

**Biodiversity Development Assessment Report
Small Area Module
for the proposed
Steel River East Battery Energy Storage System
at
Lot 16 DP 270249 (No. 1)
McIntosh Drive
MAYFIELD WEST
NSW**



Prepared by: Nicola Mohr BAM Assessor Accreditation No: BAAS23007

WILDTHING Environmental Consultants

38c Stapleton Street
WALLSEND NSW 2287
ABN: 41 033 509 215

Job No: 12866

March 2025

Document control

Version	Date	Author	Details
1 Draft	18/02/2025	Nicola Mohr	Biodiversity Development Assessment Report (small area) for a proposed Battery Energy Storage System (BESS) at Lot 16 DP 270249 (No. 1) McIntosh Drive, Mayfield West NSW
2 Draft	18/03/2025	Nicola Mohr	Biodiversity Development Assessment Report (small area) for a proposed Battery Energy Storage System (BESS) at Lot 16 DP 270249 (No. 1) McIntosh Drive, Mayfield West NSW
2 Final	24/03/2025	Nicola Mohr	Biodiversity Development Assessment Report (small area) for a proposed Battery Energy Storage System (BESS) at Lot 16 DP 270249 (No. 1) McIntosh Drive, Mayfield West NSW

Executive Summary

Wildthing Environmental Consultants were engaged to undertake a Biodiversity Development Assessment Report (BDAR) for the proposed construction of a Battery Energy Storage System (BESS) (the Project) next to existing Ausgrid Substation at Lot 16 DP 270249 (No. 1) McIntosh Drive, Mayfield West (the site). This report has been prepared in accordance with the Biodiversity Assessment Method (BAM) to assess the biodiversity impact and offsetting obligation of the Project under the *Biodiversity Conservation Act 2016* (BC Act) and Biodiversity Conservation Regulation 2017 (BC Regulation) 2017.

The Project is designated as a State Significant Development (SSD-77450458) under the NSW Environmental Planning and Assessment Act 1979 (EP&A Act). The Planning Secretary's Environmental Assessment Requirements (SEARS) for the project were issued on 20 November 2024.

The site is located on the north side of McIntosh Drive and has a total area of 5.06 ha. It contains the Mayfield West Substation and a data centre. An unnamed sealed road on the eastern side of the substation running through the site provides access to Benedict Recycling to the north.

The site and surrounding area have undergone considerable changes over the past 100 years. The site was previously located on the site of the former "Platt's Channel", which was a broad arm of the Hunter River to the south of Spit Island (now consolidated into Kooragang Island). The entirety of Platt's Channel was filled in by B.H.P. from 1950. The channel was firstly used as a disposal site for waste and then as an expansion site for industrial facilities.

Vegetation within the site consisted largely of introduced flora species with patches of planted vegetation around the existing substation and a small area of planted or remnant trees in the east of the site. These remnant trees were determined to align with PCT 3437 *Hunter Coast Lowland Spotted Gum Dry Forest* while planted vegetation around the substation was determined to be 'Planted Native Vegetation' and was assessed under the streamlined assessment module for planted native vegetation.

The Project includes the construction, operation, and maintenance of a BESS with a 200 MW maximum power output capacity with 2-hour duration (i.e. 400 MWh). The BESS will include containerised battery units (112 Megapacks) and associated infrastructure, including inverters and 56 medium voltage transformers. A 33 kV underground cable will connect the battery units to Mayfield West zone substation. Other BESS infrastructure will include combined switch room and control room building, eight Ring Main Units (RMU), an onsite workshop facility, two auxiliary transformers, a backup diesel generator and two spaces for onsite car parking. Other ancillary infrastructure, including fire suppression, stormwater management, 2.4m high boundary security chain wire fencing, lighting and CCTV, are also proposed. The Project Area accounts for the construction and operational footprint of the Project. It is equivalent to the subject land and is 2.74 ha.

Table E.1 PCTs and EECs identified within the subject land

PCT ID	PCT name	TEC	Subject land area (ha)
3437	Hunter Coast Lowland Spotted Gum Dry Forest	N/A	0.11
Total area			0.11

Threatened Species

The BC Act 2016 listed vulnerable species *Falsistrellus tasmaniensis* (Eastern False Pipistrelle) was recorded during surveys. Hunting habitat was present in the form of native and non-native vegetation, however no roosting habitat was present. The Project will result in the removal of 2.51 ha of hunting

habitat for this species. This species has been offset as an ecosystem credit species. No other threatened species were identified during surveys and no threatened species have been assumed to be present.

Serious and irreversible impacts (SAIL)

No candidate SAIL entities were found to be present within the study area thus no obligation for proposal refusal would be applicable to the Project from relevant regulatory bodies.

Commonwealth Environment Protection and Biodiversity Conservation Act 1999 & Matters of National Environmental Significance

Considerations have been made for Matters of National Environmental Significance (MNES) listed under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*. It was found that the Project is unlikely to significantly impact any MNES.

Direct impacts requiring offsetting

Table E2 lists ecosystem credit species requiring offsetting as a result of the Project.

Table E2 Impacts that require an offset – