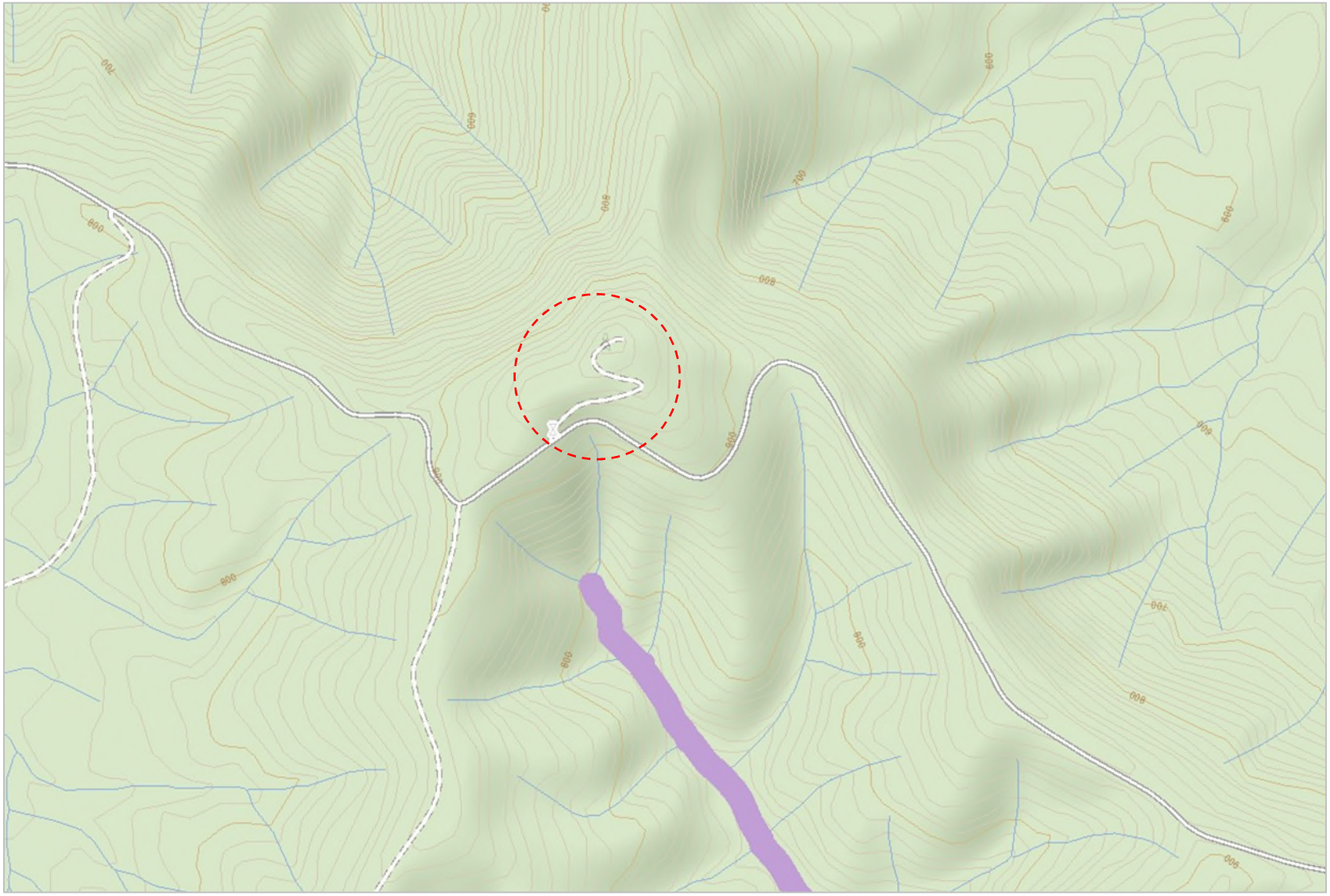


Figure 6: Extract of Biodiversity Values Map (areas of high biodiversity shown purple and location of study area circled)

5.2 Field Survey

5.2.1 Geology

Exposed rock outcropping within the study area and the surrounding landscape was siltstone or mudstone and confirmed the Seamless Geology mapping, which indicated the study area occurred on the Abercrombie Formation, comprising grey, thin to thick-bedded, fine to coarse-grained mica-quartz sandstone, interbedded with laminated siltstone and mudstone, and sporadic chert-rich units (see Figure 7).

5.2.2 Soil Landscape

Exposed soil observed in a test hole dug on land adjacent to the study area displayed a brown soil with a loam texture, which is consistent with a Dermosol soil type as per the soil landscape mapping (see Figure 8).

Figure 7: Exposed fragment of siltstone- mudstone located within the study area

Figure 8: Small excavation showing brown loamy soil typical of Dermosols

5.2.3 Flora Survey

Most of the land within the study area is cleared in association with the existing radiocommunications and fire tower infrastructure, with the remainder of the land nearer the margins containing a wet sclerophyll forest formation. The effects of the 2019-2020 bush fires, which impacted much the NSW coast and hinterland were clearly evident throughout the study area and surrounding land. During the flora survey it was noted that the vegetation in all strata was in a post-fire regenerative state. Hence, there was a reliance on observations of resprouts and juvenile individuals for the purposes of identification. The absence of fruit, which is typically used to identify eucalypts, and many individual plants being in a juvenile growth stage hindered identification of some species. In addition, due to a large proportion of the site being cleared and containing no canopy, the plants in the regenerating understorey and the groundcover have been exposed to frost, further hampering species identification. Some of the species recorded in the lower strata are considered to be fire ephemerals. Due to the limitations of the flora survey associated with the impacts of fire and frost exposure, the species recorded during the flora survey is likely to be an incomplete list of the assemblage that would typically occur at the site.

Within the study area and immediately adjacent land, the canopy had been severely burnt, with numerous trees killed by the fire. Identification of species in the canopy was hampered by the burnt condition of all individual trees, the almost complete absence of fruit, and foliage that was either present as juvenile leaves or was inaccessible for examination. The likely principal species in the canopy was *Eucalyptus sieberi* (Silvertop Ash). Species associated with a number of plant communities in the immediate surrounds are also likely occurrences, including *Eucalyptus cypellocarpa* (Monkey Gum) and *Eucalyptus muelleriana* (Yellow Stringybark).

Except for individuals of *Cyathea australis* (Rough Tree Fern), which were observed along the margins in the lower sections of the site access (Plumwood Fire Tower Trail), there were no living adult plants present in the upper understorey. Generally, the understorey stratum was reduced to low shrubs and juveniles of understorey and canopy species. In conjunction with *Cyathea australis* (Rough Tree Fern), the most abundant species recorded in the understorey along the lower sections of the site access was *Solanum hapalum*, which is considered to be a fire ephemeral that has colonised the area post fire in response to increased soil nutrients and light levels. Other species associated with the understorey recorded along the lower sections of the site access included *Bedfordia arborescens* (Blanket Leaf), *Acacia rubida* (Red-stemmed Wattle) and *Coprosma quadrifida* (Prickly Current Bush). An individual of *Doryphora sassafras* (Sassafras) that was likely a resprout was also recorded in the understorey at the margin of the site access. The more abundant species associated with the understorey in other (mostly cleared) parts of the study area included *Bedfordia arborescens* (Blanket Leaf), *Acacia rubida* (Red-stemmed Wattle), *Hakea sericea* (Needlebush), *Persoonia silvatica*, *Podolobium ilicifolium* (Prickly Shaggy Pea), *Daviesia ulicifolia* (Gorse Bitter Pea), *Leucopogon lanceolatus* var. *lanceolatus* and *Grevillea rhyolitica* subsp. *rhyolitica*. A single individual of *Pomaderris aspera* (Hazel Pomaderris) was also recorded.

The groundcover comprised an assemblage of perennial herbs, grasses, sedges and ferns. Along the lower sections of the site access, the more abundant species included *Hydrocotyle geraniifolia* (Forest Pennywort), *Lomandra confertifolia* subsp. *similis*, *Lomandra longifolia* (Spiny-headed Mat-rush), *Dianella tasmanica*, *Coronidium elatum*, *Senecio linearifolius* (Fireweed Groundsel), *Stellaria flaccida*, *Geranium potentilloides* var. *potentilloides*, *Gonocarpus tetragynus* (Poverty Raspwort), *Gonocarpus teucrioides* (Germander Raspwort), *Veronica notabilis* (Forest Speedwell), *Hierochloe rariflora* (Scented Holygrass), *Poa meionectes* and *Viola hederacea* (Ivy-leaved Violet). There was also a small number of exotic species in relatively low abundance recorded along the existing track surface, including *Conyza bonariensis* (Flaxleaf Fleabane), *Taraxacum officinale* (Dandelion), *Sonchus asper* (Prickly Sowthistle), *Dactylis glomerata* (Cocksfoot).

The more abundant species associated with the groundcover in the other, mostly cleared, parts of the study area included *Pteridium esculentum* (Common Bracken), *Lomandra longifolia* (Spiny-headed Mat-rush), *Wahlenbergia gracilis* (Sprawling Bluebell), *Geranium potentilloides* var. *potentilloides*, *Gonocarpus teucrioides* (Germander Raspwort), *Dianella caerulea* (Blue Flax-lily), *Dianella tasmanica*, *Juncus usitatus*, *Passiflora cinnabarina* (Red Passionfruit), *Poranthera corymbosa*, *Hierochloe rariflora* (Scented Holygrass), *Poa meionectes*, *Imperata cylindrica* (Blady Grass) and *Solanum silvestre*. The climber; *Smilax australis* (Lawyer Vine) was also relatively common. The complete list of flora species recorded within the study area during the flora survey are appended to this report as Appendix B.

5.2.4 Plant Community

The SVTM could not be verified conclusively due to the modified condition of the site, including previous land clearing in conjunction with the associated changes in environmental conditions, primarily associated with the remnant vegetation's exposure to frost and direct sun. In addition, the 2019-2020 bush fire that impacted the site and surrounding land was a high intensity fire that severely affected the vegetation. It has resulted in numerous trees in

the canopy being killed and those that are still alive being in a post regenerative condition. The understorey was essentially removed and is currently in a relatively early stage of regeneration. Overall, there has been a change in the species composition, with those species adapted to disturbance thriving in the post fire conditions while other species that may have formed a significant portion of the species assemblage now being absent or less abundant. Eventually, the plant communities are likely to recover, and the typical species assemblage restored. Currently however, there is a reliance on this modified species assemblage to make a determination on the likely PCT that occurs within the study area.

In the lower section of the site access, *Coprosma quadrifida* (Prickly Currant Bush) and *Cyathea australis* (Rough Tree-fern) were two of the principal species recorded in the understorey and *Gonocarpus teucrioides* (Raspwort), *Hierochloe rariflora* (Scented Holygrass) and *Lomandra longifolia* (Spiny-headed Mat-rush) were amongst the more common species recorded in the groundcover. All of these are diagnostic species associated with PCT 3197: Southeast Hinterland Monkey Gum Moist Shrub Forest, which is indicated in the SVTM. In the remaining parts of the study area, the SVTM indicates the vegetation as being PCT 3310: Gulaga Silvertop Ash Moist Forest. However, there were a lack of diagnostic species recorded during the flora survey to support this. Other PCTs occurring in the surrounding landscape were assessed for comparable diagnostic species, however no conclusive matches were found. It is considered that the species assemblage at the site is atypical of any particular locally occurring PCT and that this is largely due to the modified nature of the site as well as the post fire, regenerative condition of the vegetation. The landscape position and underlying geology suggest that the plant communities located within the study area are unlikely to be associated with any listed TEC. The following images show the vegetation occurring within and surrounding the study area.

Figure 9: View of the lower section of the site access with adjacent regenerating vegetation

Figure 10: View of the regenerating vegetation adjacent to the site access

Figure 11: View of the typical condition of trees in the canopy

Figure 12: Frost burnt vegetation (Bracken) in foreground and dead standing trees in background

Figure 13: View of the southern margin of cleared footprint and adjacent vegetation

Figure 14: Typical groundcover vegetation within the existing cleared footprint

Figure 15: View of the existing infrastructure and adjacent managed land

5.3 Habitat Assessment

The study area is located within a forest community at the summit of a mountain on sandstone (interbedded with laminated siltstone and mudstone) geology. At the time of the site assessment, the visible signs of the recent bush fire were evident within the study area and more widely in the surrounding forest habitats, including scorched earth, charring to tree trunks, epicormic regrowth and much of the understorey being either absent or comprised of plants that were standing but had been killed. Generally, the understorey was comprised of resprouts and immature plants that have regenerated from seed. Because regeneration of the fire impacted plant community had progressed by approximately 3-4 years, there was a well-developed groundcover stratum. The vegetation within the existing cleared footprint comprised only the groundcover and low shrubby understorey strata. More widely, numerous seedlings of species associated with the canopy and understorey strata were observed across the study area and adjacent forest.

Habitat features such as fallen trees and other woody debris were common in the surrounding forest habitats but were only observed infrequently within the existing cleared footprint. The entire study area other than the existing development footprint, immediately adjacent managed land and access track surface contains a rocky habitat comprised of exposed rock outcrops and rock fragments in which numerous crevices were observed. Some of this rock fragment habitat occurs right up to the existing compound, however the significant areas of exposed outcropping with crevices is located well clear of the proposed development footprint. Due to the longstanding cleared condition of the site, no other significant terrestrial habitat features such as fallen trees, hollow logs and other woody debris were recorded within the cleared parts of the study area. At the margins of the existing cleared footprint and adjacent to the site access, terrestrial habitat features typically associated with forest habitats were observed. Those that were present prior to 2019-2020 were impacted by the bush fire, while in many instances the features, such as fallen trees and woody debris are a direct result of the bush fire. Some trees in the adjacent forest contained visible hollows that may be utilised by a number of arboreal species. No trees are likely to be impacted by the proposed works. The proposed development footprint has been managed in association with the existing radiocommunications and fire tower infrastructure to prevent regrowth for a considerable period of time. The Biodiversity Values Map (see Figure 6) indicates that no part of the study area or immediately adjacent land is mapped as high biodiversity value. The following images show some of the habitat features observed within the study area.

Figure 16: Small rock fragments on the ground surface adjacent to the existing compound

Figure 17: Rock outcropping with crevices situated within the study area

Figure 18: Significant woody debris associated with the recent bush fire along the site access margins

Figure 19: Hollow-bearing tree located adjacent to the existing site access

5.4 Threatened Flora

5.4.1 Potential Occurrence

The BioNet Atlas indicated three records of two threatened flora species listed under the BC Act within the 0.1° by 0.1° (10 km x 10 km) default search area around the study area. The Protected Matters Search Tool report indicated 15 threatened species listed under the EPBC Act or their habitat may occur within a 10 kilometre buffer around the study area. The details of the threatened species of flora returned in the database searches and their potential occurrence within the study area are summarised in Table 3.

Table 3: Threatened flora returned in database searches

Species and Listing	Habitat and Distribution	Potential Occurrence
Asteraceae		
Calotis glandulosa (Mauve Burr-daisy) EPBC Act	Erect or ascending, branched herb to 35 cm high with ray florets white to blue; Distribution is centred on the Monaro and Kosciuszko regions; There are three known sites in the upper Shoalhaven catchment; Found in montane and subalpine grasslands in the Australian Alps	Unlikely
Xerochrysum palustre (Swamp Everlasting) EPBC Act	Perennial rhizomatous herb 45–100 cm high, florets yellow; Found in Kosciuszko NP and the eastern escarpment south of Badja. Also found in eastern Victoria; Confined to wet situations such as permanent swamps, which are often dominated by heath communities; Also grows at the edges of bog margins on peaty soils with a cover of shrubs	Unlikely
Grammitidaceae		
Grammitis stenophylla (Narrow-leaf Finger Fern) BC Act	Fern with rhizome erect or short creeping; Known from 30 locations across NSW, including 24 in conservations reserves; Common in several areas including Mount Warning Shield, the sandstone reserves of the lower Clarence, the granites of Washpool NP, Gibraltar Range NP and Nymbioda NP, and also Mt Jerusalem NP and Nightcap NP; Epiphytic or lithophytic, usually in montane rainforest and wet-sclerophyll forest	Unlikely
Haloragaceae		
Haloragis exalata subsp. *exalata* (Square Raspwort) EPBC Act	Shrub 1.5m tall with leaves lanceolate to oblong, usually 60–100 mm long and 13–25 mm wide, coarsely toothed; Disjunctly distributed in the Central Coast, South Coast and North Western Slopes botanical subdivisions of NSW; Occurs in protected and shaded damp situations in riparian habitats	Unlikely
Myrtaceae		
Eucalyptus aggregata (Black Gum) EPBC Act	Tree to 18m high; bark persistent, grey to grey-black, fibrous-flaky, throughout; Found in the NSW Central and Southern Tablelands, with small, isolated populations in Victoria and the ACT; Mainly in the wetter, cooler and higher parts of the tablelands; Grows on alluvial soils, on cold, poorly-drained flats and hollows adjacent to creeks and small rivers	Unlikely
Rhodamnia rubescens (Scrub Turpentine) EPBC Act	Shrub or small tree to 25m high, bark reddish brown, fissured; young stems densely tomentose; Occurs north from Batemans Bay to areas inland of Bundaberg, Qld; Mostly in coastal regions and occasionally extending inland up to 600 m with rainfall of 1,000-1,600 mm; Found in rainforest and its margins and wet sclerophyll forest	Unlikely

Orchidaceae		
Caladenia tessellata (Thick Lip Spider Orchid) EPBC Act	Terrestrial herb with leaf linear to lanceolate and cream-coloured petals with reddish stripes; Known from the Sydney area (old records), Wyong, Ulladulla and Braidwood in NSW; Populations in Kiama and Queanbeyan are presumed extinct; Occurs on the coast in Victoria from east of Melbourne to almost the NSW border; Generally found in grassy sclerophyll woodland on clay loam or sandy soils	Unlikely
Calochilus pulchellus (Pretty Beard Orchid) EPBC Act	Glabrous terrestrial herb with single upright sublinear leaf and pale green or greenish-yellow flowers with darker reddish striations; Recorded from three sites over a range of 40 km on the South Coast at altitudes from 20-560m asl; Cryptic nature, with a single leaf present above ground for only a few months and a flowering stem that lasts for a few days or a week; Appears to be associated with heath communities	Unlikely
Cryptostylis hunteriana Leafless Tongue Orchid) EPBC Act	Saprophytic terrestrial herb; Does not appear to have well defined habitat preferences but generally associated with swamp-heath on sandy soils, chiefly in coastal districts, south from the Gibraltar Range; The larger populations typically occur in woodland dominated by Scribbly Gum, Silvertop Ash, Red Bloodwood and Black Sheoak	Unlikely
Genoplesium vernale (East Lynne Midge-orchid) EPBC Act	Terrestrial tuberous herb with 10-25 flowers densely crowded onto a spike less than 4 cm long, on a thin round stem less than 25 cm tall, with individual flowers approximately 4 mm across and are dark purplish-black; Restricted to a narrow geographic range from near Mogo to west of Ulladulla; Occurs in dry sclerophyll forest	Unlikely
Polygonaceae		
Persicaria elatior (Tall Knotweed) EPBC Act	Erect herb to 90 cm high, stalked glandular hairs present on most parts, occasionally sessile glands present too; Rare, with very scattered occurrences along coastal NSW and in southeast Qld; Normally grows in damp places, especially beside streams and lakes; Occasionally in swamp forest or associated with disturbance	Unlikely
Rhamnaceae		
Pomaderris cotoneaster (Cotoneaster Pomaderris) EPBC Act	Shrub 1–2 m high, stems with a short whitish stellate tomentum; Disjunct distribution south from Mittagong district; Recorded in a range of habitats in predominantly dry sclerophyll forest; The habitats include forest with deep, friable soil, amongst rock beside a creek, on rocky forested slopes and in steep gullies between sandstone cliffs	Unlikely
Pomaderris gilmourii var. *cana* BC Act & EPBC Act	Shrub to 4m high with alternate elliptical leaves to 35 mm long by 2 mm wide and greyish-hairy on the lower surface, flowers are cream or yellow with 5 sepals (no petals), in clusters that are shorter than the leaves; Restricted to Deua NP; Grows on skeletal rhyolite outcrops, in open shrubland or forest	Unlikely
Pomaderris gilmourii var. *gilmourii* EPBC Act	Shrub to 4m high with leaves elliptical, to 35 mm long by 4-13 mm wide and alternate, leaf margins thickened, small five-lobed flowers are creamish to yellow, lack petals and form in clusters; Distributed within Deua NP throughout the east (in the vicinity of Coondella Trig and Mt Donovan) and west (in the vicinity of Bendethera); Occurs on skeletal rhyolite outcrops, in open shrubland or forest	Unlikely

Pomaderris parrisiae EPBC Act	Shrub or small tree to 9m high; new growth densely covered with appressed silvery simple hairs, older stems glabrescent; Distributed chiefly on the escarpment ranges, mostly from Kybean to Bemboka area; Found on skeletal soils in rocky shrubland or tall open forest	Unlikely
Rutaceae		
Correa baeuerlenii (Chef's Hat Correa) EPBC Act	Shrub 1–2.5m high with stems rusty-floccose; Recorded between Nelligen (on Nelligen Creek and the Buckenbowra River) and Mimosa Rocks National Park (Bega district); Occurs in riparian sites within in sclerophyll forest; It may also be found in near-coastal rocky sites	Unlikely
Santalaceae		
Thesium australe (Austral Toadflax) EPBC Act	Erect perennial herb to 40 cm high; Found in small populations scattered across eastern NSW, along the coast and from the Northern to Southern Tablelands; Also found in Tas, Qld and in eastern Asia; Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast; Widespread but rare	Unlikely

Based on the findings of the habitat assessment and the habitat requirements of the flora listed in Table 3, it is considered that none of the listed species are likely to occur at the site.

5.4.2 Threatened Flora Search Results

The flora survey was undertaken to catalogue as many flora species as possible. While it is acknowledged that the survey almost certainly failed to detect some species, it is considered unlikely that any threatened species of flora were present within the study area.

5.5 Matters of National Environmental Significance

Under the provisions of the EPBC Act, approval is required for any action that may have a significant impact on MNES or on Commonwealth land. A search of the DCCEEW website employing the PMST with a ten kilometre buffer was undertaken to identify the matters of NES that may occur in or may relate to the site. The EPBC Act Protected Matters Report is appended to this report as Appendix E.

5.5.1 Matters of National Environmental Significance

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Significance:	None
Great Barrier Marine Parks	None
Commonwealth Marine Areas:	None
Listed Threatened Ecological Communities:	6
Listed Threatened Species:	40
Listed Migratory Species:	12

i. Threatened Ecological Communities

Six threatened ecological communities were returned in the PMST report, including:

- Araluen Scarp grassy Forest;
- Brogo Vine Forest of the South east Corner Bioregion
- Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community;
- Lowland Grassy Woodland in the South East Corner Bioregion;
- Natural Temperate Grassland of the South Eastern Highlands;
- River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria.

Based on the landscape position, SVTM and species assemblage recorded during the flora survey, the vegetation within the study area is unlikely to be associated with any of the TECs listed above.

ii. Threatened Species

The threatened species returned in the Protected Matters Search Tool have been considered in the Assessment of Significance (see Appendix C).

iii. Migratory Species

The Protected Matters Search Tool report includes a small number of migratory terrestrial avian species, which are detailed in Table 4 and accompanying notes.

Table 4: PMST report terrestrial migratory species

Species	Common Name	BioNet Records	Potential Occurrence
Cuculus optatus	Oriental Cuckoo	0	Unlikely
Hirundapus caudacutus	White-throated Needletail	0	Unlikely
Monarcha melanopsis	Black-faced Monarch	0	Unlikely
Myiagra cyanoleuca	Satin Flycatcher	0	Unlikely
Rhipidura rufifrons	Rufous Fantail	1	Unlikely

Oriental Cuckoo

The Oriental Cuckoo breeds across much of Russia as well as in northern Kazakhstan, Mongolia, China, Korea and Japan. The species wintering range includes Australia where it inhabits forests. The BioNet Atlas database search indicated no records of the species within a 0.1° by 0.1° default search area around the study area. Potential habitat for the Oriental Cuckoo occurs in the surrounding area, however the proposed works site is situated in an existing cleared footprint, with adjacent vegetation being significantly disturbed and modified, which is unlikely to be suitable habitat for the species. As the proposed works will be confined to the cleared footprint it is unlikely that there will be a significant impact on the life cycle of the species.

White-throated Needletail

The White-throated Needletail is almost exclusively aerial, flying from less than one metre to more than 1000 metres. The species breeds in Central Asia and southern Siberia and migrates

south to the Indian Subcontinent, Southeast Asia and Australia during winter. For a time it was commonly believed that the species did not land while in Australia. However, it has now been observed that birds will roost in trees. The BioNet Atlas database search indicated no records of the species within a 0.1° by 0.1° default search area around the study area. Although the species occurs over most types of habitat, it is probably recorded most often above wooded areas. It is unlikely that the proposed works would impact significantly on the life cycle of the White-throated Needletail.

Black-faced Monarch

The Black-faced Monarch is widespread in eastern Australia. It exhibits migratory behaviour, spending spring, summer and autumn in eastern Australia, and wintering in southern and eastern Papua New Guinea from March to August. In NSW, the species occurs around the eastern slopes and tablelands of the Great Dividing Range. The Black-faced Monarch mainly occurs in rainforest ecosystems but is also sometimes found in open eucalypt forest (mainly wet sclerophyll forest), especially in gullies with a dense, shrubby understorey, less frequently in dry sclerophyll forest and woodland. The BioNet Atlas database search indicated no records of the species within a 0.1° by 0.1° default search area around the study area. Potential habitat for the Black-faced Monarch occurs in the surrounding area, however the proposed works site is situated in an existing cleared footprint, which is not suitable habitat for the species. As the proposed works will be confined to the cleared footprint it is unlikely that the proposed works would impact significantly on the life cycle of the species.

Satin Flycatcher

The Satin Flycatcher is migratory, moving north in autumn to spend winter in northern Australia and New Guinea then returning south in spring to spend summer in south-eastern Australia. The Satin Flycatcher inhabits heavily vegetated gullies in eucalypt-dominated forest and taller woodland, and on migration, occur in coastal forest, woodland, mangroves and drier woodland and open forest communities. The BioNet Atlas database search indicated no records of the species within a 0.1° by 0.1° default search area around the study area. The land within the study area has been previously cleared in association with existing infrastructure and is not considered to be suitable habitat for the Satin Flycatcher. Therefore, the proposed works are unlikely to have a significant impact on the life cycle of the species.

Rufous Fantail

The Rufous Fantail is migratory, being virtually absent from south-east Australia in winter. In south-east Australia, departure from the breeding areas is usually March to early April. A few birds remain in all months, but most spend the winter in coastal lowlands and offshore islands in south-east Queensland, north to Cape York Peninsula, Torres Strait Island. Some birds also migrate as far north as south Papua New Guinea. In east and southeast Australia, the Rufous Fantail mainly inhabits wet sclerophyll forest, often in gullies. The species also occurs in subtropical and temperate rainforest. The BioNet Atlas database search indicated five records of the Rufous Fantail within a 0.1° by 0.1° default search area around the study area. The land within the study area has been previously cleared in association with existing infrastructure and is not considered to be suitable habitat for the Rufous Fantail. Therefore, the proposed works are unlikely to have a significant impact on the life cycle of the species.

5.5.2 Other Matters Protected by the EPBC Act

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

5.5.3 Extra Information

State and Territory Reserves:	1
Regional Forest Agreements:	1
Nationally Important Wetlands:	None
EPBC Act Referrals:	4
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

None of the above matters are applicable to the proposed works site.

5.6 EPBC Act Koala Referral Assessment

The BioNet Atlas database search indicated no records of the koala within a 0.1° by 0.1° search area around the proposed NSWTA radiocommunications facility site at the Plumwood Fire Tower site within Deua National Park. The absence of koala records suggests there is no discernible population of the species in the local area. The *National Recovery Plan for the Koala* defines koala habitat by the availability and nutritional quality of food trees, presence of suitable resting trees and microclimates, age structure of vegetation, history, and impediments to dispersal. These factors differ regionally because they are strongly influenced by local climatic and landform attributes. While precise requirements vary regionally and locally, koala habitat can be considered in terms of the following multi-scale resource requirements in space and time:

- the selection by koalas of individual trees for food and shelter and other resources within their home range;
- patch size, form, and context of home ranges within the landscape, including patches of forest, riparian, linear and roadside vegetation associations, open ground, corridors, and scattered paddock trees used for breeding or dispersal;
- at larger scales, the regional landscape in which a metapopulation exists; and
- the geographic range of the koala.

The SVTM identifies the plant communities occurring in proximity to the proposed works site as PCT 3197: Southeast Hinterland Monkey Gum Moist Shrub Forest and PCT 3310: Gulaga Silvertop Ash Moist Forest. Three tree species associated with these PCTs, including *Eucalyptus cypellocarpa* (Monkey Gum), *Eucalyptus muelleriana* (Yellow Stringybark) and

Eucalyptus obliqua (Messmate) are listed as locally important koala trees in the Central NSW Coast Koala Management Biogeographic Region under the document; *Review of koala habitat assessment criteria and methods*. Additionally, *Eucalyptus sieberi* (Silvertop Ash), which is the principal species in the canopy of PCT 3310 is listed as an ancillary habitat species under the *Review of koala habitat assessment criteria and methods* document.

The site is located within Deua National Park, on the coastal ranges of south-eastern NSW to the west of Moruya. The park has an area of 122,033 hectares and is a component of the South Coast Escarpment Parks comprising Monga National Park, Deua National Park, Wadbilliga National Park, Gourock National Park and Badja Swamps Nature Reserve. Collectively, these reserves cover an extensive area of more than 250,000 hectares. The proposed development footprint is situated on previously cleared land with the adjacent vegetation being significantly impacted by the 2019-2020 bush fire. No trees are situated within the proposed development footprint or are located such that they would be disturbed by the proposed works. Given the absence of koala records, doubts about the occurrence of a local population of the species in the general area and the unsuitability of the habitat within the development footprint, the impacts on the koala associated with the proposal are considered to be negligible. Therefore, referral to DCCEEW is considered to be unnecessary in this instance.

5.7 Significance Tests

From the habitat assessment and database/literature review, it was considered that 10 threatened species listed under the BC Act and five threatened species listed under the EPBC Act could potentially utilise the habitat within the study area. The Significance Tests prepared in accordance with section 7.3 of the BC Act and Assessments of Significance prepared in accordance with the EPBC Act Matters of National Environmental Significance – Significant Impact Guidelines 1.1 are appended to this report as Appendix C. All threatened species listed under the BC Act returned in the Bionet database search is appended to this report as Appendix E. The MNES report detailing the potential nationally listed threatened species is appended to this report as Appendix E.

6. Bush Fire Risk Assessment

The bush fire risk assessment has been undertaken for the proposed NSWTA radiocommunications facility as detailed on the overall site plan and site setout plan prepared by Catalyst ONE, reference No. GRN-DEUA-DWG-INF-STE-04/05.

6.1 Vegetation Assessment

The vegetation in proximity to the proposed development site is highly modified and disturbed in association with past clearing for bush fire protection of existing adjacent infrastructure, including an existing NPWS/RFS radiocommunications facility and a Forests Corporation fire tower. The vegetation within the existing cleared footprint has no canopy or significant understorey strata and the groundcover is maintained to a low height. The vegetation adjoining the cleared footprint comprises dry and wet sclerophyll forest communities. Based on the Keith vegetation formation descriptions provided under A1.2 of PBP, the vegetation formation within 140 metres around the development footprint incorporating the proposed NSWTA radiocommunications facility site was determined as being forest in all directions. Full details of the vegetation occurring within the development footprint and on the surrounding land are provided in the flora survey results under section 5.2 of this report.

6.2 Effective Slope

The effective slope is the slope of the land under the classified vegetation as this is the slope that directly influences bush fire behaviour including the rate of spread, the severity of the fire and the level of radiant heat. The effective slope was determined during the site assessment using a Suunto Tandem 360PC/360R clinometer and validated by Six Map topographic data produced by Spatial Services (NSW Government). The site is characterised by moderate to steep slopes on the adjacent land. The effective slopes in each direction as determined on site are summarised in Table 5 below.

Table 5: Effective slope applicable to the proposed development

Direction	Slope (degrees)
North	40
Northeast	35
East	24
Southeast	16
South	25
Southwest	12
West	26
Northwest	43

The slopes in all directions tended to be less in proximity to the development footprint (i.e. near the mountain summit) then increased dramatically over the sides. Six Map imagery showing the ten metre contours around the proposed development footprint is shown in Figure 20 on page the following page.

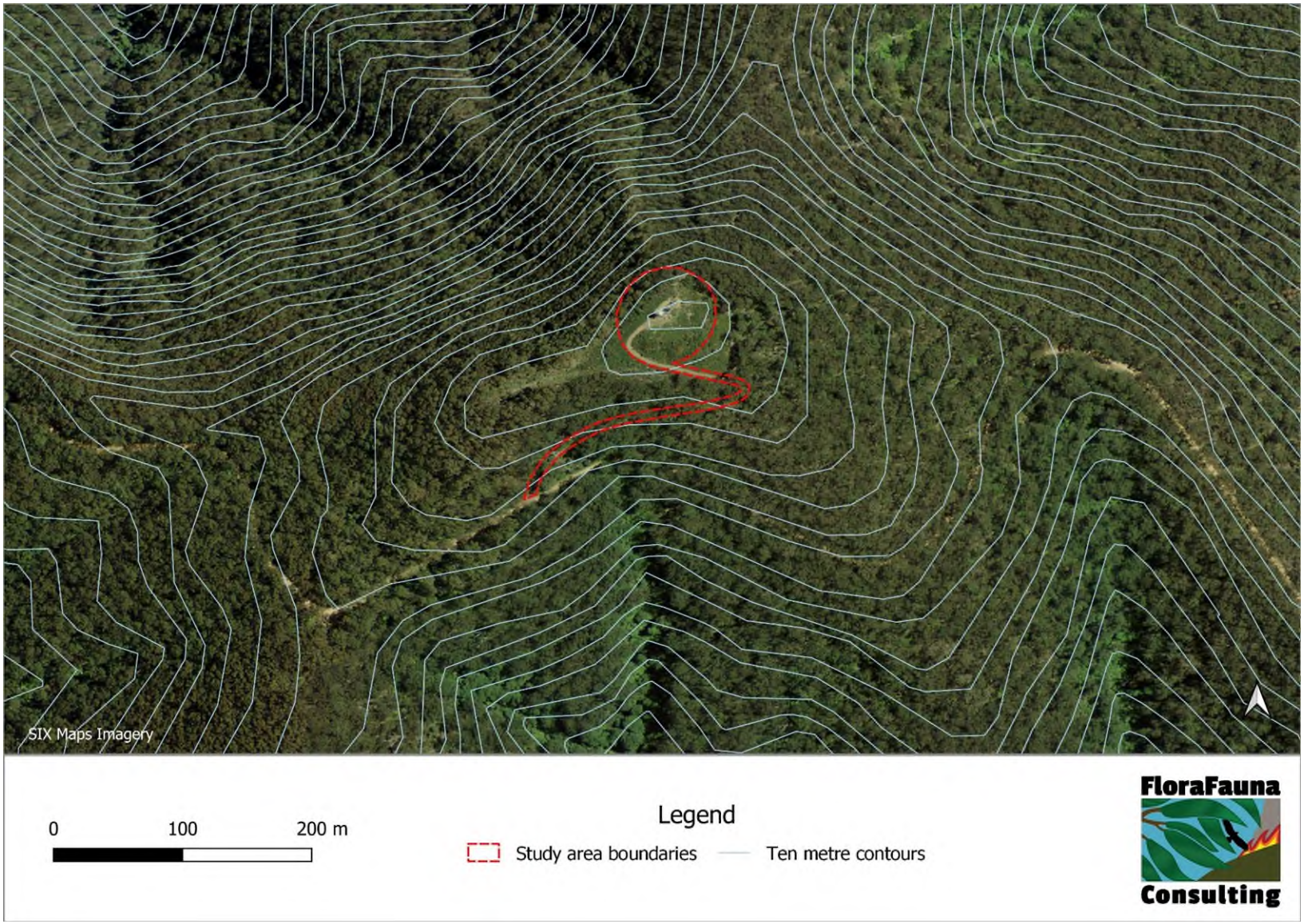


Figure 20: Aerial image with contours showing slopes in proximity to the development footprint

6.3 Forest Fire Danger Index (FFDI)

The FDI for the Far South Coast, including the areas in and around Deua National Park is FFDI 100.

6.4 Separation

Separation of variable distance between the proposed NSWTA radiocommunications facility and the surrounding classified vegetation is provided by the existing cleared footprint as shown in Figure 21, which is subject to an ongoing management regime. It is proposed to utilise the existing cleared land for the purposes of an APZ as bush fire protection for the NSWTA facility. No expansion of the existing managed land is proposed. The separation distances between the infrastructure and the classified vegetation is summarised in Table 6 below.

Table 6: Summary of separation distances around the proposed NSWTA facility

Direction	Separation (metres)
North	20
Northeast	15
East	20
Southeast	35
South	55
Southwest	65
West	20
Northwest	15

NOTE: Measurements are from the position of the proposed NSWTA facility infrastructure or existing infrastructure to be utilised by the NSWTA facility.

6.5 Bush Fire Attack Level (BAL) Determination

This assessment recommends that the existing cleared footprint around the proposed NSWTA facility be maintained as an APZ. This will require continued management of the vegetation and maintaining the groundcover to as low as reasonably practical in all directions around the proposed facility. The BAL and radiant heat flux applicable to the proposed NSWTA radiocommunications facility is based on the separation provided by the extent of the existing cleared footprint, which is summarised in Table 7.

Table 7: Summary of the applicable radiant heat exposure and BAL (as per PBP Table A1.12.5)

Direction	Flamesol	BAL
North	76.03 kW/m²	BAL-FZ
Northeast	76.03 kW/m²	BAL-FZ
East	76.03 kW/m²	BAL-FZ
Southeast	59.95 kW/m²	BAL-FZ
South	76.03 kW/m²	BAL-FZ
Southwest	17.12 kW/m²	BAL-19
West	76.03 kW/m²	BAL-FZ
Northwest	76.03 kW/m²	BAL-FZ

The bush fire risk assessment has determined that the bushfire attack level that the proposed NSWTA facility is likely to be exposed to as per Table A1.12.5 of PBP is BAL-FZ. Due to the wider separation and lesser effective slope, the bushfire attack level in the southwest direction is reduced to BAL-19. The characteristics of BAL-FZ are that significant radiant heat and significantly higher likelihood of flame contact from the fire front will threaten the integrity of infrastructure. The FLAMESOL calculator confirms the flame zone exposure, with potential radiant heat levels that the proposed facility may be exposed to if it were directly impacted by a bush fire being 76.03 kW/m^2, which is the maximum value that can be calculated.

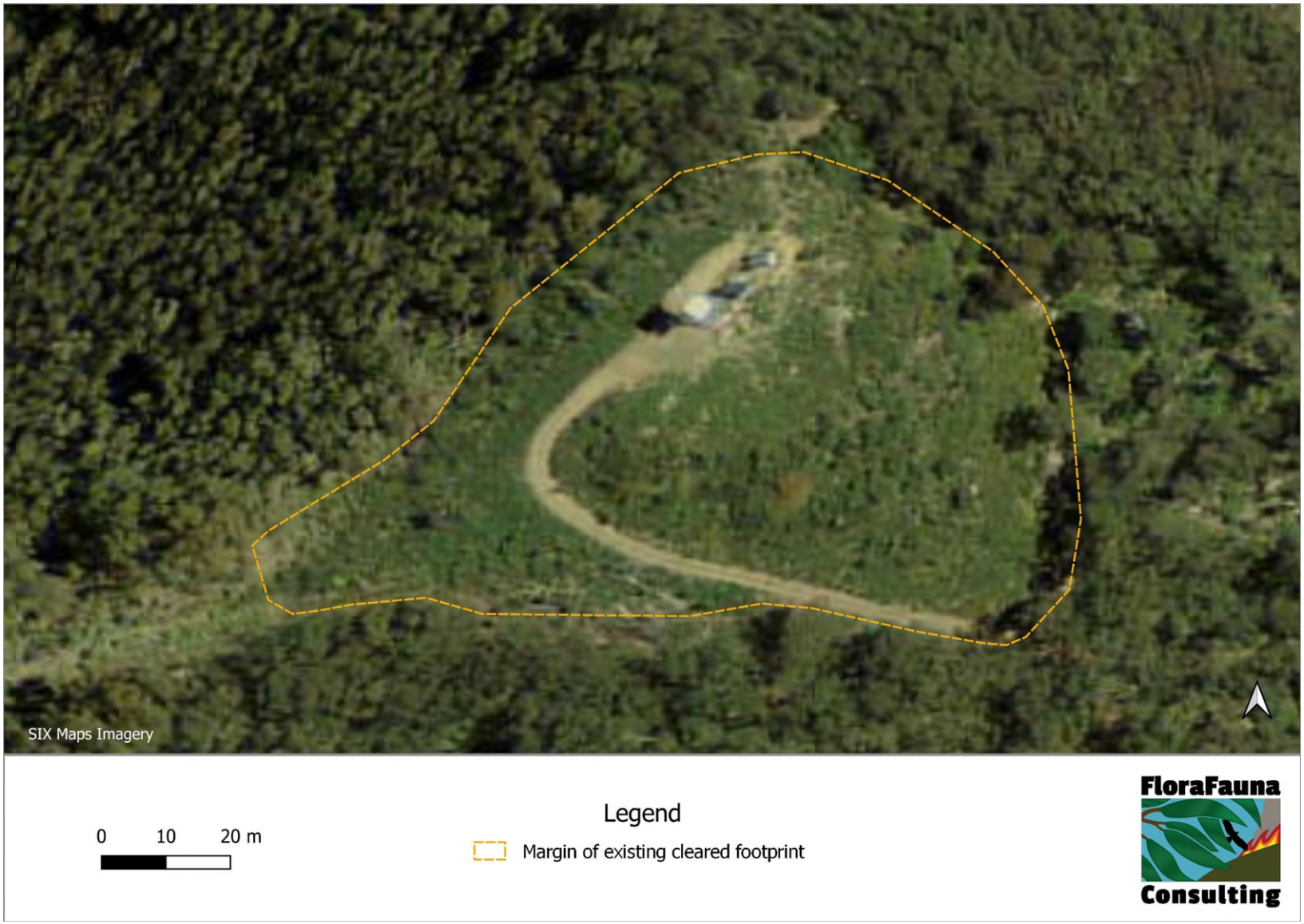


Figure 21: Extent of the existing cleared footprint

7. Impact Assessment

The proposed development of the site will involve the continued management of previously cleared vegetation on land that forms the existing cleared footprint in which the proposed NSWTA infrastructure will be located. The vegetation that will be the subject of ongoing management mostly comprises the groundcover stratum and regrowth of the understorey and canopy that have recolonised the site either from resprouts or the seed bank. The vegetation within the existing cleared footprint contains mostly native species with only a relatively small number of exotic species recorded during the flora survey. Due to the longstanding management of the existing cleared footprint, the vegetation therein is not associated with any one plant community, but rather appears to be an amalgam of species from some of the adjacent plant communities in conjunction with several species that are adapted to growing in disturbed, open habitats. No threatened species of flora were detected during the flora survey and given the longstanding management of the site, it is unlikely that any threatened species known to occur in surrounding habitats would be present.

8. Recommendations

The following mitigation measures are recommended for inclusion in the Review of Environmental Factors. The conclusions of this assessment assume that the measures are implemented and effective in mitigating impacts.

8.1 Vegetation/Habitat Protection Measures

The following measures are recommended to manage clearing:

- The extent of the works footprint is to be clearly marked (e.g., via pegging/fencing/flagging) before commencement of work in order to prevent any inadvertent harm to the adjacent vegetation and habitat. This fencing/marking is to remain until all work is completed;
- Site induction is to specify that no work is to occur beyond the marked area. All materials and equipment shall be placed in designated areas;
- Works are to avoid damage to root zones of all adjacent trees as per the requirements of Australian Standard; *AS 4970-2009 – Protection of trees on development sites*;
- The extent of the proposed works, including vegetation removal, is to be confined to the existing cleared footprint as indicated in the overall site plan prepared by Catalyst ONE, reference No. GRN-DEUA-DWG-INF-STE-04 and in Figure 21 of this report. No works are permitted outside this area without further assessment;
- Site access during construction and for future ongoing maintenance activities shall be confined to the existing site access road (Plumwood Fire Tower Trail); and
- Ongoing maintenance of the infrastructure shall be confined to the footprint of the facility (i.e. the NSWTA compound) as detailed in the site setout plan prepared by Catalyst ONE, reference No. GRN-DEUA-DWG-INF-STE-05.

8.2 Bush Fire Protection Measures

The following measures are recommended for bush fire protection of the proposed NSWTA radiocommunications facility:

- The extent of the cleared footprint to be managed as an APZ around the NSWTA facility shall be determined in consultation with the NPWS; and
- Bush fire protection measures, including design, asset protection zones, design for recovery/emergency planning and site reinstatement process shall be as per CCEP prepared by the NSW Telco Authority.

8.3 Protection of Fauna

Immediately prior to commencement of any work involving machinery, the area is to be inspected for fauna. If fauna is detected, the animal is to be allowed to leave the site without any coercion or a suitably qualified/experienced person is to be contacted to facilitate the safe removal of the animal from the worksite.

8.4 Sedimentation and Erosion Control

Standard soil and sedimentation control measures should be installed as necessary throughout the clearing works to ensure that habitats within the site and on adjacent land are not substantially affected by erosion and sedimentation.

8.5 Weed Control

Disturbance of the soil and earthworks has potential to encourage weed invasion. While it is acknowledged that the site has been colonised by a significant assemblage of weeds, efforts should be made to avoid exacerbating this further. Therefore it is recommended that:

- Any weeds that are present within the development footprint are to be removed and managed to prevent recolonisation;
- Weeds are not to be mulched with native vegetation and should be disposed of appropriately;
- Disturbance of vegetation and soil on the site should be restricted to the immediate areas of the proposed work and should not extend into adjacent vegetation; and
- Any new weed infestations that have developed during the work are to be removed.

8.6 Fencing

Temporary fencing may be required during the work. Any fencing required should be fauna friendly, permeable and not pose a barrier or risk of entanglement to fauna (e.g. post and plain wire).

9. Conclusion

This report describes the methods and results of an integrated ecological and bush fire risk assessment in relation to a proposed NSWTA radiocommunications facility at the Plumwood Fire Tower site, located within Deua National Park. The proposal is at a brownfield site involving an existing NPWS and RFS radiocommunications facility situated adjacent to the Forestry Corporation Fire Tower, at Plumwood within Deua National Park. The proposed NSWTA facility will comprise reuse of the existing RFS shelter to accommodate NSWTA equipment and a new generator shelter, stand-alone frame-mounted solar panels, 20 metre high monopole, associated electrical installation and extension of the existing compound.

The ecological assessment was undertaken in accordance with Part 5 of the EP&A Act. In this regard, the proponent is to consider the environmental factors listed in clause 171(2) of the EP&A Regulation. In addition, under the provisions of section 7.2 of the BC Act, proponents of Part 5 activities must apply the Test of Significance as per section 7.3 to determine whether the proposed activity is likely to significantly affect threatened species or ecological communities, or their habitats. If the activity is likely to have a significant impact or will be carried out in a declared area of outstanding biodiversity value, the proponent must either prepare a SIS or BDAR.

The geology mapping indicates that the study area occurs on the Abercrombie Formation, which is comprised of brown and buff to grey, thin to thick-bedded, fine to coarse-grained mica-quartz (feldspar) sandstone, interbedded with laminated siltstone and mudstone, as well as sporadic chert-rich units. The ASC soil type map of NSW indicates most of the site is situated on a Dermosol soil landscape, except for the western end (start) of the site access (Plumwood Fire Tower Trail), which is situated on a Kandosol soil landscape. Exposed rock and soil observed onsite during the field survey support the geology and soil landscape mapping. The SVTM indicates that the land within most of the study area and surrounds is occupied by a Wet Sclerophyll Forest Formation (Grassy sub-formation) that is identified as PCT 3310: Gulaga Silvertop Ash Moist Forest. The SVTM indicates that part of the southern part of the Plumwood Fire Tower Trail occurs within an adjacent Wet Sclerophyll Forest Formation (Shrubby sub-formation) that is identified as PCT 3197: Southeast Hinterland Monkey Gum Moist Shrub Forest.

The flora survey could not verify the SVTM with confidence due to the modified condition of the site, including previous land clearing in conjunction with the associated changes in environmental conditions, primarily associated with the remnant vegetation's exposure to frost and direct sun. In addition, the 2019-2020 bush fire that impacted the site and surrounding land was a high intensity fire that severely affected the vegetation, which has resulted in numerous trees in the canopy being killed and those that are still alive being in a post regenerative condition. The understorey was essentially removed and is currently in a relatively early stage of regeneration. Overall, there has been a change in the species composition, with those species adapted to disturbance thriving in the post fire conditions while other species that may have formed a significant portion of the species assemblage now being absent or less abundant. Eventually, the plant communities are likely to recover, and the typical species assemblage restored. In the lower section of the site access, several species

recorded during the flora survey are diagnostic species associated with PCT 3197: Southeast Hinterland Monkey Gum Moist Shrub Forest, which is indicated in the SVTM. However, in the remaining parts of the study area there was an absence of diagnostic species recorded during the flora survey to support the SVTM. Other PCTs occurring in the surrounding landscape were assessed for comparable diagnostic species, however no conclusive matches were found. It is considered that the species assemblage at the site is atypical of any particular locally occurring PCT and that this is largely due to the modified nature of the site as well as the post fire, regenerative condition of the vegetation. The landscape position and underlying geology suggest that the plant communities located within the study area are unlikely to be associated with any listed TEC. Furthermore, while it is acknowledged that the survey almost certainly failed to detect some species of flora, it is considered unlikely that any threatened species were present within the study area.

The habitat assessment determined that habitat features such as fallen trees and other woody debris were common in the surrounding forest habitats but were only observed infrequently within the existing cleared footprint. The entire existing cleared footprint other than the existing development footprint, immediately adjacent managed land and access track surface, contains a rocky habitat comprised of exposed rock outcrops and rock fragments in which numerous crevices were observed. Some of this rock fragment habitat occurs right up to the existing compound, however the significant areas of exposed outcropping with crevices is located well clear of the proposed development footprint. Due to the longstanding cleared condition of the site, no other significant terrestrial habitat features such as fallen trees, hollow logs and other woody debris were recorded within the existing cleared footprint. At the margins and adjacent to the site access, terrestrial habitat features typically associated with forest habitats were observed. Those that were present prior to 2019-2020 were impacted by the bush fire, while in many instances the features, such as fallen trees and woody debris are a direct result of the bush fire. Some trees in the adjacent forest contained visible hollows that may be utilised by a number of arboreal species. No trees are likely to be impacted by the proposed works. The proposed development footprint has been managed in association with the existing radiocommunications and fire tower infrastructure to prevent regrowth for a considerable period of time. The Biodiversity Values Map indicates that no part of the site or immediately adjacent land is mapped as high biodiversity value.

The bush fire risk assessment was undertaken in consideration of PBP and the RFS Practice Note, which has been prepared by the NSW Rural Fire Service to provide direction on the provision of bush fire protection measures that must be applied. Bush fire protection measures, including design, asset protection zones, design for recovery/emergency planning and site reinstatement process as per the CCEP prepared by the NSWTA will be initiated as required. The bush fire risk assessment has determined that the bushfire attack level that the development is likely to be exposed to as per Table A1.12.5 of PBP is BAL-FZ. This is despite an existing cleared area that is significantly larger than the minimum 10 metre wide APZ required under the Practice Note. The characteristics of BAL-FZ are that significant radiant heat and significantly higher likelihood of flame contact from the fire front will threaten the integrity of infrastructure. The provision of a 10 wide APZ around the proposed infrastructure in accordance with the RFS Practice Note will help to reduce these impacts. There is no intention of undertaking further clearing, nor should there be given the ecological significance of the site's location within a national park estate.

In consideration of the findings of the ecological assessment, it was determined that 10 threatened species listed under the BC Act and five threatened species listed under the EPBC Act could potentially utilise the habitat within the study area. The Significance Tests prepared in accordance with section 7.3 of the BC Act and Assessments of Significance prepared in accordance with the EPBC Act Matters of National Environmental Significance concluded that subject to the recommendations of this report, the proposed works are unlikely to have a significant impact on any threatened species, threatened ecological community or areas of outstanding biodiversity value.

10. References

Auld, B. A., Medd, R. W., 1992, *Weeds: An Illustrated Botanical Guide to the Weeds of Australia*, Reed International Books Australia, Port Melbourne, Australia

Australian Soil Club, 2022, Australian Soil Types and their Characteristics, retrieved from http://www.soil.org.au/soil-types.htm

Bibby, C. J., Burgess, N. D., Hill, D. A., 1992, *Bird Census Techniques*, Academic Press, New York

Boland, D. J., Brooker, M. I. H., Chippendale, G. M., Hall, N., Hyland, B. P. M., Johnston, R. D., Kleinig,

D. A., Turner, J. D., 1992, *Forest Trees of Australia*, CSIRO Publishing, Collingwood, Victoria, Australia

Churchill, S., 2008, *Australian Bats*, Allen and Unwin, Crows Nest, NSW, Australia

Cogger, H. G., 1986, *Reptiles and Amphibians of Australia*, Reed Books Pty Ltd, Sydney, Australia

Costermans, L., 2008, *Native Trees and Shrubs of South-Eastern Australia*, New Holland Publishers, Australia

Cropper, S. C., 1993, *Management of Endangered Plants*, CSIRO Publishing, Collingwood, Victoria, Australia

CSIRO, 2022, The Australian Soil Classification, clw.csiro.au/aclep/asc_re_on_line_V2/soilhome.htm

Department of Environment and Climate Change, 2008, *Recovery Plan for the koala (Phascolarctos cinereus)*

Department of Climate Change, Energy, the Environment and Water, 2023, Australian Biological Resource Study, from; https://www.dcceew.gov.au/search?search_api_fulltext=fauna

Department of Climate Change, Energy, the Environment and Water, 2023, EPBC Act Protected Matters report, retrieved from; http://www.environment.gov.au/epbc/pmst/index.html

Department of Environment, 2014, *EPBC Act referral guidelines for the vulnerable koala (combined populations of Queensland, New South Wales and the Australian Capital Territory)*

Gleeson, J., Gleeson, D., 2012, *Reducing the Impacts of Development on Wildlife*, CSIRO Publishing, Collingwood Victoria, Australia

Floyd, A. G., 2008, *Rainforest Trees of Mainland South-eastern Australia*, Terania Rainforest Publishing, Australia

Greig, D., 1999, *Field Guide to Australian Wildflowers*, New Holland Publishers, Chatswood, Australia

Harden, G. J., McDonald, W. J. F., Williams, J. B., 2007, *Rainforest Climbing Plants: A Field Guide to Their Identification*, Gwen Harden Publishing, Nambucca Heads, Australia

Harden, G. J., McDonald, W. J. F., Williams, J. B., 2006, *Rainforest Trees and Shrub: A Field Guide to their Identification*, Gwen Harden Publishing, Nambucca Heads, Australia

Harden, G. J., Ed, 2000 (revised), *Flora of New South Wales*, University Press, Sydney, Australia

Jones, D. L., 2006, *Native Orchids of Australia*, Reed New Holland, Sydney, Australia

Klaphake, V., 2004, *Key to the Commoner Species of Sedges and Rushes of Sydney and the Blue Mountains*, Byabarra, NSW, Australia

Keith, D., 2004, *Ocean Shores to Desert Dunes: The Native Vegetation of New South Wales and the ACT*, Department of Environment and Conservation, Hurstville, NSW Australia

Lamp, C. A., Forbes, S. J., Cade, J. W., 2001, *Grasses of Temperate Australia: A Field Guide*, Bloomings Books, Melbourne, Australia

Mackowski, C. M., 1984, The ontogeny of hollows in Blackbutt, *Eucalyptus pilularis* and its relevance to the management of forests for possums, gliders and timber, in *Possums and Gliders*, Eds. Smith, A. P., Hume, I. D., pp. 517-525, Surrey, Beatty and Sons, Sydney

Mallet, K., Orchard, A. E., Eds., 2002, *Flora of Australia Volume 43 Poaceae 1 Introduction and Atlas*, CSIRO Publishing, Collingwood, Australia

Mallet, K., Ed. 2005, *Flora of Australia Volume 44B Poaceae 3*, CSIRO Publishing, Collingwood, Australia

Menkhorst, P., Knight, F., 2004, *A Field Guide to the Mammals of Australia*, Oxford University Press, Melbourne, Australia

National Parks and Wildlife Service, 2003, *The Bioregions of New South Wales Their biodiversity, conservation and history*, National Parks and Wildlife Service (NSW), Hurstville

NSW Government, 2023, SEED Portal, reviewed at; http://www.seed.nsw.gov.au

NSW Department of Planning and Environment, 2023, Bionet Atlas, retrieved from; http://www.bionet.nsw.gov.au

NSW Department of Planning and Environment, 2022, Threatened Species Search Site, retrieved from; www.environment.nsw.gov.au/threatened species

NSW Rural Fire Service, 2011, *Practice Note 1/11 – Telecommunication Towers in Bushfire Prone Areas*, NSW Rural Fire Service, Sydney Olympic Park

NSW Rural Fire Service, 2019, *Planning for Bush Fire Protection 2019*, NSW Rural Fire Service, Sydney Olympic Park

NSW Telco Authority, 2019, *The Critical Communications Enhancement program: Bush Fire Risk Management Framework*, NSW Telco Authority, Sydney

Phillips, S., and Callaghan, J., 2011, The Spot Assessment Technique: a tool for determining localised levels of habitat use by koalas *(Phascolarctos cinereus)*, *Australian Zoologist 35*, pp. 774–780.

Richardson, F. J., Richardson, R. G., Shepherd, R. C. H., 2007, *Weeds of the South-East: An Identification Guide for Australia*, Second Edition, R. G. and F. J. Richardson, Victoria, Australia

Robinson, M., 1998, *A Field Guide to Frogs of Australia*, New Holland Publishers, Australia

Rose, H., Rose, C., 2012, *Grasses of coastal NSW*, NSW Department of Primary Industries, Sydney

Royal Botanic Gardens, 2022, PlantNet – Flora Online Spatial Search, retrieved from; plantnet.rbgsyd.nsw.gov.au/search/spatial.htm,

Schodde, R., Tideman, S. C., 1993, *Complete Book of Australian Birds*, Readers Digest Australia Ltd, Surrey Hills, NSW, Australia

Scott, D., 2003, *Key Habitats and Corridors for Forest Fauna; A landscape Framework for conservation in north-east New South Wales, Occasional Paper No. 32*, NSW National Parks and Wildlife Service, Hurstville

Slater, P., Slater, P., Slater, R., 2003, *The Slater Field Guide to Australian Birds*, New Holland Publishers, Australia

Strahan, R., Ed, 1998, *The Mammals of Australia*, New Holland Publishers, Sydney, Australia

Swan, G., Shea, G., Sadlier, R., 2004, *A Field Guide to Reptiles of New South Wales*

Triggs, B., 1996, *Tracks, Scats and Other Signs- A Field Guide to Australian Mammals*, Oxford University Press, Melbourne, Australia

Watson, D. M., 2003, The 'standardised search': An improved way to conduct bird Surveys, *Austral Ecology 28*, pp. 515-525

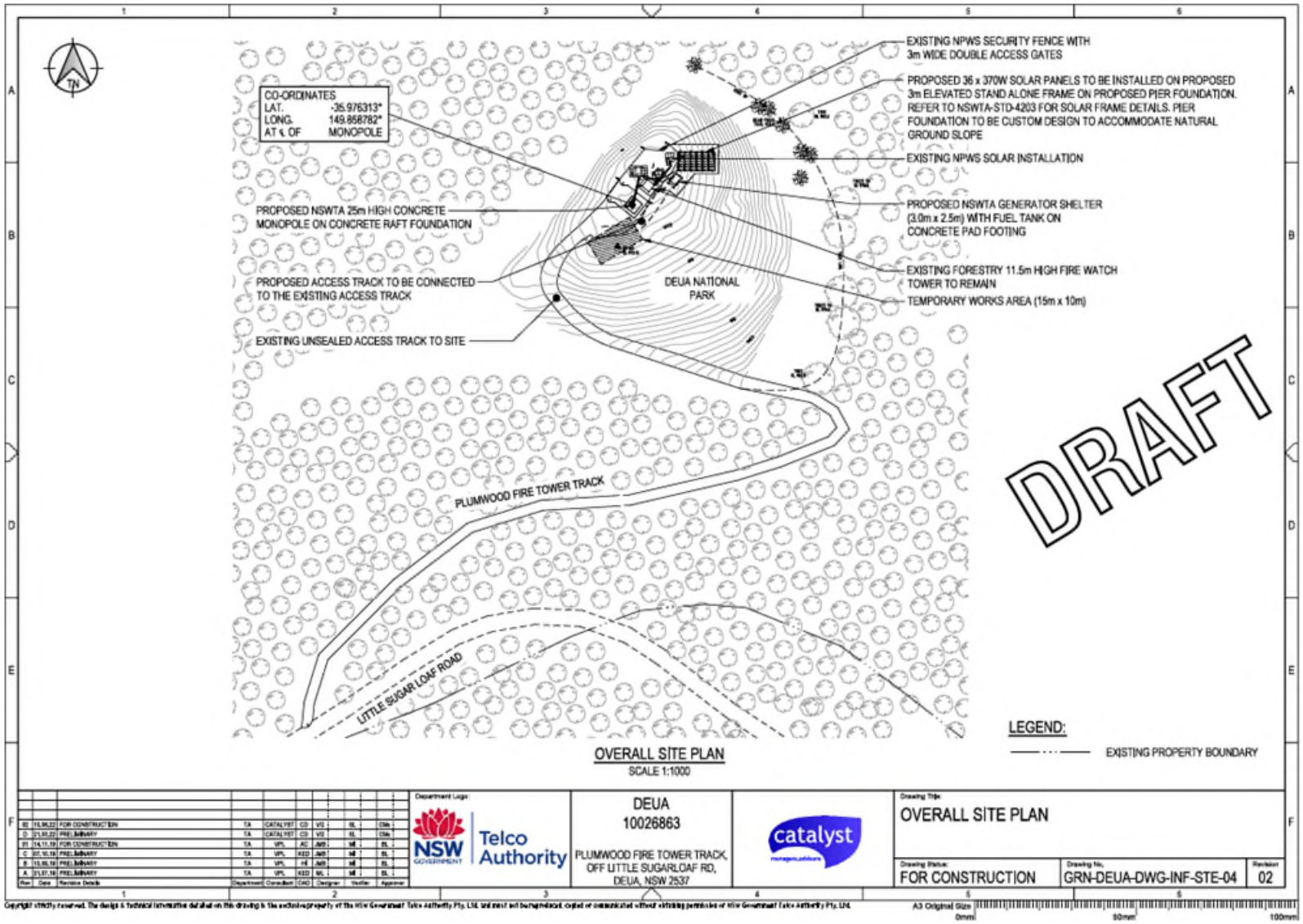
Wilson, A., Ed., 2009, *Flora of Australia Volume 44A Poaceae 2*, CSIRO Publishing, Collingwood, Australia

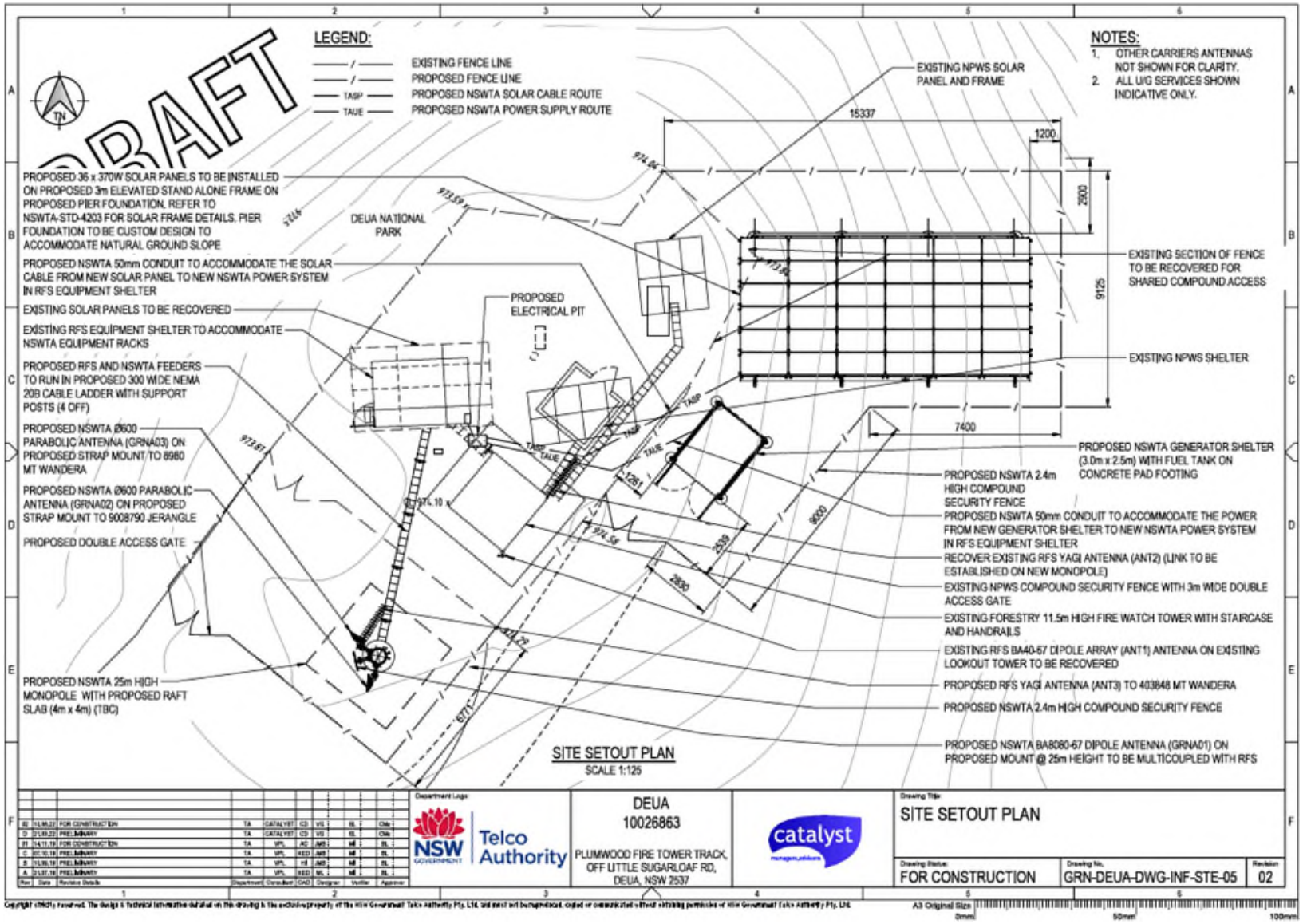
Wilson, S. K., Swan, G., 2005, *A Complete Guide to Reptiles of Australia*, Reed New Holland, Sydney, Australia

Woodgate, P. W., Ritman, K., Coram, J., Brady, A., Rule, A., Banks, J., 1994, A Study of Old-growth Forests of East Gippsland, Conservation and Natural Resources Department, Melbourne

Wormington, K., Lamb, D., 1999, Tree hollow development in wet and dry Sclerophyll eucalypt forest in south-east Qld, Australia, *Australian Forestry 62*, pp. 336-345

11. Appendix A: Site Plans




DRAFT
LEGEND:
EXISTING FENCE LINE
PROPOSED FENCE LINE
PROPOSED NSWTA SOLAR CABLE ROUTE
PROPOSED NSWTA POWER SUPPLY ROUTE
NOTES:
1. OTHER CARRIERS ANTENNAS NOT SHOWN FOR CLARITY.
2. ALL U/G SERVICES SHOWN INDICATIVE ONLY.
PROPOSED 36 x 370W SOLAR PANELS TO BE INSTALLED ON PROPOSED 3m ELEVATED STAND ALONE FRAME ON PROPOSED PIER FOUNDATION. REFER TO NSWTA-STD-4203 FOR SOLAR FRAME DETAILS. PIER FOUNDATION TO BE CUSTOM DESIGN TO ACCOMMODATE NATURAL GROUND SLOPE
PROPOSED NSWTA 50mm CONDUIT TO ACCOMMODATE THE SOLAR CABLE FROM NEW SOLAR PANEL TO NEW NSWTA POWER SYSTEM IN RFS EQUIPMENT SHELTER
EXISTING SOLAR PANELS TO BE RECOVERED
EXISTING RFS EQUIPMENT SHELTER TO ACCOMMODATE NSWTA EQUIPMENT RACKS
PROPOSED RFS AND NSWTA FEEDERS TO RUN IN PROPOSED 300 WIDE NEMA 20B CABLE LADDER WITH SUPPORT POSTS (4 OFF)
PROPOSED NSWTA Ø600 PARABOLIC ANTENNA (GRNA03) ON PROPOSED STRAP MOUNT TO 8980 MT WANDERA
PROPOSED NSWTA Ø600 PARABOLIC ANTENNA (GRNA02) ON PROPOSED STRAP MOUNT TO 9008790 JERANGLE
PROPOSED DOUBLE ACCESS GATE
PROPOSED NSWTA 25m HIGH MONOPOLE WITH PROPOSED RAFT SLAB (4m x 4m) (TBC)
EXISTING NPWS SOLAR PANEL AND FRAME
DEUA NATIONAL PARK
PROPOSED ELECTRICAL PIT
EXISTING SECTION OF FENCE TO BE RECOVERED FOR SHARED COMPOUND ACCESS
EXISTING NPWS SHELTER
PROPOSED NSWTA GENERATOR SHELTER (3.0m x 2.5m) WITH FUEL TANK ON CONCRETE PAD FOOTING
PROPOSED NSWTA 2.4m HIGH COMPOUND SECURITY FENCE
PROPOSED NSWTA 50mm CONDUIT TO ACCOMMODATE THE POWER FROM NEW GENERATOR SHELTER TO NEW NSWTA POWER SYSTEM IN RFS EQUIPMENT SHELTER
RECOVER EXISTING RFS YAGI ANTENNA (ANT2) (LINK TO BE ESTABLISHED ON NEW MONOPOLE)
EXISTING NPWS COMPOUND SECURITY FENCE WITH 3m WIDE DOUBLE ACCESS GATE
EXISTING FORESTRY 11.5m HIGH FIRE WATCH TOWER WITH STAIRCASE AND HANDRAILS
EXISTING RFS BA40-67 DIPOLE ARRAY (ANT1) ANTENNA ON EXISTING LOOKOUT TOWER TO BE RECOVERED
PROPOSED RFS YAGI ANTENNA (ANT3) TO 403848 MT WANDERA
PROPOSED NSWTA 2.4m HIGH COMPOUND SECURITY FENCE
PROPOSED NSWTA BA8080-67 DIPOLE ANTENNA (GRNA01) ON PROPOSED MOUNT @ 25m HEIGHT TO BE MULTICOUPLED WITH RFS
15337
1200
2900
9125
7400
1261
9000
2539
2830
SITE SETOUT PLAN
SCALE 1:125
Telco Authority
DEUA
10026863
PLUMWOOD FIRE TOWER TRACK, OFF LITTLE SUGARLOAF RD, DEUA, NSW 2537
catalyst
SITE SETOUT PLAN
FOR CONSTRUCTION
GRN-DEUA-DWG-INF-STE-05
02

12. Appendix B: Flora Species List

Table 8: Species of Flora recorded in the study area

Family	Species	Common Name
Apiaceae	*Hydrocotyle geraniifolia*	Forest Pennywort
Asparagaceae	*Lomandra confertifolia* subsp. *similis*	
	Lomandra longifolia	Spiny-headed Mat-rush
Asphodelaceae	*Dianella caerulea* var. *caerulea*	
	Dianella tasmanica	
Asteraceae	*Bedfordia arborescens*	Blanket Leaf
	*Conyza bonariensis**	Flaxleaf Fleabane
	Coronidium elatum	
	Senecio linearifolius	Fireweed Groundsel
	*Sonchus asper**	Prickly Sowthistle
	*Taraxacum officinale**	Dandelion
Atherospermataceae	*Doryphora sassafras*	Sassafras
Campanulaceae	*Wahlenbergia gracilis*	Sprawling Bluebell
Caryophyllaceae	*Stellaria flaccida*	
Cyatheaceae	*Cyathea australis*	Rough Treefern
Dennstaedtiaceae	*Pteridium esculentum*	Bracken
Ericaceae	*Leucopogon lanceolatus* var. *lanceolatus*	
Fabaceae (Faboideae)	*Daviesia ulicifolia*	Gorse Bitter Pea
	Podolobium ilicifolium	Prickly Shaggy Pea
Fabaceae (Mimosoideae)	*Acacia rubida*	Red-stemmed Wattle
Geraniaceae	*Geranium potentilloides* var. *potentilloides*	
Haloragaceae	*Gonocarpus tetragynus*	Poverty Raspwort
	Gonocarpus teucrioides	Germander Raspwort
Juncaceae	*Juncus usitatus*	
Myrtaceae	*Eucalyptus cypellocarpa*	Monkey Gum

	Eucalyptus muelleriana	Yellow Stringybark
	Eucalyptus sieberi	Silvertop Ash
Passifloraceae	*Passiflora cinnabarina*	Red Passionfruit
Phyllanthaceae	*Poranthera corymbosa*	
Pittosporaceae	*Billardiera scandens*	Hairy Apple Berry
Plantaginaceae	*Veronica notabilis*	Forest Speedwell
Poaceae	*Dactylis glomerata**	Cocksfoot
	Hierochloe rariflora	Scented Holygrass
	Imperata cylindrica	Blady Grass
	Microlaena stipoides var. *stipoides*	Weeping Grass
	Poa meionectes	
Proteaceae	*Grevillea rhyolitica* subsp. *rhyolitica*	
	Hakea sericea	Needlebush
	Persoonia silvatica	
Rhamnaceae	*Pomaderris aspera*	Hazel Pomaderris
Rubiaceae	*Coprosma quadrifida*	Prickly Currant Bush
Smilacaceae	*Smilax australis*	Lawyer Vine
Solanaceae	*Solanum hapalum*	
	Solanum silvestre	
Violaceae	*Viola hederacea*	Ivy-leaved Violet

* - Denotes an exotic species

13. Appendix C: Significance Tests

The threatened species recorded under the BC Act have been considered for potential occurrence within the study area and assessed under section 7.3 of the BC Act.

13.1 Test of Significance – BC Act

13.1.1 Recorded Threatened Species (BC Act)

Threatened species listed under the BC Act, which have been recorded within the default 0.1° by 0.1° search area around the proposed NSWTA facility site at the Plumwood Fire Tower site (Deua National Park) are summarised in Table 9.

Table 9: Recorded threatened species listed under the BC Act

Species	Habitat and Distribution	Potential Occurrence
Plantae		
Grammitis stenophylla (Narrow-leaf Finger Fern)	Fern with rhizome erect or short creeping; Known from 30 locations across NSW, including 24 in conservations reserves; Common in several areas including Mount Warning Shield, the sandstone reserves of the lower Clarence, the granites of Washpool NP, Gibraltar Range NP and Nymbioda NP, and also Mt Jerusalem NP and Nightcap NP; Epiphytic or lithophytic, usually found in moist places within montane rainforest and wet-sclerophyll forest	Unlikely
Pomaderris gilmourii var. *cana*	Shrub to 4m high with alternate elliptical leaves to 35 mm long by 2 mm wide and greyish-hairy on the lower surface, flowers are cream or yellow with 5 sepals (no petals), in clusters that are shorter than the leaves; Restricted to Deua NP; Grows on skeletal rhyolite outcrops, in open shrubland or forest	Unlikely
Aves		
Callocephalon fimbriatum (Gang-gang Cockatoo)	Cockatoo, slate-grey, males with a scarlet head and wispy crest, females have a grey head and crest and feathers edged with salmon pink on the underbelly; Distributed from southern VIC through southern and central-eastern NSW; Found in tall mountain forest and woodland during spring and summer; In autumn and winter it often moves to lower altitudes in drier open forest and woodland	Possible
Calyptorhynchus lathami (Glossy Black-cockatoo)	Small brown-black cockatoo; Uncommon but widespread throughout suitable forest and woodland habitats, from the central Qld coast to East Gippsland in Victoria; Inhabits open forest and woodland of the coast and the Great Dividing Range where *Allocasuarina littoralis* and *Allocasuarina torulosa* are important food sources	Unlikely
Tyto novaehollandiae (Masked Owl)	Medium-sized owl with dark eyes set in a prominent flat, facial disc; Distributed from the coast where it is most abundant to the western plains; Absent from the most arid north-western corner; Lives in dry eucalypt forest and woodland from sea level to 1100m; Often hunts along the edges of forests, including roadsides; Roosts and breeds in moist eucalypt forested gullies, Nests in large tree hollows or sometimes caves	Possible

Tyto tenebricosa (Sooty Owl)	Medium-sized dark sooty-grey coloured owl with dark eyes in a flat, heart-shaped facial disc; Distributed on the coast, coastal escarpment and eastern tablelands of NSW; Occurs in rainforest and wet sclerophyll forest; Roosts in the hollow of a tall tree or in heavy vegetation; Hunts by night for small mammals; Nests in large tree hollows	Possible
Pachycephala olivacea (Olive Whistler)	Small, stocky bird with a large head and strong sharp bill; Disjunct distribution in NSW; Chiefly occupies the beech forest around Barrington Tops and the MacPherson Ranges (Qld) in the north and wet forest from Illawarra south to Victoria; Mostly above about 500m; May move to lower altitudes during the winter months	Possible
Petroica phoenicea (Flame Robin)	Small robin, male with distinctive orange-red throat, breast and upper-belly; Endemic to south-eastern Australia, and ranges from near the Qld border to southeast South Australia and also in Tasmania; Breeds in upland tall moist eucalypt forest and woodland, often on ridges and slopes; Prefers clearings or areas with an open understorey	Possible
Petroica rodinogaster (Pink Robin)	Small robin, male has a sooty black throat, faint buff tan wing bars, deep pink breast and small white patch on the head; Distributed in Tasmania and the uplands of eastern Victoria and far south-eastern NSW; Inhabits rainforest and tall open eucalypt forest, particularly in densely vegetated gullies; On the mainland, the species disperses north and west and into more open habitats in winter	Unlikely
Mammalia		
Dasyurus maculatus (Spotted-tailed Quoll)	Carnivorous marsupial; Distribution has contracted to eastern NSW, eastern Victoria, eastern Qld; Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest; Individual animals use hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites	Possible
Sminthopsis leucopus (White-footed Dunnart)	Small carnivorous marsupial, grey-brown face and back with an off-white belly; Distributed in Tasmania and along the Victorian and southern NSW coast; Found in a range of different habitats across its distribution, including coastal dune vegetation, coastal forest, tussock grassland and sedgeland, heathland, woodland and forest; In NSW, the species appears to favour vegetation communities with an open understorey structure	Unlikely
Petaurus australis (Yellow-bellied Glider)	Large, active, sociable and vocal glider; Found along the eastern coast to the western slopes of the Great Dividing Range, from southern Qld to Victoria; Occurs in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils; Feeds primarily on plant and insect exudates, including nectar, sap, honeydew and manna with pollen and insects providing protein; Den, often in family groups, in hollows of large trees	Possible
Petauroides volans (Southern Greater Glider)	Largest gliding possum with thick fur that is white or cream below and varies from dark grey, dusky brown through to light mottled grey and cream above; Distributed on the ranges and coastal plains from near Mosman in northeast Qld to Daylesford Vic; Locally common in wet sclerophyll forest; Requires large tree hollows for shelter; Feeds exclusively on eucalypt leaves, buds, flowers and mistletoe	Possible

Falsistrellus tasmaniensis (Eastern False Pipistrelle)	Relatively large microbat, dark to reddish-brown above and paler grey on its underside; Distributed on the southeast coast and ranges of Australia, from southern Qld to VIC and TAS; Prefers moist habitats, with trees taller than 20m; Roosts in eucalypt hollows and also under loose bark on trees or in buildings	Possible
Scoteanax rueppellii (Greater Broad-nosed Bat)	Large powerful microbat, with a broad head and a short square muzzle; Commonly found in tall wet forest but utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest; Usually roosts in tree hollows but it has also been found in buildings	Possible

13.1.2 Threatened Species for Consideration (BC Act)

The following Significance Tests rely on the ecological assessment provided in this report. Based on the flora survey and habitat assessment, it is considered that the land within the study area constitutes potential habitat for 10 threatened species listed under the BC Act as detailed in Table 10.

Table 10: Subject threatened species for significance test

Family	Scientific Name	Common Name
Aves		
Cacatuidae	*Callocephalon fimbriatum*	Gang-gang Cockatoo
Tytonidae	*Tyto novaehollandiae*	Masked Owl
Tytonidae	*Tyto tenebricosa*	Sooty Owl
Pachycephalidae	*Pachycephala olivacea*	Olive Whistler
Petroicidae	*Petroica phoenicea*	Flame Robin
Mammalia		
Dasyuridae	*Dasyurus maculatus*	Spotted-tailed Quoll
Petauridae	*Petaurus australis*	Yellow-bellied Glider
Pseudocheiridae	*Petauroides volans*	Greater Glider
Vespertilionidae	*Falsistrellus tasmaniensis*	Eastern False Pipistrelle
Vespertilionidae	*Scoteanax rueppellii*	Greater Broad-nosed Bat

13.1.3 Significance Tests

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:

Aves

***Callocephalon fimbriatum* (Gang-gang Cockatoo)**

The Gang-gang Cockatoo is a distinctive Australian parrot. It has slate-grey plumage, with the males easily identified by their scarlet head and wispy crest while females have a grey head and crest with feathers edged with salmon pink on the underbelly. It ranges in length from 32 to 37 cm, with a wingspan of 62 to 76 cm. The call is a prolonged jarring croak, similar to the sound of a cork being pulled from a bottle.

The Gang-gang Cockatoo is distributed from southern Victoria through southern and central-eastern NSW. The distribution in NSW is from the southeast coast to the Hunter region and inland to the Central Tablelands and southwest slopes. The species regularly occurs in the Australian Capital Territory. It is rare at the extremities of its range, with isolated records known from as far north as Coffs Harbour and as far west as Mudgee.

In spring and summer, birds are generally found in tall mountain forest and woodland communities, particularly in heavily timbered and mature wet sclerophyll forest. In autumn and winter, the species often moves to lower altitudes in drier more open eucalypt forest and woodland communities, particularly box-gum and box-ironbark assemblages, or in dry forest in coastal areas and often found in urban areas. The species favours old growth forest and woodland with attributes for nesting and roosting. Nests are located in hollows that are 10 cm in diameter or larger and at least 9 metres above the ground in eucalypts. The Gang-gang Cockatoo is listed as vulnerable in NSW under the BC Act. The BioNet Atlas database search indicated 16 records of the species within a 0.1° by 0.1° search area around the study area.

Tyto novaehollandiae **(Masked Owl)**
The Masked Owl is a medium-sized owl up to 40-50 cm long with dark eyes set in a prominent flat facial disc that is encircled by a dark border. There are several colour forms of the species with a wide variation in plumage. The upper parts are grey to dark brown with buff to rufous mottling and fine, pale spots. The wings and tail are prominently barred. The underparts are white to rufous-brown with variable dark spotting.

The species range extends across NSW from the coast to the western plains and inhabits dry sclerophyll forest and woodland. Although it is considered a forest owl, the species often hunts along the edges of forest, including roadsides, with the diet consisting of arboreal and terrestrial mammals, especially rats. Pairs occupy territories of 500-1000 hectares. The Masked Owl roosts in large tree hollows, crevices in cliffs and sometimes caves, but rarely heavy foliage like the *Ninox* owls. Large tree hollows are required for nesting. The Masked Owl is listed as vulnerable in NSW under the BC Act. The BioNet Atlas database search indicated 11 records of the species within a 0.1° by 0.1° search area around the study area.

Tyto tenebricosa **(Sooty Owl)**
The Sooty Owl is a medium-sized Owl to 45 cm long, with dark eyes set in a prominent flat, heart-shaped facial disc. The species is dark sooty-grey in colour, with large eyes in a grey face, fine white spotting above and below, and a pale belly. The plumage of the fledglings is like the adult but has tufts of down on the head and underparts.

In NSW, the species occurs along the coast, coastal escarpment and eastern tablelands where it occupies permanent territories. The Sooty Owl is found in rainforest, including dry rainforest, subtropical and warm temperate rainforest, as well as moist eucalypt forest communities. The species roosts by day in the hollow of a tall forest tree or in heavy vegetation and hunts by night for small terrestrial mammals or arboreal mammals such as the Common Ringtail Possum (*Pseudocheirus peregrinus*) or Sugar Glider (*Petaurus breviceps*). Very large tree-hollows are required for nesting. The Sooty Owl is listed as vulnerable in NSW under the *Threatened Species Conservation Act 1995*. The Bionet Atlas database search indicated 12 records of the species within a 0.1° by 0.1° search area around the study area.

***Pachycephala olivacea* (Olive Whistler)**
The Olive Whistler is a small, stocky bird with a large head and strong sharp bill. It grows up to 22 cm long, including the 10 cm tail. It has a dark grey head, olive-brown upperparts, a grey throat and buff-brown underparts. The female is duller in colour than the male. The Olive Whistler is considered to have the most rich and melodious array of calls of any of the whistlers.

The Olive Whistler inhabits the wet forests on the ranges of the east coast. It has a disjunct distribution in NSW, chiefly occupying the beech forests around Barrington Tops and the MacPherson Ranges in the north and wet forests from Illawarra south to Victoria. In the south it is found inland to the Snowy Mountains and the Brindabella Range. The species mostly inhabits wet forests above about 500 metres. During the winter months they may move to lower altitudes. It forages in the canopy, understorey and on the ground, feeding on fruits and insects. Nests are constructed of twigs and grass in low forks of shrubs. The Olive Whistler is listed as vulnerable in NSW under the BC Act. The BioNet Atlas database search indicated six records of the species within a 0.1° by 0.1° search area around the study area.

***Petroica phoenicea* (Flame Robin)**
The Flame Robin is a small robin that reaches 14 cm in length. The male has a dark grey head and upperparts, a small white forehead patch, white wing stripes and white tail-edges, and a bright orange-red throat, breast and upper-belly. The lower belly is white. The female is brown, darker above, and has a whitish throat and lower belly, while the whitish mark on the female's forehead is inconspicuous. Female Flame Robins also have white and buff marked wings and tail. Immature males resemble females. The main call of the Flame Robin is a thin, pretty, piping descending song.

The Flame Robin is endemic to south eastern Australia, and ranges from near the Queensland border to southeast South Australia and also in Tasmania. In NSW, it breeds in upland areas and in winter, many birds move to the inland slopes and plains. It is likely that there are two separate populations in NSW, one on the Northern Tablelands, and another ranging from the Central to Southern Tablelands. Breeding occurs in upland tall moist eucalypt forest and woodland, often on ridges and slopes. The groundcover stratum of the breeding habitat is dominated by native grasses and the shrub layer may be either sparse or dense. The species prefers clearings or areas with open understoreys. It occasionally occurs in temperate rainforest, and also in herbfields, heathland, shrubland and sedgeland at high altitudes. In winter, birds migrate to drier more open habitats in the lowlands (i.e. valleys below the ranges, and to the western slopes and plains). The Flame Robin is listed as vulnerable in NSW under the BC Act. The BioNet Atlas database search indicated three records of the species within a 0.1° by 0.1° search area around the study area.

Mammalia

***Dasyurus maculatus* (Spotted-tailed Quoll)**
The Spotted-tailed Quoll is the largest marsupial carnivore on the Australian mainland. Males are 38-76 cm long with a tail length up to 55 cm, while females are 35-45 cm long with a tail measuring up to 42 cm. The species is a rich rufous brown to dark brown above, with white spots of varying size and pale below.

The Spotted-tailed Quoll is recorded from a wide range of habitats, including rainforest, open forest, woodland, coastal heath and inland riparian forest. It occurs from the coast to the snowline and inland to the western plains. The species usually nocturnal and is an efficient predator taking prey ranging from small wallabies to insects. Den sites include hollow-bearing trees, fallen logs, small caves, rock crevices, boulder fields and rocky-cliff faces. The species was formerly widespread on either side of the Great Dividing Range, but its distribution is disjunct over much of its former range. Loss of habitat through land clearing, poisoning and trapping is implicated in its decline. The Spotted-tailed Quoll is listed as vulnerable in NSW under the BC Act and as endangered nationally under the EPBC Act. The BioNet Atlas database search indicated six records of the species within a 0.1° by 0.1° search area around the study area.

***Petaurus australis* (Yellow-bellied Glider)**
The Yellow-bellied Glider is a large, active, sociable and vocal glider. Adults weigh 450 - 700 grams and have a head and body length of about 30 cm with a large bushy tail that is about 45 cm long. The species has grey to brown fur above with a cream to yellow belly, which is paler in young animals. The dark stripe down the back is characteristic of the group. It has a large gliding membrane that extends from the wrist to the ankle. It has a loud, distinctive call, beginning with a high-pitched shriek and subsiding into a throaty rattle.

The Yellow-bellied Glider is found along the eastern coast to the western slopes of the Great Dividing Range, from southern Queensland to Victoria. The species occurs in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Forest type preferences vary with latitude and elevation with mixed coastal forests to dry escarpment forests preferred in the north while moist coastal gullies and creek flats to tall montane forests are preferred in the south. The Yellow-bellied Glider feeds primarily on plant and insect exudates, including nectar, sap, honeydew and manna with pollen and insects providing protein. It extracts sap by incising (or biting into) the trunks and branches of favoured food trees, often leaving a distinctive 'V'-shaped scar. The species lives in small family groups of 2-6 individuals and are nocturnal and usually den in hollows of large living trees. The species is very mobile and occupy large exclusive home ranges of 20-85 hectares to encompass dispersed and seasonally variable food resources. The Yellow-bellied Glider is listed as vulnerable in NSW under the BC Act. The Bionet Atlas database search indicated one record of the species in the area around the study area.

***Petauroides volans* (Greater Glider)**
The Greater Glider is the largest of the gliding possums and is adapted to an almost exclusive diet of eucalypt leaves. The species has a body length of 350-450 mm and a tail length of 450-600 mm. The fur is long, shaggy and variable in colour, with the underparts being whitish or pale grey and the upperparts being sooty, grey, cream, mottled grey and cream, or grey with a white head and tail. The species is nocturnal, solitary and can glide over 100 metres.

The Greater Glider is distributed from near Mosman in northeast Queensland to Daylesford in Victoria. It is locally common in wet sclerophyll forest on the ranges and coastal plains and requires large tree hollows for shelter. Distribution levels are higher in regions of montane forest containing *Eucalyptus viminalis* (manna gum), *Eucalyptus dalrympleana* (Mountain Gum) and *Eucalyptus obliqua* (Messmate). The presence of *Eucalyptus cypellocarpa* appears to

improve the quality of habitat for the Greater Glider in forests dominated by *Eucalyptus obliqua*. Elevation is another factor determining population density, with optimal levels being around 845 metres above sea level. Within a forest of suitable habitat, the species prefers overstorey basal areas in old-growth tree stands. The Greater Glider is listed as endangered in NSW under the BC Act and as endangered nationally under the EPBC Act. The BioNet Atlas database search indicated 17 records of the species within a 0.1° by 0.1° search area around the study area.

***Falsistrellus tasmaniensis* (Eastern False Pipistrelle)**
The Eastern False Pipistrelle is a relatively large and robust insectivorous bat. The fur of the upper parts is uniformly reddish brown, and the fur of the underparts is paler. The face forward of and including the ears is naked and pale brown, while the skin of the flight membranes, lips, forearms and feet is blackish. The ears are long, narrow with rounded tips and there is a distinct notch on the upper rear margin.

The species occurs in tall forest on the southeast coast and ranges from southern Queensland to Victoria and Tasmania. It prefers moist habitats, with trees taller than 20 metres and generally roosts in eucalypt hollows but has also been found under loose bark on trees or in buildings. The species hunts beetles, moths, weevils and other flying insects above or just below the tree canopy. Like most species of microchiropteran bats, it hibernates in winter. The Eastern False Pipistrelle is listed as vulnerable in NSW under the BC Act. The BioNet Atlas database search indicated 13 records of the species around the study area.

***Scoteanax rueppellii* (Greater Broad-nosed Bat)**
The Greater Broad-nosed Bat is a large robust bat with a broad head and short, squarish muzzle. The ears are widely spaced, short and have a rounded apex with a concave rear edge immediately below the apex. The upper parts vary from mid-brown to dark cinnamon-brown and the underparts are tawny-olive in colour. The species occurs in a range of habitats including cleared grazing land, heathland, coastal swamp forest, woodland, rainforest as well as wet sclerophyll forest and dry sclerophyll forest. The species roosts in tree hollows and forages after sunset, flying slowly along watercourses at an altitude of around 3-6 metres. Open woodland habitat and dry open forest suits the direct flight of this species as it searches for beetles and other large, slow-flying insects. It has also been known to eat other bat species. The Greater Broad-nosed Bat is listed as vulnerable in NSW under the BC Act. The BioNet Atlas database search indicated two records of the species within a 0.1° by 0.1° search area around the study area.

Response:
The study area is located within the Deua National Park, and together with other adjacent reserves, including Monga National Park, Wadbilliga National Park, Gourock National Park and Badja Swamps Nature Reserve. contain large expanses of forest, woodland and montane heath habitats of several thousand hectares. Collectively, these reserves cover an extensive area of more than 250,000 hectares. The proposed NSWTA facility will be located immediately adjacent to an existing NPWS/RFS radiocommunications facility and Forests Corporation fire tower, with associated cleared and managed land. No additional vegetation clearing is proposed, hence the adjacent habitats will not be impacted directly by the proposal. Due to a major bush fire that occurred in late 2019, the development footprint and surrounding habitats

were significantly impacted and the vegetation in all strata was severely burnt. As a consequence, the vegetation remains in a regenerative state and is substantially reduced from its normal condition.

The footprint required for the proposed development is very small and will be largely confined to a disturbed area that was previously cleared in association with the existing infrastructure. The main impact involves the removal of a relatively small quantity of potential foraging habitat for the subject threatened species from the proposed development footprint. However, these resources are very limited, particularly in the context of the site's position in the landscape and the habitat is only likely to be utilised incidentally by the subject threatened species. Once the initial work to construct the new radiocommunications facility is completed there will be no ongoing human presence associated with the facility apart from infrequent visits to undertake maintenance activities. Therefore, it is considered unlikely that the proposed works will have an adverse effect on the life cycle of the subject threatened species such that a viable local population of the species is likely to be placed at risk of extinction.

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;***

As no endangered ecological community occurs in proximity to the site, the proposed work is unlikely to have an adverse effect on the extent of an ecological community such that its local occurrence is likely to be placed at risk of extinction.

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;***

Based on the findings of the flora survey, no endangered ecological community occurs in proximity to the study area. The site contains highly disturbed vegetation that was previously cleared. Therefore, the proposed works are unlikely to have an adverse effect on the extent of an ecological community such that its local occurrence is likely to be placed at risk of extinction.

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;***

The proposed works will be limited to the removal of a small area of previously cleared and highly disturbed land located within the defined development footprint that will utilise an existing access road. No areas of habitat situated beyond the extent of the proposed development footprint will be removed or modified.

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;***

No areas of habitat are likely to become fragmented or isolated from other areas of habitat because of the proposed works.

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;***

As per the recommended mitigation measures, no significant areas of habitat will be removed, modified, fragmented or isolated because of the proposed works.

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):

No declared area of outstanding biodiversity value is likely to be impacted by the proposed development (either directly or indirectly).

e) Whether the proposed development or activity is part of a key threatening process or is likely to increase the impact of a key threatening process:

Key threatening processes (KTPs) are listed in Schedule 4 of the BC Act. Those considered to be applicable to the proposed development includes:

Anthropogenic Climate Change:

The use of machinery and power tools during the proposed works will contribute to anthropogenic climate change through release of stored carbon from vegetation and greenhouse gas emissions associated with use of fossil fuels. However, the overall impact of the action is considered negligible in the context of other human activities in the region.

13.2 Assessment of Significance – EPBC Act

The species or the species habitat and threatened ecological communities (TECs) that are known to occur in proximity to the study area as indicated in the EPBC Act Protected Matters Report (applying a 10 kilometre buffer) have been considered for potential impacts in accordance with the EPBC Act MNES – Significant Impact Guidelines 1.1. The significant impact criteria set out on the following pages have been applied for determining whether the proposed NSWTA facility development is likely to significantly impact any of the listed threatened species and TECs.

13.2.1 Listed Threatened Species (EPBC Act)

The list of threatened species returned in the EPBC Act Protected Matters report where the species or the species habitat is known to occur within a ten kilometre buffer around the study area is provided below in Table 12. Note, the list excludes species that exclusively occur in wetland or marine habitats.

Table 11: Threatened species returned in the Protected Matters Search Tool report

Species	Habitat and Distribution	Potential Occurrence
Plantae		
Calotis glandulosa (Mauve Burr-daisy)	Erect or ascending, branched herb to 35 cm high with ray florets white to blue; Distribution is centred on the Monaro and Kosciuszko regions; There are three known sites in the upper Shoalhaven catchment; Found in montane and subalpine grasslands in the Australian Alps	Unlikely
Xerochrysum palustre (Swamp Everlasting)	Perennial rhizomatous herb 45–100 cm high, florets yellow; Found in Kosciuszko NP and the eastern escarpment south of Badja. Also found in eastern Victoria; Confined to wet situations such as permanent swamps, which are often dominated by heath communities; Also grows at the edges of bog margins on peaty soils with a cover of shrubs	Unlikely
Haloragis exalata subsp. *exalata* (Square Raspwort)	Shrub 1.5m tall with leaves lanceolate to oblong, usually 60–100 mm long and 13–25 mm wide, coarsely toothed; Disjunctly distributed in the Central Coast, South Coast and North Western Slopes botanical subdivisions of NSW; Occurs in protected and shaded damp situations in riparian habitats	Unlikely
Eucalyptus aggregata (Black Gum)	Tree to 18m high; bark persistent, grey to grey-black, fibrous-flaky, throughout; Found in the NSW Central and Southern Tablelands, with small, isolated populations in Victoria and the ACT; Mainly in the wetter, cooler and higher parts of the tablelands; Grows on alluvial soils, on cold, poorly-drained flats and hollows adjacent to creeks and small rivers	Unlikely
Rhodamnia rubescens (Scrub Turpentine)	Shrub or small tree to 25m high, bark reddish brown, fissured; young stems densely tomentose; Occurs north from Batemans Bay to areas inland of Bundaberg, Qld; Mostly in coastal regions and occasionally extending inland up to 600 m with rainfall of 1,000-1,600 mm; Found in rainforest and its margins and wet sclerophyll forest	Unlikely

Caladenia tessellata (Thick Lip Spider Orchid)	Terrestrial herb with leaf linear to lanceolate and cream-coloured petals with reddish stripes; Known from the Sydney area (old records), Wyong, Ulladulla and Braidwood in NSW; Populations in Kiama and Queanbeyan are presumed extinct; Occurs on the coast in Victoria from east of Melbourne to almost the NSW border; Generally found in grassy sclerophyll woodland on clay loam or sandy soils	Unlikely
Calochilus pulchellus (Pretty Beard Orchid)	Glabrous terrestrial herb with single upright sublinear leaf and pale green or greenish-yellow flowers with darker reddish striations; Recorded from three sites over a range of 40 km on the South Coast at altitudes from 20-560m asl; Cryptic nature, with a single leaf present above ground for only a few months and a flowering stem that lasts for a few days or a week; Appears to be associated with heath communities	Unlikely
Cryptostylis hunteriana Leafless Tongue Orchid)	Saprophytic terrestrial herb; Does not appear to have well defined habitat preferences but generally associated with swamp-heath on sandy soils, chiefly in coastal districts, south from the Gibraltar Range; The larger populations typically occur in woodland dominated by Scribbly Gum, Silvertop Ash, Red Bloodwood and Black Sheoak	Unlikely
Genoplesium vernale (East Lynne Midge-orchid)	Terrestrial tuberous herb with 10-25 flowers densely crowded onto a spike less than 4 cm long, on a thin round stem less than 25 cm tall, with individual flowers approximately 4 mm across and are dark purplish-black; Restricted to a narrow geographic range from near Mogo to west of Ulladulla; Occurs in dry sclerophyll forest	Unlikely
Persicaria elatior (Tall Knotweed)	Erect herb to 90 cm high, stalked glandular hairs present on most parts, occasionally sessile glands present too; Rare, with very scattered occurrences along coastal NSW and in southeast Qld; Normally grows in damp places, especially beside streams and lakes; Occasionally in swamp forest or associated with disturbance	Unlikely
Pomaderris cotoneaster (Cotoneaster Pomaderris)	Shrub 1–2 m high, stems with a short whitish stellate tomentum; Disjunct distribution south from Mittagong district; Recorded in a range of habitats in predominantly dry sclerophyll forest; The habitats include forest with deep, friable soil, amongst rock beside a creek, on rocky forested slopes and in steep gullies between sandstone cliffs	Unlikely
Pomaderris gilmourii var. *cana*	Shrub to 4m high with alternate elliptical leaves to 35 mm long by 2 mm wide and greyish-hairy on the lower surface, flowers are cream or yellow with 5 sepals (no petals), in clusters that are shorter than the leaves; Restricted to Deua NP; Grows on skeletal rhyolite outcrops, in open shrubland or forest	Unlikely
Pomaderris parrisiae	Shrub or small tree to 9m high; new growth densely covered with appressed silvery simple hairs, older stems glabrescent; Distributed chiefly on the escarpment ranges, mostly from Kybean to Bemboka area; Found on skeletal soils in rocky shrubland or tall open forest	Unlikely
Correa baeuerlenii (Chef's Hat Correa)	Shrub 1–2.5m high with stems rusty-floccose; Recorded between Nelligen (on Nelligen Creek and the Buckenbowra River) and Mimosa Rocks National Park (Bega district); Occurs in riparian sites within in sclerophyll forest; It may also be found in near-coastal rocky sites	Unlikely

Thesium australe (Austral Toadflax)	Erect perennial herb to 40 cm high; Found in small populations scattered across eastern NSW, along the coast and from the Northern to Southern Tablelands; Also found in Tas, Qld and in eastern Asia; Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast; Widespread but rare	Unlikely
Amphibia		
Heleioporus australiacus (Giant Burrowing Frog)	Large frog with a dark brown, grey or black back, sides are spotted with bright yellow, white belly and greyish throat; Distributed in south eastern NSW and Victoria; Appears to have two distinct populations: a northern population confined to the sandstone geology of the Sydney Basin extending south to Ulladulla, and a southern population occurring from north of Narooma to Walhalla, Victoria	Unlikely
Litoria watsonsi (Watson's Tree Frog)	Formerly the southern population of *Litoria littlejohni*; Large frog with a grey or brown back and the lower legs bright red or orange; Range extends from Budderoo NP and Barren Grounds NR in the Shoalhaven River catchment south to the eastern side of the Snowy River NP in East Gippsland, VIC; Occurs in a variety of forest types, woodland, and heathland; Prefers moister sites in tall moist forest; The most important habitat factor is the presence of pools	Unlikely
Mixophyes balbus (Stuttering Frog)	Large frog with a brown back, a darker stripe or series of patches along the middle, a black stripe from the nostril to past the eye and a black triangular patch on the snout; Typically found in association with permanent streams through temperate and sub-tropical rainforest and wet sclerophyll forest, rarely in dry open tableland riparian vegetation, and in moist gullies in dry forest	Unlikely
Aves		
Falco hypoleucos (Grey Falcon)	Medium-sized, compact, pale falcon; Sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range; Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions	Unlikely
Callocephalon fimbriatum (Gang-gang Cockatoo)	Cockatoo, slate-grey, males with a scarlet head and wispy crest, females have a grey head and crest and feathers edged with salmon pink on the underbelly; Distributed from southern VIC through southern and central-eastern NSW; Found in tall mountain forest and woodland during spring and summer; In autumn and winter it often moves to lower altitudes in drier open forest and woodland	Possible
Calyptorhynchus lathami lathami (South-eastern Glossy Black-cockatoo)	Small brown-black cockatoo; Uncommon but widespread throughout suitable forest and woodland habitats, from the central Qld coast to East Gippsland in Victoria; Inhabits open forest and woodland of the coast and the Great Dividing Range; Feeds almost exclusively on the seeds of *Allocasuarina* spp. and *Casuarina* spp.	Unlikely
Lathamus discolor (Swift Parrot)	Small bright green parrot with red around the bill, throat and forehead; Endemic to south-eastern Australia, breeds in Tasmania and migrates to mainland Australia in autumn; Key habitats in coastal of NSW include Spotted Gum, Swamp Mahogany, Red Bloodwood and Forest Red Gum forest	Unlikely

Anthochaera phrygia (Regent Honeyeater)	Black and yellow honeyeater; In NSW, the species area of occupancy is less than 200 km^2 and is now largely absent from many areas where it was formerly recorded; Mostly occurs in dry Box-Ironbark eucalypt woodland and dry sclerophyll forest in areas of low to moderate relief, wherein they prefer moister, more fertile sites available	Unlikely
Grantiella picta (Painted Honeyeater)	Small honeyeater with black head and back, white underparts, wings and tail are black with yellow edges; Nomadic and occurs at low densities throughout its range with almost all breeding occurring on the inland slopes of the Great Dividing Range in NSW, Vic and southern Qld; Inhabits woodland and Box-Ironbark forest	Unlikely
Dasyornis brachypterus (Eastern Bristlebird)	Medium-sized, long-tailed, brown and rufous bird; Distribution has contracted to three disjunct areas of south-eastern Australia, including Northern: southern Qld and northern NSW, Central: Barren Ground NR, Budderoo NR, Woronora Plateau, Jervis Bay NP, Booderee NP and Beecroft Peninsula and Southern: Nadgee NR and Croajingalong NP in the vicinity of the NSW/Victorian border; Central and southern populations typically occupy low vegetation including heath and woodland with a heathy understorey	Unlikely
Hirundapus caudacutus (White-throated Needletail)	Large swift with short, square tail, predominantly dark, with white throat, forehead and undertail coverts; Migratory and seen in eastern Australia from October to April; Usually seen in flight ahead of storms; Roost at night in trees of forests	Unlikely
Mammalia		
Dasyurus maculatus (Spotted-tailed Quoll)	Carnivorous marsupial; Distribution has contracted to eastern NSW, eastern Vic, eastern Qld; Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest; Individual animals use hollow-bearing trees, fallen logs, small caves, rock outcrops and rocky-cliff faces as den sites	Possible
Phascolarctos cinereus (Koala - Combined populations of Qld, NSW & the ACT)	Arboreal marsupial with fur ranging from grey to brown above and white below; Fragmented distribution throughout eastern Australia from northeast Qld to the Eyre Peninsula in South Australia; Inhabits eucalypt woodland and forest; Feeds on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species	Unlikely
Potorous tridactylus (Long-nosed Potoroo)	Medium-sized rat-kangaroo; Distributed on the southeast coast of Australia, from Qld to eastern Vic and Tas, including some of the Bass Strait islands; Inhabits coastal heath and dry and wet sclerophyll forest; Prefers a dense understorey with occasional open areas	Unlikely
Petaurus australis (Yellow-bellied Glider)	Large, active, sociable and vocal glider; Found along the eastern coast to the western slopes of the Great Dividing Range, from southern Qld to Victoria; Occurs in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils; Feeds primarily on plant and insect exudates, including nectar, sap, honeydew and manna with pollen and insects providing protein; Den, often in family groups, in hollows of large trees	Possible

Petauroides volans Greater Glider	Largest gliding possum; Distributed on the ranges and coastal plains from near Mosman in northeast Qld to Daylesford Vic; Locally common in wet sclerophyll forest; Preferred habitat based on several factors, the dominant factor being the presence of specific species of eucalypt, including the locally occurring species, *Eucalyptus obliqua*; Requires large tree hollows for shelter	Possible
Pteropus poliocephalus (Grey-headed Flying-fox)	Endemic megabat; Generally, found within 200 km of the eastern coast of Australia from Rockhampton in Qld to Adelaide in South Australia; Occur in subtropical and temperate rainforests, tall sclerophyll forest and woodland, heath and swamp as well as urban gardens and cultivated fruit crops	Possible
Isoodon obesulus obesulus (Southern Brown Bandicoot)	Bandicoot with short nose and ears, dark grey or yellowish brown fur on its upper body, tail and feet and a creamy white belly; Patchy distribution in south-eastern NSW, east of the Great Dividing Range south from the Hawkesbury River, southern coastal VIC and the Grampian Ranges, south-eastern SA, southwest WA and the northern tip of Qld; Found in heath or open forest with a heathy understorey on sandy or friable soils	Unlikely
Chalinolobus dwyeri (Large-eared Pied Bat)	Small to medium-sized microbat with long, prominent ears and glossy black fur; The current distribution is poorly known; Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin; Found in well-timbered areas containing gullies	Unlikely
Pseudomys novaehollandiae (New Holland Mouse)	Small native rodent; Patchy distribution in coastal eastern Australia from Evan Head in NSW to Anglesea in Victoria; Also further inland in northeast NSW and southeast Queensland as well as Flinders Island and Tasmania; Found in dry coastal heath or heathy sclerophyll forest where the understorey is less than 10 years old (coastal) and dry sclerophyll forest often with sparse groundcover (inland)	Unlikely

13.2.2 Threatened Species for Consideration (EPBC Act)

Based on the landscape position of the site, and the findings of the flora survey and habitat assessment, it is considered that the land within the study area may constitute potential habitat for the following five nationally listed threatened species detailed in Table 13.

Table 12: Subject species for assessment of significance

Family	Scientific Name	Common Name	Status
Aves			
Cacatuidae	*Callocephalon fimbriatum*	Gang-gang Cockatoo	Endangered
Mammalia			
Dasyuridae	*Dasyurus maculatus*	Spotted-tailed Quoll	Endangered
Petauridae	*Petaurus australis*	Yellow-bellied Glider	Vulnerable
Pseudocheiridae	*Petauroides volans*	Greater Glider	Endangered
Dasyuridae	*Pteropus poliocephalus*	Grey-headed Flying-fox	Vulnerable

13.2.3 Endangered and Critically Endangered Species Assessment

***Callocephalon fimbriatum* (Gang-gang Cockatoo)**

The Gang-gang Cockatoo is a distinctive Australian parrot. It has slate-grey plumage, with the males easily identified by their scarlet head and wispy crest while females have a grey head and crest with feathers edged with salmon pink on the underbelly. It ranges in length from 32 to 37 cm, with a wingspan of 62 to 76 cm. The call is a prolonged jarring croak, similar to the sound of a cork being pulled from a bottle.

The Gang-gang Cockatoo is distributed from southern Victoria through southern and central-eastern NSW. The distribution in NSW is from the southeast coast to the Hunter region and inland to the Central Tablelands and southwest slopes. The species regularly occurs in the Australian Capital Territory. It is rare at the extremities of its range, with isolated records known from as far north as Coffs Harbour and as far west as Mudgee.

In spring and summer, birds are generally found in tall mountain forest and woodland communities, particularly in heavily timbered and mature wet sclerophyll forest. In autumn and winter, the species often moves to lower altitudes in drier more open eucalypt forest and woodland communities, particularly box-gum and box-ironbark assemblages, or in dry forest in coastal areas and often found in urban areas. The species favours old growth forest and woodland with attributes for nesting and roosting. Nests are located in hollows that are 10 cm in diameter or larger and at least 9 metres above the ground in eucalypts. The Gang-gang Cockatoo is listed as vulnerable in NSW under the BC Act. The BioNet Atlas database search indicated 16 records of the species within a 0.1° by 0.1° search area around the study area.

***Dasyurus maculatus* (Spotted-tailed Quoll)**

The Spotted-tailed Quoll is the largest marsupial carnivore on the Australian mainland. Males are 38-76 cm long with a tail length up to 55 cm, while females are 35-45 cm long with a tail measuring up to 42 cm. The species is a rich rufous brown to dark brown above, with white spots of varying size and pale below.

The Spotted-tailed Quoll is recorded from a wide range of habitats, including rainforest, open forest, woodland, coastal heath and inland riparian forest. It occurs from the coast to the snowline and inland to the western plains. The species usually nocturnal and is an efficient predator taking prey ranging from small wallabies to insects. Den sites include hollow-bearing trees, fallen logs, small caves, rock crevices, boulder fields and rocky-cliff faces. The species was formerly widespread on either side of the Great Dividing Range, but its distribution is disjunct over much of its former range. Loss of habitat through land clearing, poisoning and trapping is implicated in its decline. The Spotted-tailed Quoll is listed as vulnerable in NSW under the BC Act and as endangered nationally under the EPBC Act. The BioNet Atlas database search indicated six records of the species within a 0.1° by 0.1° search area around the study area.

***Petauroides volans* (Greater Glider)**

The Greater Glider is the largest of the gliding possums and is adapted to an almost exclusive diet of eucalypt leaves. The species has a body length of 350-450 mm and a tail length of 450-600 mm. The fur is long, shaggy and variable in colour, with the underparts being whitish or

pale grey and the upperparts being sooty, grey, cream, mottled grey and cream, or grey with a white head and tail. The species is nocturnal, solitary and can glide over 100 metres.

The Greater Glider is distributed from near Mosman in northeast Queensland to Daylesford in Victoria. It is locally common in wet sclerophyll forest on the ranges and coastal plains and requires large tree hollows for shelter. Distribution levels are higher in regions of montane forest containing *Eucalyptus viminalis* (manna gum), *Eucalyptus dalrympleana* (Mountain Gum) and *Eucalyptus obliqua* (Messmate). The presence of *Eucalyptus cypellocarpa* appears to improve the quality of habitat for the Greater Glider in forests dominated by *Eucalyptus obliqua*. Elevation is another factor determining population density, with optimal levels being around 845 metres above sea level. Within a forest of suitable habitat, the species prefers overstorey basal areas in old-growth tree stands. The Greater Glider is listed as endangered in NSW under the BC Act and as endangered nationally under the EPBC Act. The BioNet Atlas database search indicated 17 records of the species within a 0.1° by 0.1° search area around the study area.

Factors to be Considered for Endangered and Critically Endangered Species

As per the guidelines to assessment of significance, an action is likely to have a significant impact on an endangered and critically endangered species, if it will:

- fragment an existing population into two or more populations;
- adversely affect habitat critical to the survival of a species;
- disrupt the breeding cycle of a population;
- modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;
- result in invasive species, that are harmful to a critically endangered or endangered species, becoming established in the critically endangered or endangered species' habitat;
- introduce a disease that may cause a species to decline; or
- interferes substantially with the recovery of the species.

Endangered and Critically Endangered Species – Assessments of Significance

This section addresses each of the aforementioned factors for endangered and critically endangered species; *Callocephalon fimbriatum* (Gang-gang Cockatoo), *Dasyurus maculatus* (Spotted-tailed Quoll) and *Petauroides volans* (Greater Glider).

a) Lead to a long-term decrease in the size of a population

The study area is located within the Deua National Park, and together with other adjacent reserves, including Monga National Park, Wadbilliga National Park, Gourock National Park and Badja Swamps Nature Reserve. contain large expanses of forest, woodland and montane heath habitats of several thousand hectares. Collectively, these reserves cover an extensive area of more than 250,000 hectares. The proposed NSWTA facility will be located immediately adjacent to an existing NPWS/RFS radiocommunications facility and Forests Corporation fire tower, with associated cleared and managed land. No additional vegetation clearing is proposed, hence the adjacent habitats will not be impacted directly by the proposal. Due to a major bush fire that occurred in late 2019, the development footprint and surrounding habitats were significantly impacted and the vegetation in all strata was severely burnt. As a

consequence, the vegetation remains in a regenerative state and is substantially reduced from its normal condition.

The footprint required for the proposed development is very small and will be largely confined to a disturbed area that was previously cleared in association with the existing infrastructure. The main impact involves the removal of a relatively small quantity of potential foraging habitat for the subject threatened species from the proposed development footprint. However, these resources are very limited, particularly in the context of the site's position in the landscape and the habitat is only likely to be utilised incidentally by the subject threatened species. Once the initial work to construct the new radiocommunications facility is completed there will be no ongoing human presence associated with the facility apart from infrequent visits to undertake maintenance activities. Therefore, it is unlikely that the proposed action will lead to a long-term decrease in the size of the population of these species.

b) Reduce the area of occupancy of a population:

The footprint required for the proposed development is very small and will be largely confined to a disturbed area that was previously cleared in association with the existing infrastructure. The main impact involves the removal of a relatively small quantity of potential foraging habitat for the subject threatened species from the proposed development footprint. However, these resources are very limited, particularly in the context of the site's position in the landscape and the habitat is only likely to be utilised incidentally by the subject threatened species. Once the initial work to construct the new radiocommunications facility is completed there will be no ongoing human presence associated with the facility apart from infrequent visits to undertake maintenance activities. Therefore, the action is unlikely to reduce the area of occupancy of a population.

c) Fragment an existing population into two or more populations:

The proposed works will be confined to a previously disturbed area and utilising an existing site access road. Therefore, it is unlikely to result in fragmentation of any existing population of the subject endangered and critically endangered species under consideration.

d) Adversely affect habitat critical to the survival of a species:

"Critical habitat" refers to areas critical to the survival of a species or ecological community may include areas that are necessary for/to:

- activities such as foraging, breeding, roosting or dispersal;
- succession;
- maintain genetic diversity and long term evolutionary development; or
- reintroduction of populations or recovery of the species/community.

The habitat within the proposed development footprint is not considered critical habitat for the subject endangered or critically endangered species due to its very small size and degraded condition.

e) Disrupt the breeding cycle of a population:

There will be negligible change with respect to the habitat for a local population of the subject species. Linkages will continue to be available and other potential detrimental impacts such as a human presence in the area will not be further exacerbated significantly by the proposed development. Therefore, it is unlikely that there will be any disruption to the breeding cycle of an important population of the subject species associated with the proposal.

f) Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline:

There will be no significant modification, removal, isolation or decrease in the availability of quality habitat associated with the proposed works.

g) Result in invasive species, that are harmful to a critically endangered or endangered species, becoming established in the critically endangered or endangered species' habitat:

No new species that affects the subject endangered and critically endangered species is likely to be introduced as a direct result of the proposal. It is noted that a significant assemblage of weeds and other undesirable exotic species of flora have already colonised the site.

h) Introduce a disease that may cause a species to decline:

No disease that poses a potential risk to the subject endangered and critically endangered species is likely to be introduced to the site provided the recommendations in section 8 of this report are adopted.

i) Interferes substantially with the recovery of the species:

The proposal is unlikely to significantly impact the subject endangered species such that it will interfere substantially with the recovery of the species.

13.2.4 Vulnerable Species Assessment

***Petaurus australis* (Yellow-bellied Glider)**

The Yellow-bellied Glider is a large, active, sociable and vocal glider. Adults weigh 450 - 700 grams and have a head and body length of about 30 cm with a large bushy tail that is about 45 cm long. The species has grey to brown fur above with a cream to yellow belly, which is paler in young animals. The dark stripe down the back is characteristic of the group. It has a large gliding membrane that extends from the wrist to the ankle. It has a loud, distinctive call, beginning with a high-pitched shriek and subsiding into a throaty rattle.

The Yellow-bellied Glider is found along the eastern coast to the western slopes of the Great Dividing Range, from southern Queensland to Victoria. The species occurs in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Forest type preferences vary with latitude and elevation with mixed coastal forests to dry escarpment forests preferred in the north while moist coastal gullies and creek flats to tall montane forests are preferred in the south. The Yellow-bellied Glider feeds primarily on plant and insect exudates, including nectar, sap, honeydew and manna with pollen and insects providing protein. It extracts sap by incising (or biting into) the trunks and branches of favoured food trees, often leaving a distinctive 'V'-shaped scar. The species lives in small family groups of 2-6 individuals and are nocturnal and usually den in hollows of large living trees. The species

is very mobile and occupy large exclusive home ranges of 20-85 hectares to encompass dispersed and seasonally variable food resources. The Yellow-bellied Glider is listed as vulnerable in NSW under the BC Act. The Bionet Atlas database search indicated one record of the species in the area around the study area.

***Pteropus poliocephalus* Grey-headed Flying-fox)**

The Grey-headed Flying-fox is the largest Australian bat species with a head and body length of 23 - 29 cm. It has dark grey fur on the body, lighter grey fur on the head and a russet collar encircling the neck. The wing membranes are black, and the wingspan can be up to 1 metre. It can be distinguished from other flying-foxes by the leg fur, which extends to the ankle.

The Grey-headed Flying-fox is found within 200 km of the eastern coast of Australia from Bundaberg in Queensland to Melbourne, Victoria. The species occurs in subtropical and temperate rainforest, tall sclerophyll forest and woodland and individuals travel up to 50 kilometres to feed on the nectar and pollen of native trees, particularly eucalypts, *Melaleuca* spp. and *Banksia* spp. and the fruits of rainforest trees and vines. The Grey-headed Flying-fox congregates in large numbers at roosting sites (camps) that may be found in rainforest patches, *Melaleuca* stands, mangroves, riparian woodland or modified vegetation in urban areas. The Grey-headed Flying-fox is listed as vulnerable in NSW under the BC Act and as vulnerable nationally under the EPBC Act. The BioNet Atlas database search indicated no records of the species within a 0.1^{o} by 0.1^{o} search area around the study area.

Factors to Be Considered for Vulnerable Species

As per the guidelines to assessment of significance, an action is likely to have a significant impact on a vulnerable species, if it will:

- lead to a long-term decrease in the size of an important population of a species;
- reduce the area of occupancy of an important population;
- fragment an existing important population into two or more populations;
- adversely affect habitat critical to the survival of a species;
- disrupt the breeding cycle of an important population;
- modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline;
- result in invasive species, that are harmful (by competition, modification of habitat, or predation) to a vulnerable species, becoming established in the vulnerable species' habitat;
- introduce a disease that may cause a species to decline; or
- interferes substantially with the recovery of the species.

Vulnerable Species – Assessments of Significance

This section addresses each of the aforementioned factors for vulnerable listed species; *Petaurus australis* (Yellow-bellied Glider) and *Pteropus poliocephalus* (Grey-headed Flying-fox).

a) Lead to a long-term decrease in the size of an important population of a species:

The study area is located within the Deua National Park, and together with other adjacent reserves, including Monga National Park, Wadbilliga National Park, Gourock National Park and Badja Swamps Nature Reserve. contain large expanses of forest, woodland and montane

heath habitats of several thousand hectares. Collectively, these reserves cover an extensive area of more than 250,000 hectares. The proposed NSWTA facility will be located immediately adjacent to an existing NPWS/RFS radiocommunications facility and Forests Corporation fire tower, with associated cleared and managed land. No additional vegetation clearing is proposed, hence the adjacent habitats will not be impacted directly by the proposal. Due to a major bush fire that occurred in late 2019, the development footprint and surrounding habitats were significantly impacted and the vegetation in all strata was severely burnt. As a consequence, the vegetation remains in a regenerative state and is substantially reduced from its normal condition.

The footprint required for the proposed development is very small and will be largely confined to a disturbed area that was previously cleared in association with the existing infrastructure. The main impact involves the removal of a relatively small quantity of potential foraging habitat for the subject threatened species from the proposed development footprint. However, these resources are very limited, particularly in the context of the site's position in the landscape and the habitat is only likely to be utilised incidentally by the subject threatened species. Once the initial work to construct the new radiocommunications facility is completed there will be no ongoing human presence associated with the facility apart from infrequent visits to undertake maintenance activities. Therefore, it is unlikely that the proposed action will lead to a long-term decrease in the size of the species population.

b) Reduce the area of occupancy of an important population:

The footprint required for the proposed development is very small and will be largely confined to a disturbed area that was previously cleared in association with the existing infrastructure. The main impact involves the removal of a relatively small quantity of potential foraging habitat for the subject threatened species from the proposed development footprint. However, these resources are very limited, particularly in the context of the site's position in the landscape and the habitat is only likely to be utilised incidentally by the subject threatened species. Once the initial work to construct the new radiocommunications facility is completed there will be no ongoing human presence associated with the facility apart from infrequent visits to undertake maintenance activities. Therefore, the action is unlikely to reduce the area of occupancy of an important population.

c) Fragment an existing important population into two or more populations:

There will be no fragmentation or isolation of an important population associated with the proposed development.

d) Adversely affect habitat critical to the survival of a species:

"Critical habitat" refers to areas critical to the survival of a species or ecological community may include areas that are necessary for/to:

- activities such as foraging, breeding, roosting or dispersal;
- succession;
- maintain genetic diversity and long term evolutionary development; or
- reintroduction of populations or recovery of the species/community.

The habitat within the proposed development footprint is not considered critical habitat for the subject vulnerable species due to its very small size and the highly disturbed condition.

e) Disrupt the breeding cycle of an important population:

There will be negligible change with respect to the habitat or the availability of resources for a potentially occurring local population of the subject species. Linkages will continue to be available and other potential detrimental impacts such as a human presence in the area will not be further exacerbated significantly by the proposed development. Therefore, it is unlikely that there will be any disruption to the breeding cycle of an important population of the subject species associated with the proposal.

f) Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline:

There will be no significant modification, removal, isolation or decrease in the availability of quality habitat associated with the proposed works.

g) Result in invasive species, that are harmful (by competition, modification of habitat, or predation) to a Vulnerable species, becoming established in the vulnerable species' habitat:

No new species that affects the subject species is likely to be introduced as a direct result of the proposal provided the recommendations detailed in section 8 of this report are adopted.

h) Introduce a disease that may cause a species to decline:

No disease that poses a potential risk to these species is likely to be introduced to the site.

i) Interferes substantially with the recovery of the species:

The proposal is unlikely to significantly impact the subject vulnerable species such that it will interfere substantially with the recovery of the species.

13.2.5 Threatened Ecological Community Assessment

The State Vegetation Type Map and findings of the flora survey indicate that the vegetation within the study area does not meet the criteria for a TEC listed under the EPBC Act. Therefore, the proposed works are unlikely to have an adverse effect on the extent of a threatened ecological community.

13.2.6 Conclusion

The proposal is not considered likely to have a significant impact on the assessed threatened species or threatened ecological community, therefore a referral to Department of Climate Change, Energy, the Environment and Water is not required.

14. Appendix D: Bionet Database Search

Table 13: Bionet records retrieved from database search conducted on 8/03/2023

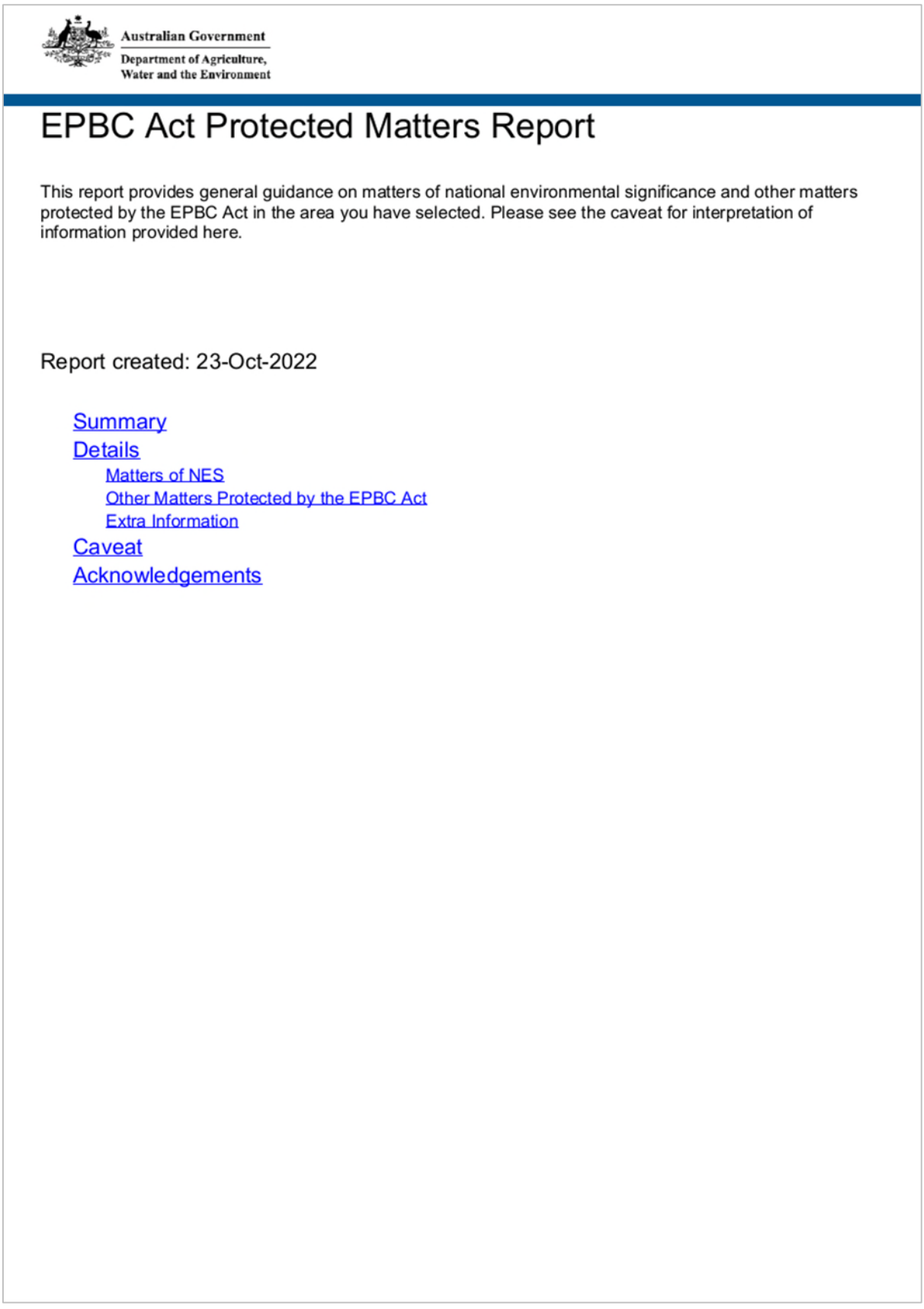
Family	Scientific Name	Common Name	NSW Status	Records
Plantae				
Grammitidaceae	*Grammitis stenophylla*		E1,3	1
Rhamnaceae	*Pomaderris gilmourii* var. *cana*	Grey Deua Pomaderris	V	2
Aves				
Cacatuidae	*Callocephalon fimbriatum*	Gang-gang Cockatoo	V,P,3	16
	Calyptorhynchus lathami	Glossy Black-Cockatoo	V,P,2	1
Tytonidae	*Tyto novaehollandiae*	Masked Owl	V,P,3	11
	Tyto tenebricosa	Sooty Owl	V,P,3	12
Pachycephalidae	*Pachycephala olivacea*	Olive Whistler	V P	6
Petroicidae	*Petroica phoenicea*	Flame Robin	V,P	3
	Petroica rodinogaster	Pink Robin	V,P	1
Mammalia				
Dasyuridae	*Dasyurus maculatus*	Spotted-tailed Quoll	V,P	6
	Sminthopsis leucopus	White-footed Dunnart	V,P	1
Petauridae	*Petaurus australis*	Yellow-bellied Glider	V,P	1
Pseudocheiridae	*Petauroides volans*	Southern Greater Glider	E1,P	17
Vespertilionidae	*Falsistrellus tasmaniensis*	Eastern False Pipistrelle	V,P	13
Vespertilionidae	*Scoteanax rueppellii*	Greater Broad-nosed Bat	V,P	2

NOTE: See key on following page for threatened species listing status

Key to NSW Status:

1	Sensitivity Class 1 (Sensitive Species Data Policy)
2	Sensitivity Class 2 (Sensitive Species Data Policy)
3	Sensitivity Class 3 (Sensitive Species Data Policy)
CC	Collapsed Ecological Community (BC Act)
CH	Critical Habitat (BC Act)
E1	Endangered (BC Act)
E2	Endangered Population (BC Act)
E3	Endangered Ecological Community (BC Act)
E4	Extinct (BC Act)
E4A	Critically Endangered (BC Act)
E4B	Critically Endangered Ecological Community (BC Act)
EW	Extinct in the Wild (BC Act)
FCE	Critically Endangered Fish (FM Act)
FE	Endangered Fish (FM Act)
FEC	Endangered Ecological Community of Fish (FM Act)
FEP	Endangered Population of Fish (FM Act)
FKTP	Key Threatening Process of Fish (FM Act)
FP	Protected Fish (FM Act)
FV	Vulnerable Fish (FM Act)
FX	Extinct Fish (FM Act)
KTP	Key Threatening Process (BC Act)
P	Protected (NP&W Act)
V	Vulnerable (BC Act)
V2	Vulnerable Ecological Community (BC Act)

15. Appendix E: MNES Database Search



Australian Government
Department of Agriculture, Water and the Environment

EPBC Act Protected Matters Report

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

Report created: 23-Oct-2022

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	6
Listed Threatened Species:	40
Listed Migratory Species:	12

Other Matters Protected by the EPBC Act

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

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

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

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

Extra Information

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

State and Territory Reserves:	1
Regional Forest Agreements:	1
Nationally Important Wetlands:	None
EPBC Act Referrals:	4
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

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

Community Name	Threatened Category	Presence Text	Buffer Status
Araluen Scarp Grassy Forest	Endangered	Community likely to occur within area	In feature area
Brogo Vine Forest of the South East Corner Bioregion	Endangered	Community may occur within area	In feature area
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area	In buffer area only
Lowland Grassy Woodland in the South East Corner Bioregion	Critically Endangered	Community may occur within area	In buffer area only
Natural Temperate Grassland of the South Eastern Highlands	Critically Endangered	Community likely to occur within area	In feature area
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria	Critically Endangered	Community likely to occur within area	In buffer area only

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area	In feature area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Callocephalon fimbriatum Gang-gang Cockatoo [768]	Endangered	Species or species habitat known to occur within area	In feature area
Calyptorhynchus lathami lathami South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat known to occur within area	In feature area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat may occur within area	In buffer area only
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Pycnoptilus floccosus Pilotbird [525]	Vulnerable	Species or species habitat known to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
FISH			

Scientific Name	Threatened Category	Presence Text	Buffer Status
Prototroctes maraena			
Australian Grayling [26179]	Vulnerable	Species or species habitat may occur within area	In feature area
FROG			
Heleioporus australiacus			
Giant Burrowing Frog [1973]	Vulnerable	Species or species habitat may occur within area	In feature area
Litoria watsoni			
Watson's Tree Frog [91509]	Endangered	Species or species habitat may occur within area	In feature area
Mixophyes balbus			
Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat known to occur within area	In feature area
MAMMAL			
Chalinolobus dwyeri			
Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Dasyurus maculatus maculatus (SE mainland population)			
Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area	In feature area
Isoodon obesulus obesulus			
Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) [68050]	Endangered	Species or species habitat may occur within area	In feature area
Petauroides volans			
Greater Glider (southern and central) [254]	Endangered	Species or species habitat known to occur within area	In feature area
Petaurus australis australis			
Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat known to occur within area	In feature area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)			
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area	In feature area
Potorous tridactylus trisulcatus			
Long-nosed Potoroo (southern mainland) [86367]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
PLANT			
Caladenia tessellata Thick-lipped Spider-orchid, Daddy Long-legs [2119]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Calochilus pulchellus Pretty Beard Orchid, Pretty Beard-orchid [84677]	Endangered	Species or species habitat may occur within area	In buffer area only
Correa baeuerlenii Chef's Cap [17007]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
Corunastylis vernalis listed as Genoplesium vernale East Lynne Midge-orchid [78699]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
Cryptostylis hunteriana Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Eucalyptus aggregata Black Gum [20890]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Haloragis exalata subsp. exalata Wingless Raspwort, Square Raspwort [24636]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Persicaria elatior Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Pomaderris cotoneaster Cotoneaster Pomaderris [2043]	Endangered	Species or species habitat may occur within area	In feature area
Pomaderris gilmourii var. cana Grey Deua Pomaderris [21870]	Critically Endangered	Species or species habitat known to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Pomaderris gilmourii var. gilmourii [21869]	Endangered	Species or species habitat known to occur within area	In buffer area only
Pomaderris parrisiae Parris' Pomaderris [22119]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Rhodamnia rubescens Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Xerochrysum palustre Swamp Everlasting, Swamp Paper Daisy [76215]	Vulnerable	Species or species habitat may occur within area	In feature area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Rhipidura rufifrons			
Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos			
Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii			
Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area	In feature area
Numenius madagascariensis			
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area

Other Matters Protected by the EPBC Act

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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat likely to occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]		Species or species habitat likely to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Deua	National Park	NSW	In feature area

Regional Forest Agreements		[Resource Information]
Note that all areas with completed RFAs have been included.		
RFA Name	State	Buffer Status
Southern RFA	New South Wales	In feature area

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
Not controlled action (particular manner)				

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action (particular manner)				
Aerial baiting for wild dog control	2006/2713	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

Please feel free to provide feedback via the Contact Us page.

Department of Agriculture Water and the Environment
GPO Box 858
Canberra City ACT 2601 Australia
+61 2 6274 1111

Appendix G – Aboriginal Cultural Heritage Due Diligence Assessment

EVERICK HERITAGE

Critical Communications Enhancement Program, Plumwood Fire Tower Track, Deua National Park

Aboriginal Heritage Due Diligence Assessment

Prepared for Catalyst ONE Pty Ltd on behalf of NSW Telco Authority

December 2022

Bodalla Local Government Area

Report Reference:

Eldon, G. and Giang, J. 2022. *Critical Communications Enhancement Program, Plumwood Fire Tower Track, Deua National Park. Aboriginal Heritage Due Diligence Assessment.* Everick Heritage Pty Ltd unpublished report prepared Catalyst ONE Pty Ltd on behalf of NSW Telco Authority.

EVERICK HERITAGE PTY LTD
ABN: 78 102 206 682
Head Office: Level 9, Matisse Tower
110 Mary Street Brisbane 4000
Sydney Office: 6B Reserve Street, Annandale NSW 2038
T: 02 9552 2944

E: info@everick.com.au
www.everick.com.au

Ver.	Author(s)	Review Type	Sections Edited	Date	Authorised
1-2	G. Eldon & J. Giang	Draft	All	24.11.22	V. Edmonds
3	G. Eldon	Draft	All	24.11.22	V. Edmonds
4	J. Giang	Final Draft	4	30.11.22	V. Edmonds
5	G. Eldon & J. Giang	Final	Client comments	13.12.22	V. Edmonds
6	J. Giang	Amendment	Exec Sum	30.06.23	J. Giang

Executive summary

As part of a new Critical Communications Enhancement Program (CCEP), the New South Wales (NSW) Telco Authority (the proponent) is proposing to make modifications to an existing telecommunications tower (the Project Area) at the Plumwood Fire Tower Track, off Little Sugarloaf Road, Deua National Park (Figure 1-1). The proposed works will involve the installation of a new 25 metre (m) monopole and associated concrete raft foundation with a new generator equipment shelter and solar array attached. A temporary works area as well as a 2.4 m high fence being required around a new compound extension.

Everick Heritage Pty Ltd (Everick Heritage) has been engaged by Catalyst ONE Pty Ltd on behalf of the proponent to prepare an Aboriginal Heritage Due Diligence Assessment (due diligence) to meet the requirements of the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (Due Diligence Code of Practice) (Department of Environment, Climate Change & Water [DECCW] 2010).

The due diligence indicates that the Project Area is of moderate archaeological sensitivity and of low archaeological potential. The Project Area is situated on a ridge top which is defined as an archaeologically sensitive landform within the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (Due Diligence Code of Practice) (Department of Environment, Climate Change & Water 2010a). An extensive search of the Aboriginal Heritage Information Management System (AHIMS) database indicates that there are no recorded sites within the Project Area however, most of the recorded sites in the region are located along the ridgelines within the National Park. The closest site is DL7 (AHIMS ID 57-6-0309) located approximately 1.4 km west of the Project Area.

A visual inspection was conducted on the 23 November 2022 by Jason Giang (Archaeologist, Everick Heritage). Bodalla LALC were invited to attend but did not respond to any correspondence. The visual inspection identified that the ridgetop had been subject to levelling and vegetation clearance during the construction of the existing structures. The concrete foundations of a partially demolished barbeque or oven station was also identified outside of the existing compound. Vegetation around the crest of the mountain had been mostly cleared with only low shrub regrowth remaining. The soil profile was also noted to be quite thin in areas of exposure. No Aboriginal sites or potential archaeological deposits were identified during the visual inspection. Additionally, an attempt was made to reinspect the location of DL1A (AHIMS ID 57-6-0310), an artefact site located along the fire trails accessed to reach the Project Area. No Aboriginal cultural heritage was found at the mapped location.

Contents

CONTENTS

Figures

FIGURES

Tables

Definitions and abbreviations

ACHAR	means Aboriginal Cultural Heritage Assessment Report
AHIMS	means Aboriginal Heritage Information Management System
AHIP	means Aboriginal Heritage Impact Permit
ALR Act	means *Aboriginal Land Rights Act 1983 (NSW)*
asl	above sea level
Commonwealth Act	means *Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth)*
DECCW	means Department of Environment, Climate Change and Water (now Heritage NSW)
Due Diligence Code of Practice	means Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales
DPC	means Department of Premier & Cabinet
DPE	Department of Planning and Environment
EPBC Act	means *Environment Protection and Diversity Conservation Act 1999 (Cth)*
Everick Heritage	means Everick Heritage Pty Ltd
ha	means hectare
km	means kilometres
LALC	means Local Aboriginal Land Council

LEP	means Local Environmental Plan
LGA	means Local Government Area
m	means metres
mm	means millimetres
NPW Act	means *National Parks and Wildlife Act 1974 (NSW)*
NPW Regulation	means *National Parks and Wildlife Regulation 2009*
NSW	means New South Wales
PAD	means Potential Archaeological Deposit
Project Area	means area shown in Figure 1-1

1. Introduction

1.1. Project background

New South Wales (NSW) Telco Authority (the proponent) is proposing to upgrade and existing telecommunications tower (the Project Area) at about 970 metres (m) above sea level within the Deua National Park, on Plumwood Fire Tower Track, Deua, NSW (Figure 1-1). The proposal will expand the existing compound of the Forestry Corporation facility and fire watch tower.

Everick Heritage Pty Ltd (Everick Heritage) has been engaged by Catalyst ONE Pty Ltd on behalf of the proponent to prepare an Aboriginal Heritage Due Diligence Assessment (due diligence) to meet the requirements of the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (Due Diligence Code of Practice) (Department of Environment, Climate Change & Water [DECCW] 2010).

1.2. Project Area

The proposed works will mostly take place within a new extension to the compound for an existing telecommunications tower located in the Deua National Park along Plumwood Fire Tower Track, off Little Sugarloaf Road, Deua, NSW. Plumwood Fire Tower overlooks to the town of Moruya, the village of Bodalla, the town of Tuross Head, the village of Moruya Heads, the town of Broulee and the town of Dalmeny. The Project Area is situated within the Parish of Deua and County of Dampier, within the Eurobodalla Local Government Area (LGA). The Project Area is also situated within the Bodalla Local Aboriginal Land Council (LALC).

1.3. Project description

The Project comprises the following components as shown in Figure 1-2 and Figure 1-3:

- Installation of one 25 m high monopole tower and associated footing. A dipole array and other radio communications equipment will be installed on the monopole tower
- Installation of new equipment shelter and generator shelter

- Installation of temporary works area (15 m x 10 m)
- Construction of a 2.4 m high fence around a new compound extension with 2.5 m double access gate.

1.4. Methodology

This assessment consisted of the following tasks, in line with Steps 1-5 of the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (Due Diligence Code of Practice) (Department of Environment, Climate Change & Water 2010a):

- Assess the nature of the works activities with consideration of ground surface disturbance and the potential to impact on mature indigenous trees which may be culturally modified.
- Assess the presence and nature of recorded Aboriginal sites in the surrounds of the Project Area through database searches and other sources of information such as relevant archaeological reports.
- Assess the past and present landscape features of the Project Area.
- Present evidence and findings from the site inspection.
- Assess the archaeological potential of the Project Area and any likely impact of the works on landforms of archaeological potential.
- Provide recommendations for mitigation of impact to any Aboriginal archaeological values.

1.5. Authors and contributors

Grace Eldon and Jason Giang (Heritage Consultants, Everick Heritage) have prepared this due diligence assessment. Jason Giang conducted the visual inspection and write up. Grace has one year of experience within the cultural heritage industry and holds a Bachelor of Arts (Hons). Jason has three years of experience as a heritage consultant and has prepared numerous archaeological reports across New South Wales and Victoria.

Vanessa Edmonds (Principal, NSW) provided a quality and compliance review of this report. Vanessa has over 30 years of experience in cultural heritage management in NSW.

Alfred Gasore (GIS, Everick Heritage) prepared the mapping.

Figure 1-1: The Project Area

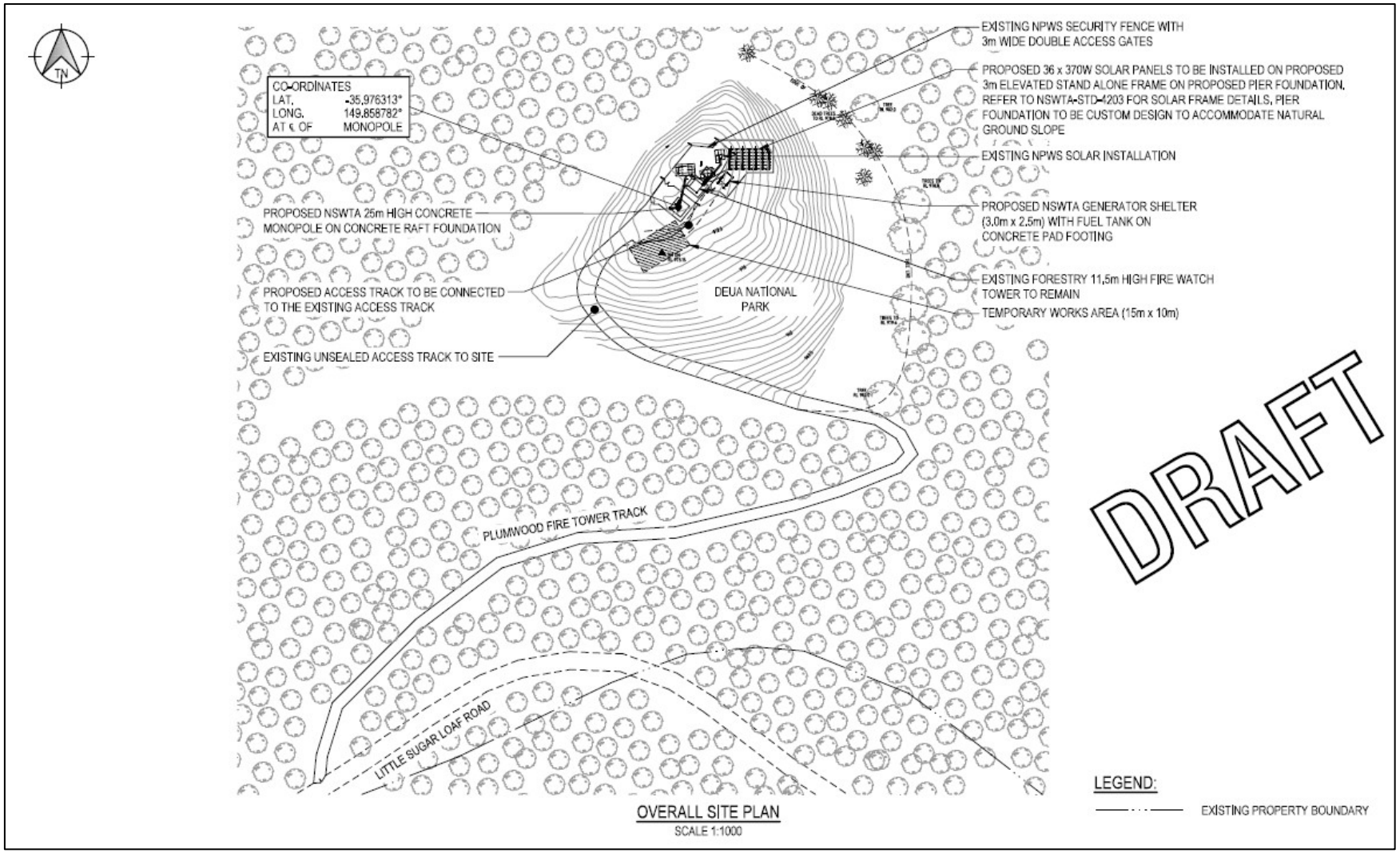


Figure 1-2: Preliminary design plans for the proposed works (1 of 2)

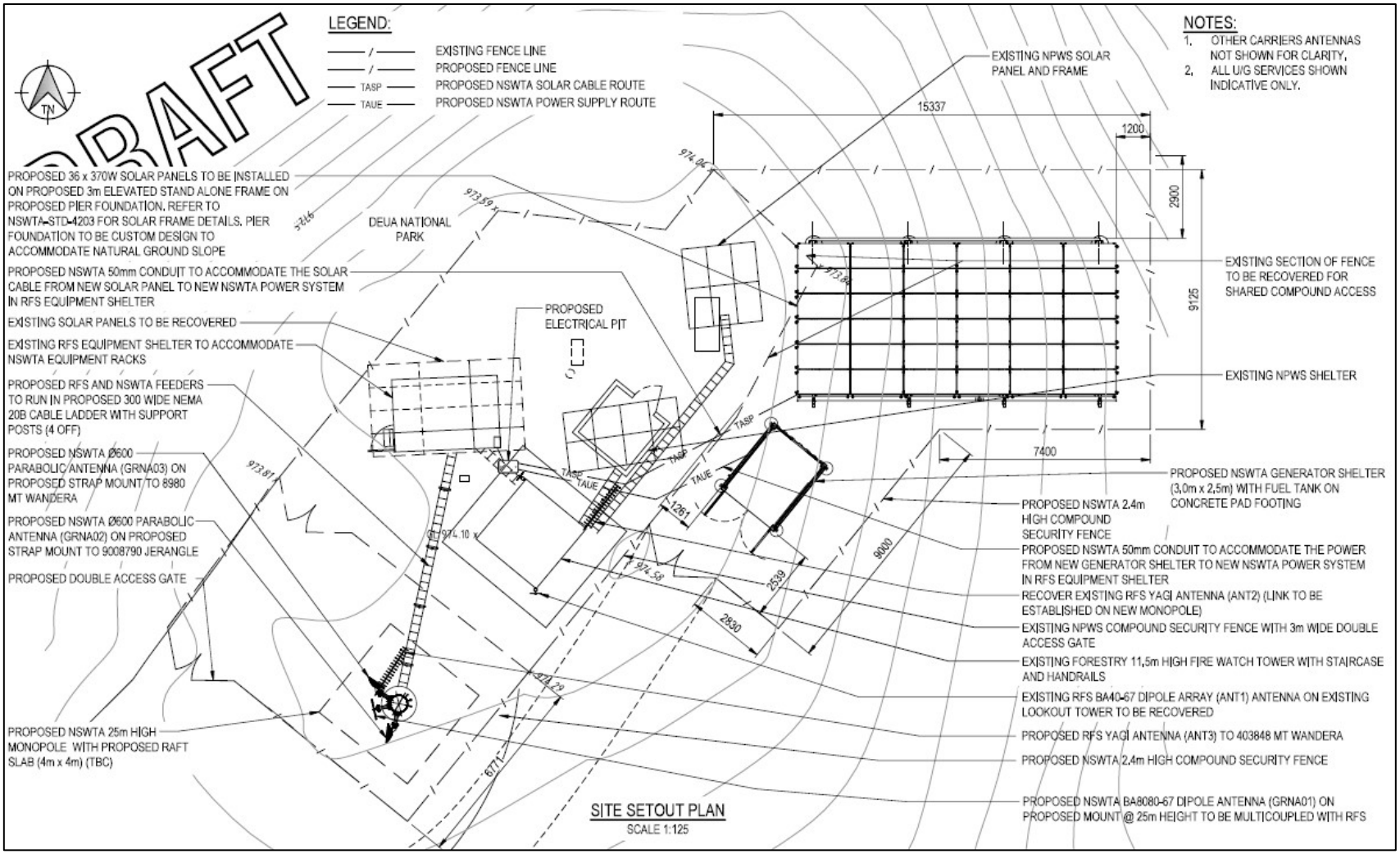


Figure 1-3: Preliminary design plans for the proposed works (2 of 2)

2. Legislative context

2.1. Commonwealth legislation

2.1.1. Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth)

Most State Aboriginal heritage databases provide protection for those sites with physical evidence. The *Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth)* (*Commonwealth Act)*, deals with Aboriginal cultural property in a wider sense. Such cultural property includes any places, objects and folklore that 'are of particular significance to Aboriginals in accordance with Aboriginal tradition'. In most cases, archaeological sites and objects registered under the *National Parks and Wildlife Act 1974 (NSW) and Heritage Act 1977 (NSW)* will also be Aboriginal places subject to the provisions of the *Commonwealth Act*.

There is no cut-off date and the *Commonwealth Act* may apply to contemporary Aboriginal cultural property as well as ancient sites. The *Commonwealth Act* takes precedence over State cultural heritage legislation where there is conflict. The responsible Minister may make a declaration under Section 10 of the *Commonwealth Act* in situations where state or territory laws do not provide adequate protection of heritage places.

2.2. State legislation

2.2.1. National Parks and Wildlife Act 1974 (NSW)

The *National Parks and Wildlife Act 1974 (NSW) (NPW Act)* provides statutory protection to all Aboriginal places and objects. An Aboriginal object is defined as:

> *any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains.*

An Aboriginal Place is declared by the Minister under section 86 of the *NPW Act.* Aboriginal Places are recognised for their special significance to Aboriginal culture. Aboriginal Places gazetted under the *NPW Act* are listed on the State Heritage Register established under the *Heritage Act 1977 (NSW)*.

The protection provided to Aboriginal objects applies regardless of the level of their significance or issues of land tenure. Aboriginal objects and places are afforded statutory protection in that it is an offence to knowingly or unknowingly desecrate and Aboriginal object or place under section 86 of the *NPW Act*.

In accordance with section 89A, any person who is aware of the location of an Aboriginal object must notify the Chief executive in the prescribed manner within a reasonable time of becoming aware of that object. The prescribed manner is through preparation and submission of an Aboriginal Site Recording Form to the Aboriginal Heritage Information Management System (AHIMS) (DECCW 2010b: 14).

In order to undertake a proposed activity which is likely to involve harm to an Aboriginal object or Aboriginal Place it is necessary to apply to Heritage NSW (Department of Planning and Environment [DPE]) for an Aboriginal Heritage Impact Permit (AHIP). AHIPs are issued by the Aboriginal Heritage Regulation Team (Heritage NSW) under section 90 of the *NPW Act* and permit harm to certain Aboriginal objects and Aboriginal Places.

2.2.2. National Parks and Wildlife Regulation 2019 (NSW)

The Due Diligence Code of Practice was adopted by the *National Parks and Wildlife Regulation 2009 (NSW)* (as amended in 2019) and introduced in October 2010 by Heritage NSW (formerly DECCW). The aim of this guideline is to assist individuals and organisations to exercise due diligence when carrying out activities that may harm Aboriginal objects and to determine whether they should apply for consent in the form of an AHIP.

A due diligence assessment should take reasonable and practicable steps to ascertain whether there is a likelihood that Aboriginal objects will be disturbed or impacted during the proposed development. If it is assessed that sites exist or have a likelihood of existing within the development area and may be impacted by the proposed development, further archaeological investigations may be required along with an AHIP. If it is found to be unlikely that Aboriginal sites exist within the study area and the due diligence assessment has been conducted according to the Due Diligence Code of Practice, work may proceed without an AHIP.

This due diligence assessment seeks to comply with the *NPW Act,* by assisting the proponent in meeting their obligations under the *NPW Act*.

2.2.3. *Native Title Act 1994 (NSW)*

The Native Title Act 1994 (NSW) was introduced to work in conjunction with the Commonwealth *Native Title Act 1993 (Cth).* Native Title claims, registers and Indigenous Land Use Agreements are administered under the *Native Title Act 1994 (NSW).* A search was conducted of the Native Title register on 27 September 2022 which returned no results.

2.2.4. *Aboriginal Land Rights Act 1983 (NSW)*

The *Aboriginal Land Rights Act 1983 (NSW) (ALR Act)* was introduced to compensate Aboriginal people in NSW for dispossession of their land. The *ALR Act* also established Aboriginal Land Councils (at State and Local levels). The *ALR Act* enables Local Aboriginal Land Councils (LALCs) to claim Crown Land in NSW that is owned and managed by the state government. These LALC have a statutory obligation under the *ALR Act* to:

(a) take action to protect the culture and heritage of Aboriginal persons in the council's area, subject to any other law, and

(b) promote awareness in the community of the culture and heritage of Aboriginal persons in the council's area.

The Project Area is within the boundary of the Bodalla LALC. Preparation of this due diligence would fulfil Bodalla LALC's obligations under the ALR Act.

3. Background

The purpose of this section is to assist in the prediction of:

- The potential of the landscape over time to have accumulated and preserved Aboriginal objects.
- The ways Aboriginal people have used the landscape in the past with reference to the presence of resource areas, surfaces for art, other focal points for activities and settlement.
- The likely distribution of the material traces of Aboriginal land use based on the above.

3.1. Environmental context

3.1.1. Soil landscapes, geomorphology and geology

The Project Area is located within the Budawangs Range soil landscape (Figure 3-1). The landscape varies slightly in its eastern and western portions. The eastern half consists of moderate slopes, with rising hills and ridges on folded Ordovician sandstone, siltstone, slate and chert. The western portion envelopes part of the Great Escarpment, consisting of steep rocky ridges and ranges of a prominent synclinal fold in Devonian sandstone, quartzite, conglomerate, minor shale, rhyolite and rhyolitic breccia.

The Mitchell landscapes were mapped in 2002 using a combination of land systems in Western NSW and Digital Elevation Models in eastern NSW (Mitchell 2002). According to Mitchell (2002), the Project Area is located entirely within the eastern half of the Budawangs Range landscape (Figure 3-2). The local relief in this landscape is between 100 m to 400 m above sea level (asl). The soil profile generally consists of a thin stony red and red-yellow texture-contrast soil.

3.1.2. Vegetation

The vegetation within the eastern portion of the Budawangs Range landscape varies depending on landform and location. In the heavily dissected terrain of the upper Deua, shrubby wet sclerophyll forests occur on sheltered slopes. These are replaced by shrubby dry sclerophyll forests on exposed ridges, slopes and sites with sandier soils. Grassy wet sclerophyll forests replace shrubby wet sclerophyll forests on soils derived from the Merimbula formation (sandstone, siltstone, mudstone, and conglomerate), while rainforests are scattered throughout the escarpment and foothills as many small patches within moist gullies (Tozer 2010: 390-391).

3.1.3. Hydrology

The nearest major creek line is a tributary flowing from the Deua River located approximately 107 m to the south of the Project Area at the base of the peak. Numerous first order drainage lines begin at the base or lower slopes of the elevated hill upon which the Plumwood Fire Tower sits.

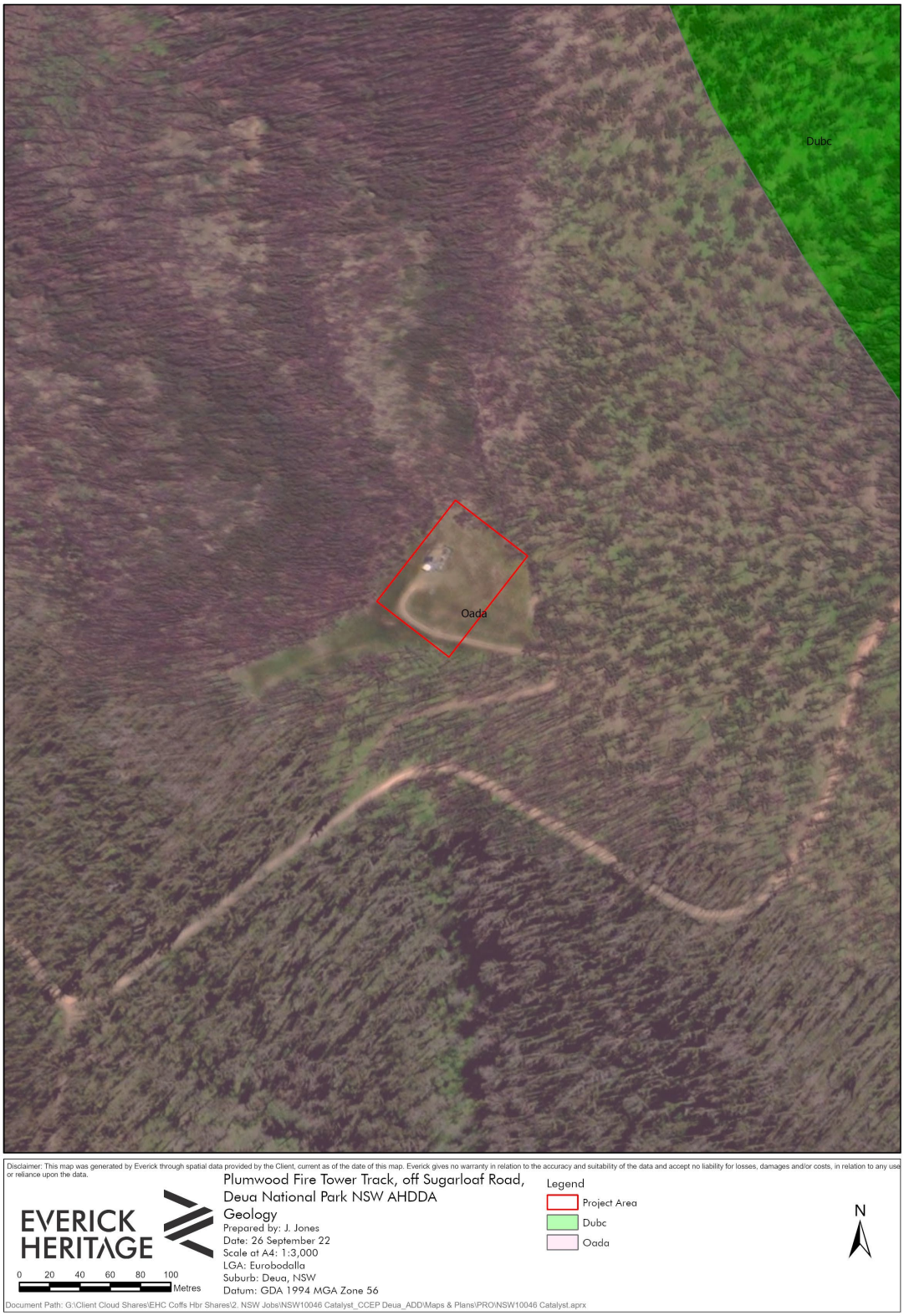


Figure 3-1: Geology of the Project Area

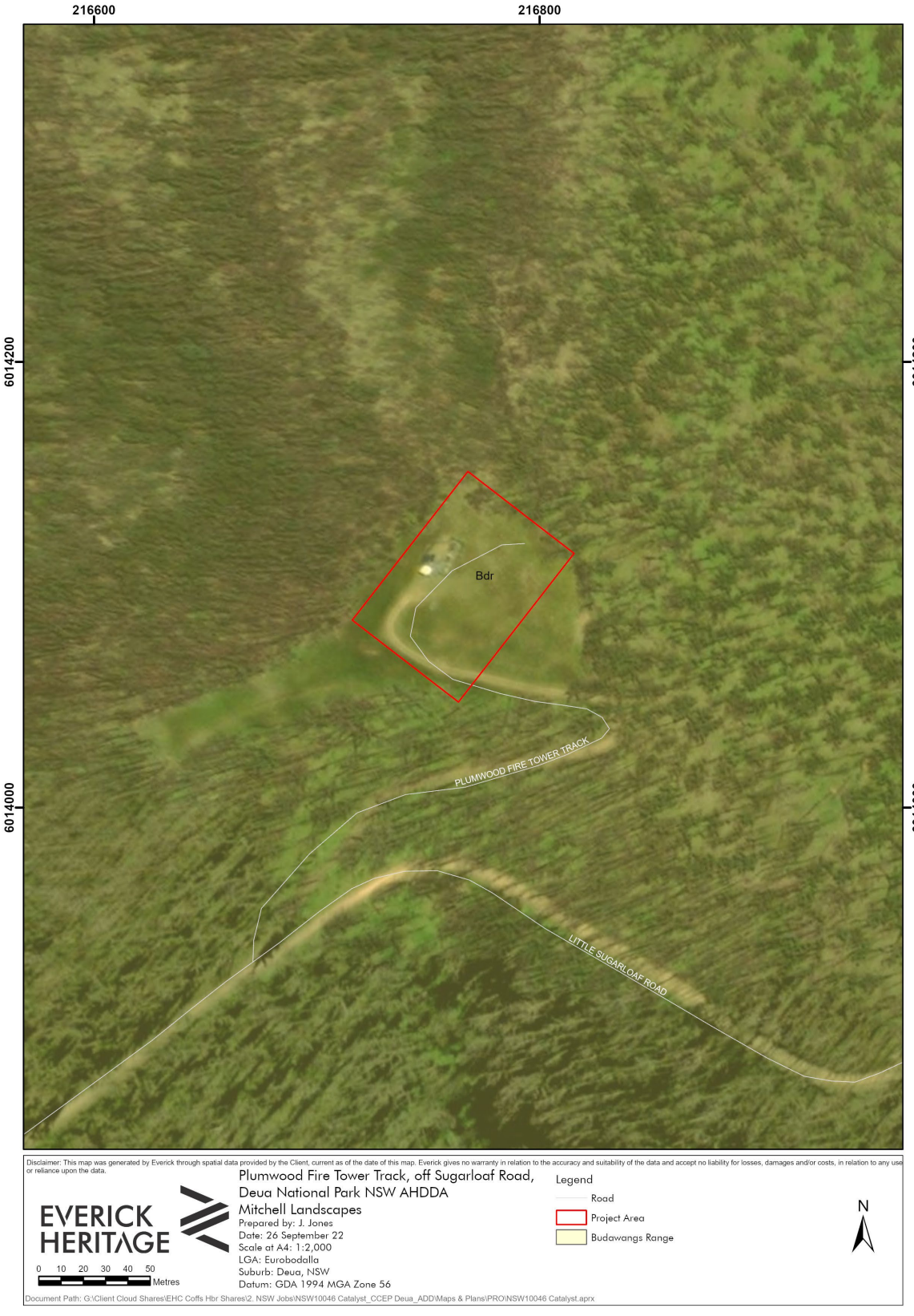


Figure 3-2: Overview of Mitchell landscapes within and around the Project Area

3.2. Past and present land use

The Deua National Park is located within an assemblage of national parks called the Far South Coast Escarpment Parks, which comprise the Monga National Park, Gourock National Park, Wadbilliga National Park and Badja Swamp Nature Reserve. These parks cover the southern coastal ranges of Eastern NSW and cover an area of more than 240,000 hectares (ha). Deua National Park was gazetted in 1979, as a result of the public momentum for national parks which had been growing throughout the 1970s. As of 2009, the total area of Deua National Park is 122,033 hectares (ha). It protects a large percentage of the catchment of the Deua/Moruya River system which are highly sensitive landforms due to their ceremonial and spiritual significance to the local Aboriginal community. Deua National Park also falls within the scope of Sydney's Drinking Water Catchment REP No. 1 2007.

Within the historic aerial photographs seen in Figure 3-2, Figure 3-3 and Figure 3-4, it is clear that the fire trail itself has been modified slightly over time, but overall, it has remained consistent with the surrounding area, lacking any significant development. The trail itself was established sometime between 1977 and 1990, and prior to this the ridgeline was uncleared forest.

Figure 3-3: 1977 Aerial photo of the Plumwood Fire Tower Track (Source: NSW Government Spatial Services)

Figure 3-4: 1990 Aerial photo of the Plumwood Fire Tower Track (Source: NSW Government Spatial Services)

Figure 3-5: 1992 Aerial photo of the Plumwood Fire Tower Track (Source: NSW Government Spatial Services)

3.3. Ethnohistoric context

Clans were the basic units of pre-colonisation Aboriginal society and comprised patrilineal or matrilineal descent groups with territories defined by ritual and economic responsibilities. Clusters of neighbouring clans, which shared a common dialect and political and economic interest distinguished themselves from other clusters by the use of a language name (Barwick 1984; Tindale 1974). The Eurobodalla Shire is associated primarily with the *Dhurga* [Thoorga / Durga] language, with the *Djirringanj* language region extending into the study area in the south (Donaldson 2006: 3).

The hinterland of the Far South Coast is part of the home territory of the Yuin People. Their country extends from Shoalhaven River in the north, to Cape Howe in the south and west to the Great Dividing Range. Aboriginal sites have been recorded mostly in places which provide easy access to a wide range of food resources and have level, well drained ground suitable for camping. Groups travelled along pathways between the coast and the Monaro Tablelands as part of seasonal movements, with large gatherings on the coast in spring and summer and smaller groups hunting, fishing and collecting plant foods in the forested hinterland in autumn and winter. This periodic movement fostered relations and goods movements in the form of whale meat, fish flushes, bogong moths and ceremonial purposes, including initiation, marriages and resolving disputes and consolidating political ties (Goulding 2005: 23).

The Deua River dissects the Escarpment Parks. The area continues to be valued today for its natural resources and a place to camp and teach cultural practices. A rich history of landscape use associated with the Moruya-Deua River (the Moruya River becomes the Deua River on the western side of the Moruya River Bridge) is documented in various cultural heritage studies (NGH Heritage 2009; Goulding and Waters 2005; Donaldson 2006; 2007) and a pattern of occupational sites and site use in the area can be inferred. Larger sites are located along rivers and deep valleys while small, short-stay camps can be found on the high ridges and saddles of the hinterland apartments. It is suggested that Aboriginal people may have set out from these river-side camps, climbing along the tops of ridges to hunt wallabies and possums and venturing into the shady, forested gullies for berries and fern hearts (NGH Heritage 2009: 9). Such sites commonly consist of artefact scatters of stone artefacts. Quartz, quartzite, jasper, mudstone and silcrete are common raw material used in the manufacture of artefacts found on river flats and their surrounds, while quartz from reef outcrops was commonly used to make artefacts which occur as small scatters along ridgelines and in saddles on the ranges.

Archaeological evidence confirms that the Aboriginal people of the Eurobodalla region have had a long and continuous occupation with the Far South Coast Region and a large population remains in the region today and have retained their tribal identity.

3.3.1. Database searches

Caution should be taken when using the Heritage NSW Aboriginal Heritage Information Management System (AHIMS) database to reach conclusions about site prevalence or distribution. For example, a lack of sites in a given area should not be seen as evidence that the area was not occupied by Aboriginal people. It may simply be an indication that it has not been surveyed for cultural heritage, or that the surveys were undertaken in areas of poor surface visibility. Further to this, care needs to be taken when looking at the classification of sites. For example, the decision to classify a site an artefact scatter containing shell, rather than a midden can be a highly subjective exercise, the threshold for which may vary between archaeologists. It is also important to note that the nature and location of Aboriginal sites can be culturally sensitive information and should only be made publicly available with the consent of the Aboriginal community.

A search of AHIMS was initially conducted on 19 September 2022 (Client Service ID: 718729) with the following coordinates:

Lat, Long From : -36.0468, 149.7423

Lat, Long To : -35.9079, 149.9895

Sixty-eight (68) Aboriginal objects and zero Aboriginal Places were identified in the search (Figure 3-6). The closest site located to the Project Area is DL7 (AHIMS ID 57-6-0309) which is located approximately 1.4 kilometres (km) west of the Project Area and is mapped to be 27 m north of Little Sugarloaf Road.

There are 20 standard site features that can be used to describe a site registration with AHIMS, and more than one feature can be used for each site. For the 70 sites within the search area, a total of seven different site features are recorded. A site might be comprised of multiple site features. The most common site features recorded within this search was Artefacts, followed by Art (Pigment or Engraved). A summary of the recorded site features in the search are detailed in Table 3-1.

Table 3-1: AHIMS features within vicinity of the Project Area (AHIMS Search ID: 718729)

Site feature	Number	Percentage
Art (Pigment or Engraved)	1	1.5
Artefact	67	98.5
Total	**68**	**100**

3.3.2. Other database searches

The following heritage registers were accessed on the 19 September 2022:

- World Heritage List (Australian Heritage Council/ UNESCO): no results
- The National Heritage List (Australian Heritage Council): no results
- Commonwealth Heritage List (Australian Heritage Council: no results
- Register of the National Estate (Australian Heritage Council): This is a non-statutory list which it retained as archive of the previous listing process.
    - The entire area of Deua National Park (DNP) is listed on the Register of the National Estate (RNE). The RNE does not place any legal constraints or controls on the actions of state or local governments
- The State Heritage Register (NSW Heritage Office): no results
- The Register of the National Trust of Australia: This is a non statutory listing. no results
- Eurobodalla Local Environment Plan (LEP) (2012): no results
- AHIP Public Register: no results

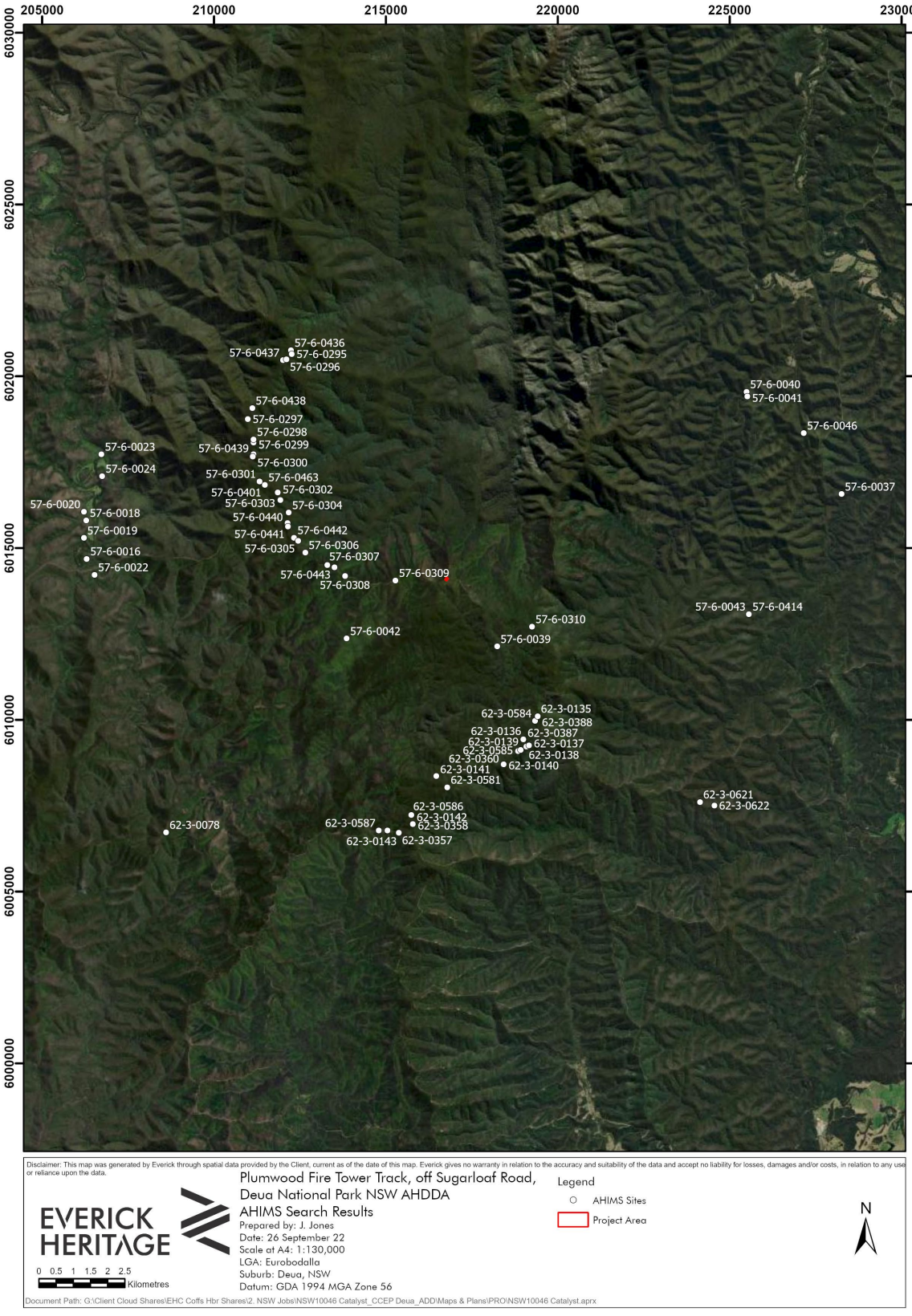


Figure 3-6: Results of the extensive AHIMS search

3.3.3. Previous archaeological assessments

The Project Area is located within the South East Highland Region, which is associated with the Alpine region. Until the early 1990s, the majority of archaeological research in highland regions of NSW and Victoria concentrated on art sites or occupation of the Highlands region, rather than the upper lowlands where the Project Area is located. Grinbergs (1992) states that the major exploitation zone in that area was between 700 m and 1,350 m above sea level (asl), with people moving above this level to exploit a variety of seasonally available foods in spring and summer. People retreated below this level in winter specifically to exploit sources of raw stone materials. The Project Area is located approximately 900 m asl being directly in the predicted exploitation zone.

There were no previous archaeological assessments found within the vicinity of the Project Area. It is noted that there are other sites locally such as artefact scatters, scarred trees, rock shelters and spiritual sites, the closest just 1.4 km of the Project Area. This site comprised an open camp site consisting of an artefact scatter of 280 square metres located along the trail, DL7 (AHIMS ID 57-6-0309), located 27 m north of Little Sugarloaf Road. The majority of sites recorded within the vicinity of the Project Area are a direct reflection of where archaeological surveys have been conducted for either track maintenance or proposed developments, rather than an accurate representation of pre-contact Aboriginal site distribution.

3.4. Summary and predictive model

The low number of registered Aboriginal sites within 1 km of the Project Area is probably indicative of the lack of archaeological assessments which have occurred in the region. A review of previous cultural heritage studies and conservation management plans as well as a review of the AHIMS database indicates the most likely sites to occur within and within proximity of the Project Area will be camp sites comprising of isolated artefacts or low-density artefact scatters. These sites are most likely to occur on flat elevated areas in conjunction with sources of water, such as creeks, streams or rivers. The Project Area, which is situated on top of a ridge would have provided good views of the surrounding areas and is located only approximately 400 m from the nearest perennial water source. Ridgelines are known to be an archaeologically sensitive landform and could potentially harbour evidence of Aboriginal occupation as ridgelines in the area were likely to have provided routes between the coast and the tablelands (NGH 2009: 9). This is reflected within the distribution of AHIMS site within the surrounding region. A minimum of fifty AHIMS sites for instance, have been recorded in association with ridgetops within a 10 km radius

of the Project Area. In these landforms, Aboriginal sites such as isolated artefacts are likely to be found with all site types having already been identified within the national park.

While the archaeologically sensitivity is moderate for the Project Area, historic land use and land clearance has limited its archaeological potential. The Project Area comprises the crest of a local high point in the national park where an existing telecommunications tower currently stands. The construction of this tower and associated vegetation clearance is likely to have resulted in a moderate degree of ground disturbance.

Given these factors, the Project Area is assessed to be of moderate archaeological sensitivity and of low archaeological potential given previous land clearance.

Furthermore, there is one Aboriginal site, DL1A (AHIMS ID 57-6-0310, listed on AHIMS located along the Sugarloaf Road to the southeast of the Project Area which may serve to access the Plumwood Fire Tower Track and new CCEP facility (Figure 3-6). A visual inspection of the site, is proposed to verify its condition and provide any mitigation or management measures required.

4. Visual inspection

4.1. Aims

The primary aims of the visual inspection were:

- To establish if the Project Area contained areas of ground disturbance and map the extent and nature of that disturbance.
- Identify any landscape features in the Project Area which contain Aboriginal objects, that is areas of potential archaeological deposit (PAD), rock shelters which might be habitation sites or outcrops of sandstone suitable axe grinding grooves.

4.2. Timing, personnel and methodology

The visual inspection was undertaken of the Project Area on foot on 23 November 2022 by Jason Giang (Heritage Consultant, Everick Heritage). Everick Heritage invited the Bodalla LALC to attend the site visit through e-mail and telephone calls but no response was received. A photographic record and field notes were kept of the inspection. GPS tracks were taken to record any noted features during the inspection.

5. Results

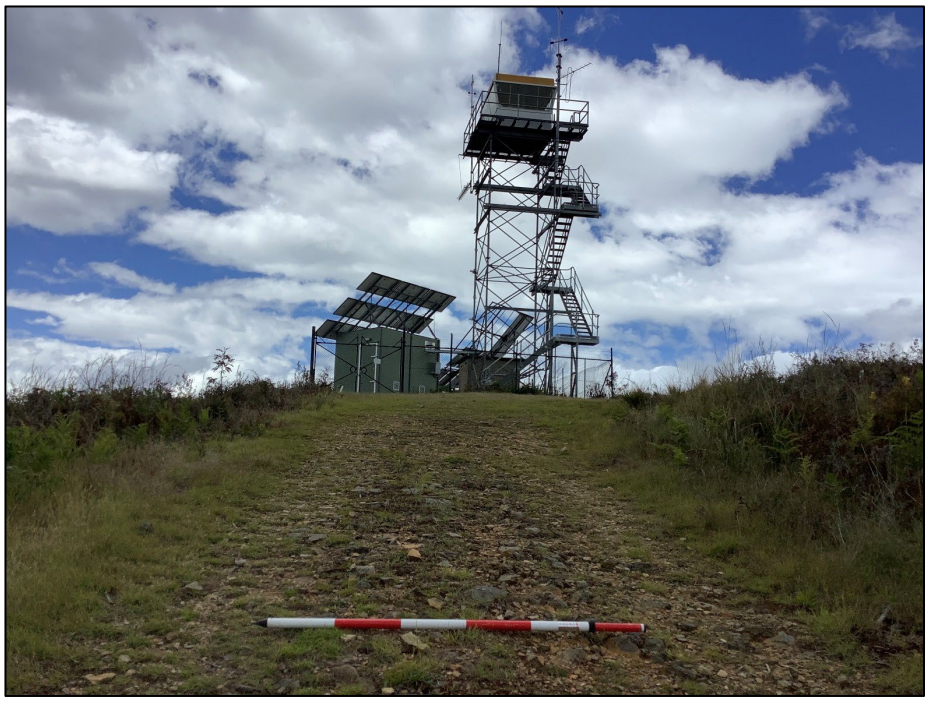
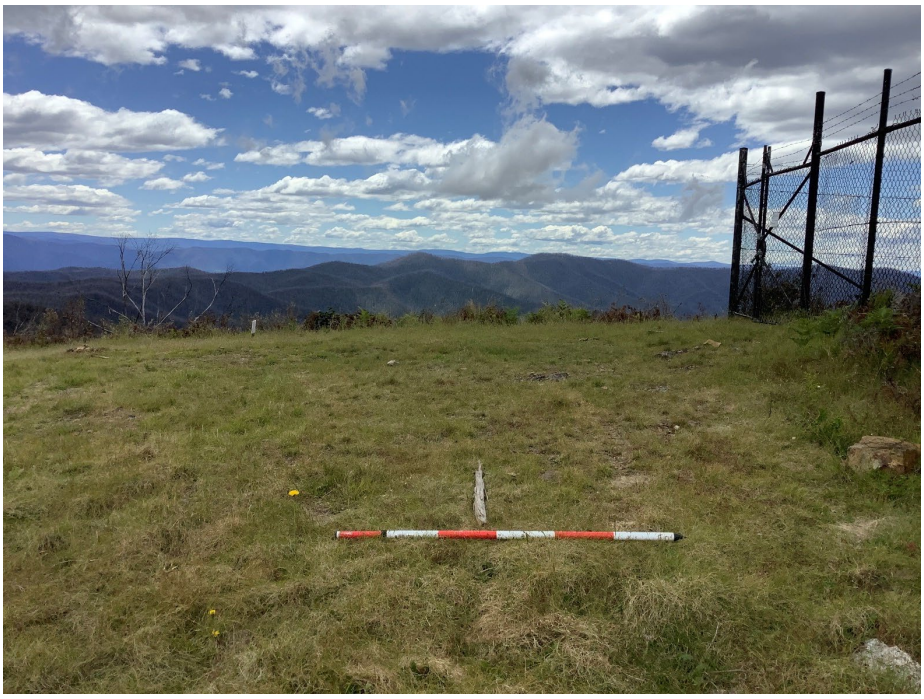
No Aboriginal sites, potential archaeological deposits or archaeologically sensitive landforms were identified during the visual inspection. The Project Area is located at the crest of a local highpoint within the Deua National Park Mountain ranges (Figure 5-1). An existing fenced fire tower compound is located on the mountain top and comprises a majority of the Project Area. These existing structures have been constructed on a narrow ridgetop which appears to have been cleared and partially levelled during the original construction of these buildings (Figure 5-2, Figure 5-3). There is further evidence of previous land use and land clearance in the form of a concrete oven or fireplace station located on the edge of the cleared crest (Figure 5-4). These concrete foundations are located to the southeast of the existing compound and measured approximately 2.5 m x 1.5 m and appears to have been partially demolished. Additionally, vegetation in the surrounding areas just outside of the compound have been cleared, presumably to increase the visibility from the fire tower (Figure 5-5). All shrubbery and vegetation aside from low grasses has been cleared from the crest.

The fire tower compound itself could not be accessed although the existing structures could be partially viewed through the wired fence. The compound currently comprises two sheds and the fire tower which are all constructed on concrete foundations (Figure 5-6). Other smaller electrical infrastructure elements were also noted (Figure 5-7). The proposed laydown area is located on the mountain top in a previously cleared location.

The ground surface around the compound entrance and the fire trails have been fairly eroded with the ground surface comprised predominantly of natural stony gravel with little topsoil remaining. The overall ground surface visibility ranged between 30 to 40 per cent depending on grass coverage (Figure 5-8).

One Aboriginal site, DL1A (AHIMS ID 57-6-0310) located along the access track into the National Park was reinspected. The artefact site is located at a turn around point located along Little Sugarloaf Road. The ground surface visibility in this area was low with the ground being covered with grass and high densities of crushed stone gravel (Figure 5-9). No Aboriginal artefacts were found during this site inspection.

No particular cultural values have been attributed to the Project Area through background research and no Aboriginal consultation was able to be undertaken for the visual inspection. Nevertheless, it has been stated that several peaks within the Deua National Park have been identified as potential sites of spiritual significance to the Yuin people and while they may not contain any physical evidence of past use or occupation they are still important.

Photograph	Description
	Figure 5-1: View to northeast of mountain top and existing fire tower compound (J. Giang 23/11/22)
	Figure 5-2: View to north of cleared area location around compound (J. Giang 23/11/22)

Photograph	Description
	Figure 5-3: View to southeast of cleared area around compound(J. Giang 23/11/22)
	Figure 5-4: Partially demolished concrete barbeque or oven station, view to south (J. Giang 23/11/22)

Photograph	Description
	Figure 5-5: View to south of nearby cut and cleared vegetation (J. Giang 23/11/22)
	Figure 5-6: View to north tower compound (J. Giang 23/11/22)

Photograph	Description
	Figure 5-7: View to north of tower compound and infrastucture (J. Giang 23/11/22)
	Figure 5-8: View to north of ground surface visibility (J. Giang 23/11/22)

Photograph	Description
	Figure 5-9: Overview of location of DL1A (AHIMS ID 57-6-0310) (J. Giang 23/11/22)

6. Assessment of archaeological sensitivity

6.1. Discussion

Archaeological sensitivity is closely related to observed levels of ground disturbance. However, other factors are also taken into account when assessing archaeological sensitivity, such as whether Aboriginal objects were located on the surface, and whether the area is within a sensitive landform unit according to the predictive statements.

Landscape features may indicate the presence of Aboriginal objects, as a result of Aboriginal people's use of those features in their everyday lives and for traditional cultural activities. It is essential to determine whether the site contains landscape features that indicate the likely existence of Aboriginal objects. The Due Diligence Code of Practice (2010a: 12) defines these landscapes as:

- within 200 m of waters, or
- located within a sand dune system, or
- located on a ridge top, ridge line or headland, or
- located within 200 m below or above a cliff face, or
- within 20 m of or in a cave, rock shelter, or a cave mouth.

The Project Area contains sensitive landscape features as it is located on a ridgetop. Elsewhere in the region numerous AHIMS sites have been previously identified along ridgetops.

Part 8A, Clause 80B (4) of the *NPW Regulation* states that land is disturbed if it is has been the subject of human activity that has changed the land's surface, being changes that remain clear and observable. Examples of activities that may have caused disturbance are provided in the *NPW Regulation* as:

(a) soil ploughing,

(b) construction of rural infrastructure (such as dams and fences),

(c) construction of roads, trails and tracks (including fire trails and tracks and walking tracks),

(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).

The visual inspection has indicated that the Project Area has been subject to (c), (d) and (e).

6.2. Conclusions

A search of the AHIMS database did not identify any registered sites within the Project Area. Overall, the Project Area has been assessed as demonstrating moderate archaeological sensitivity and low archaeological potential. The construction of the existing telecommunications structure and fire tower has resulted in significant ground disturbance of within the Project Area particularly on the cleared crest. The laydown areas will be located within areas which have been subject to previous disturbance. The visual inspection confirmed that no Aboriginal objects or archaeological deposits would be harmed as a result of the proposed works. Therefore, in accordance with the Due Diligence Code of Practice (DECCW 2010a), the proposed works within the Project Area will not impact on Aboriginal objects and thus requires no further investigation.

7. Recommendations

The following recommendations regarding Aboriginal heritage are based on consideration of:

- Statutory requirements under the *NPW Act*
- Due Diligence Code of Practice (DECCW 2010a)

It was found that:

- No previously recorded Aboriginal sites are located within the Project Area.
- No Aboriginal objects, or areas where Aboriginal objects are likely to occur beneath the ground surface, were identified within the Project Area.
- The Project Area is of moderate Aboriginal archaeological sensitivity and low archaeological potential.

The following recommendations are made:

- In accordance with the Due Diligence Code of Practice, the proposed activity can proceed with caution, with no further Aboriginal archaeological investigation, assessment or mitigation measures required.
- Unexpected Aboriginal objects remain protected by the *NPW Act*. If any such objects, or potential objects, are uncovered in the course of the activity, work in the vicinity must cease, and Heritage NSW, and Bodalla LALC be contacted for advice.
    - If suspected human remains are discovered and/or harmed in, on or under the land within the Project Area, the following actions must be undertaken:
    - The remains must not be harmed/further harmed
    - Immediately cease all works at that particular location
    - Secure the area so as to avoid further harm to the remains
    - Notify the NSW Police and the Environment Line (DPE) on 131 555 as soon as practicable and provide any details of the remains and their location
    - Do not recommence any work at the particular location unless authorised in writing by Heritage NSW or DPE.

References

AECOM (2014). Tooleybuc Bridge replacement: Aboriginal cultural heritage constraints report Unpublished report to VicRoads, and Roads and Maritime Service.

Angus, G. 1847. Savage Life and Scenes in Australia and New Zealand: being an Artist's Impression of Countries and People of the Antipodes. Smith Elder and Co., London.

Attenbrow, V. 2010. Sydney's Aboriginal past : investigating the archaeological and historical records. University of New South Wales.

Barwick, D. E. 1984, 'Mapping the past: an atlas of Victorian Clans 1835-1904', Aboriginal History, vol. 8, pp. 100-131.

Berryman, A. and Hughes, P. J. 1985. Aboriginal Resources Planning Study For the Wakool Shire Council, NSW. A report to the New South Wales National Parks and Wildlife Service Western Region, Broken Hill.

Department of Environment Climate Change & Water. 2010a. Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales 2010. Department of Environment Climate Change & Water NSW.

Department of Environment Climate Change & Water. 2010c. Aboriginal cultural heritage consultation requirements for proponents 2010. Department of Environment Climate Change & Water NSW.

Donaldson, S. 2006. Eurobodalla Aboriginal Heritage Study [Stage Two] Stories About the Eurobodalla by Aboriginal People: Eurobodalla Aboriginal Heritage Study. Eurobodalla Shire Council, Department of Conservation and Environmental and Cultural Services, NSW

Donaldson, S. 2007. Eurobodalla Aboriginal Heritage Study [Stage Three] Stories About the Eurobodalla by Aboriginal People: Eurobodalla Aboriginal Heritage Study. Eurobodalla Shire Council, Department of Conservation and Environmental and Cultural Services, NSW

Edmonds, V. 1999. Further Archaeological Assessment of the Stage II Levee Banks at Deniliquin, Southwestern NSW. A report to Kinhill Engineers Pty Ltd, Sydney.

Goulding, M and Waters, K. 2005. *Eurobodalla Aboriginal Heritage Study.* Goulding Heritage Consulting.

Grinbergs, A. 1992. *The Myth Hunters: investigations towards a revised prehistory of the south eastern highlands of Australia*. Unpublished BA (Hons) Thesis, Australian National University, Canberra.

Heritage Office. 2001. Assessing heritage significance. NSW Heritage Office.

Jacobs. 2015. Tooleybuc Bridge Replacement Project. Aboriginal Cultural Heritage Assessment Report. Report prepared for Roads and Maritime Services Pty Ltd.

Le Maistre, B (1992) *Bendethera: Deua National Park.* NPWS, Sydney

NGH Heritage. 2009. Bendethera Deua National Park. Conservation Management Plan

Mitchell P.B. 2002. Bioregional geology, geomorphology, and geodiversity of New South Wales. Report to NSW NPWS.

Office of Environment and Heritage. 2011. Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW. Office of Environment and Heritage, Department of Premier and Cabinet, Sydney.

The Argus. 1876. 'The Riverine Trade (No. III): Down the Murray', (newspaper)

Tozer, M. G. et al. Native vegetation of southeast NSW: a revised classification and map for the coast and eastern tablelands. NSW Department of Environment & Climate Change, Scientific Services Division

Tindale, N.B. 1974. Aboriginal Tribes of Australia: their terrain, environmental controls, distribution, limits and proper names. University of California Press, Berkeley.

Appendix A - AHIMS database search results

Site ID	Site name	Datum	Zone	Easting	Northing	Context	Site status	Site features	Site types	Recorders
62-3-0135	PB M7;	AGD	55	760050	6010550	Open site	Valid	Artefact	Open Camp Site	Philip Boot
57-6-0019	Deua River No.4	AGD	55	747200	6016540	Open site	Valid	Artefact	Open Camp Site	ASRSYS
57-6-0301	DL1;	AGD	55	752400	6017870	Open site	Valid	Artefact	Open Camp Site	Philip Boot
57-6-0040	WD#21 Dampier State Forest	AGD	55	766700	6019600	Open site	Valid	Artefact	Open Camp Site	Denis Byrne
57-6-0042	WD#27 Dampier State Forest	AGD	55	754650	6013150	Open site	Valid	Artefact	Open Camp Site	Denis Byrne
62-3-0584	PBM 6	AGD	55	759970	6010420	Open site	Valid	Artefact		Philip Boot
57-6-0442	DL 4	AGD	55	753300	6016170	Open site	Valid	Artefact		Philip Boot
57-6-0436	TK 6	AGD	55	753550	6021620	Open site	Valid	Artefact		Philip Boot

Site ID	Site name	Datum	Zone	Easting	Northing	Context	Site status	Site features	Site types	Recorders
57-6-0305	JT5;	AGD	55	753420	6016070	Open site	Valid	Artefact	Open Camp Site	Philip Boot
57-6-0306	DL5;	AGD	55	753600	6015720	Open site	Valid	Artefact	Open Camp Site	Philip Boot
62-3-0356	DL 13;Dampier State Forest;	AGD	55	755490	6007500	Open site	Valid	Artefact	Open Camp Site	Philip Boot
62-3-0357	PH 7;Dampier State Forest;	AGD	55	755810	6007420	Open site	Valid	Artefact	Open Camp Site	Philip Boot
57-6-0307	JT6;	AGD	55	754220	6015320	Open site	Valid	Artefact	Open Camp Site	Philip Boot
62-3-0581	JT11	AGD	55	757300	6008650	Open site	Valid	Artefact	Open Camp Site	Philip Boot
62-3-0387	DL 8;Deva National Park;	AGD	55	759600	6009900	Open site	Valid	Artefact	Open Camp Site	Philip Boot
62-3-0138	JT 9;	AGD	55	759670	6009690	Open site	Valid	Artefact	Open Camp Site	Philip Boot
57-6-0039	WD#20 Wandella - Dampier	AGD	55	759000	6012650	Open site	Valid	Artefact	Open Camp Site	Denis Byrne

Site ID	Site name	Datum	Zone	Easting	Northing	Context	Site status	Site features	Site types	Recorders
57-6-0022	Deua River No.7	AGD	55	747450	6015450	Open site	Valid	Artefact	Open Camp Site	ASRSYS
57-6-0024	Deua River No.9	AGD	55	747840	6018300	Open site	Valid	Artefact	Open Camp Site	ASRSYS
57-6-0023	Deua River No.8	AGD	55	747860	6018940	Open site	Valid	Artefact	Open Camp Site	ASRSYS
57-6-0299	AG1;	AGD	55	752300	6019010	Open site	Valid	Artefact	Open Camp Site	Philip Boot
62-3-0587	JT 12	AGD	55	755240	6007520	Open site	Valid	Artefact		Philip Boot
62-3-0586	DL 11	AGD	55	756210	6007910	Open site	Valid	Artefact		Philip Boot
57-6-0437	TK 3	AGD	55	753300	6021350	Open site	Valid	Art (Pigment or Engraved)		Philip Boot
57-6-0046	Mungerarie SF;	AGD	55	768280	6018300	Open site	Valid	Artefact	Open Camp Site	J Sanders,Doctor.Sue Feary
62-3-0140	JT 10;	AGD	55	758980	6009210	Open site	Valid	Artefact	Open Camp Site	Philip Boot

Site ID	Site name	Datum	Zone	Easting	Northing	Context	Site status	Site features	Site types	Recorders
62-3-0388	PBM 7;Deva National Park;	AGD	55	760050	6010550	Open site	Valid	Artefact	Open Camp Site	Philip Boot
57-6-0302	DL3;	AGD	55	752910	6017520	Open site	Valid	Artefact	Open Camp Site	Philip Boot
62-3-0143	PH 7;	AGD	55	755810	6007420	Open site	Valid	Artefact	Open Camp Site	Philip Boot
62-3-0142	DL 12;	AGD	55	756240	6007640	Open site	Valid	Artefact	Open Camp Site	Philip Boot
57-6-0297	AG3;	AGD	55	752170	6019700	Open site	Valid	Artefact	Open Camp Site	Philip Boot
62-3-0585	DL 10	AGD	55	759420	6009570	Open site	Valid	Artefact		Philip Boot
62-3-0384	DL 9;Dampier State Forest;	AGD	55	759500	6009600	Open site	Valid	Artefact	Open Camp Site	Philip Boot
57-6-0309	DL7;	AGD	55	756170	6014750	Open site	Valid	Artefact	Open Camp Site	Philip Boot
62-3-0078	WD #5 Dampier State Forest	AGD	55	749060	6007840	Open site	Valid	Artefact	Open Camp Site	Denis Byrne

Site ID	Site name	Datum	Zone	Easting	Northing	Context	Site status	Site features	Site types	Recorders
57-6-0016	Deua No.1/D1	AGD	55	747250	6015930	Open site	Valid	Artefact	Open Camp Site	ASRSYS
57-6-0018	Deua No.3 Deua National Park	AGD	55	747300	6017050	Open site	Valid	Artefact	Open Camp Site	ASRSYS
57-6-0440	JT 3	AGD	55	753140	6016610	Open site	Valid	Artefact		Philip Boot
57-6-0296	TK4;	AGD	55	753400	6021370	Open site	Valid	Artefact	Open Camp Site	Philip Boot
62-3-0385	JT 9;Dampier State Forest;	AGD	55	759670	6009690	Open site	Valid	Artefact	Open Camp Site	Philip Boot
57-6-0310	DL1A;	AGD	55	760050	6013160	Open site	Valid	Artefact	Open Camp Site	Philip Boot
62-3-0141	JT 11;	AGD	55	757000	6009000	Open site	Valid	Artefact	Open Camp Site	Philip Boot
57-6-0439	TK 2	AGD	55	752270	6018670	Open site	Valid	Artefact		Philip Boot
57-6-0414	open Camp(Test not a sites)	AGD	55	766370	6013140	Open site	Deleted	Artefact		Mr.David Currey

Site ID	Site name	Datum	Zone	Easting	Northing	Context	Site status	Site features	Site types	Recorders
57-6-0441	JT 4	AGD	55	753150	6016510	Open site	Valid	Artefact		Philip Boot
57-6-0308	JT7;	AGD	55	754710	6014970	Open site	Valid	Artefact	Open Camp Site	Philip Boot
62-3-0136	DL 8;	AGD	55	759600	6009900	Open site	Valid	Artefact	Open Camp Site	Philip Boot
62-3-0137	JT 8;	AGD	55	759750	6009720	Open site	Valid	Artefact	Open Camp Site	Philip Boot
57-6-0020	Deua River No.5	AGD	55	747250	6017300	Open site	Valid	Artefact	Open Camp Site	ASRSYS
57-6-0438	AG 4	AGD	55	752320	6020010	Open site	Valid	Artefact		Philip Boot
57-6-0298	AG2;	AGD	55	752300	6019100	Open site	Valid	Artefact	Open Camp Site	Philip Boot
62-3-0621	3199/2	AGD	55	764610	6007770	Open site	Valid	Artefact		Paul Carriage
62-3-0144	DL 13;	AGD	55	755490	6007500	Open site	Valid	Artefact	Open Camp Site	Philip Boot
62-3-0358	DL 12;Dampier State Forest;	AGD	55	756240	6007640	Open site	Valid	Artefact	Open Camp Site	Philip Boot

Site ID	Site name	Datum	Zone	Easting	Northing	Context	Site status	Site features	Site types	Recorders
57-6-0463	DL2 (Duplicate copy see 57-2-0401)	AGD	55	752550	6017760	Open site	Valid	Artefact		Philip Boot
57-6-0401	DL 2;Deva National Park; (same as 57-6-0463)	AGD	55	752550	6017760	Open site	Valid	Artefact	Open Camp Site	Philip Boot
57-6-0304	JT2;	AGD	55	753190	6016910	Open site	Valid	Artefact	Open Camp Site	Philip Boot
57-6-0443	DL 6	AGD	55	754420	6015240	Open site	Valid	Artefact		Philip Boot
62-3-0360	JT 10;Dampier State Forest;	AGD	55	758980	6009210	Open site	Valid	Artefact	Open Camp Site	Philip Boot
62-3-0139	DL 9;	AGD	55	759500	6009600	Open site	Valid	Artefact	Open Camp Site	Philip Boot
62-3-0386	JT 8;Dampier State Forest;	AGD	55	759750	6009720	Open site	Valid	Artefact	Open Camp Site	Philip Boot

Site ID	Site name	Datum	Zone	Easting	Northing	Context	Site status	Site features	Site types	Recorders
57-6-0300	TK1;	AGD	55	752250	6018600	Open site	Valid	Artefact	Open Camp Site	Philip Boot
57-6-0303	JT1;	AGD	55	752970	6017290	Open site	Valid	Artefact	Open Camp Site	Philip Boot
57-6-0037	WD#18 Wandella-Dampier State Forest	AGD	55	769270	6016460	Open site	Valid	Artefact	Open Camp Site	Denis Byrne
57-6-0295	TK5;	AGD	55	753560	6021510	Open site	Valid	Artefact	Open Camp Site	Philip Boot
62-3-0622	3199/1	AGD	55	765020	6007640	Open site	Valid	Artefact		Paul Carriage
57-6-0043	WD#28 Dampier State Forest	AGD	55	766370	6013140	Open site	Valid	Artefact	Open Camp Site	Denis Byrne
57-6-0041	WD#22 Dampier State Forest	AGD	55	766710	6019470	Open site	Valid	Artefact	Open Camp Site	Denis Byrne

NSW Telco Authority

Address: 2-24 Rawson Place SYDNEY NSW 2000

TTY: 1300 301 181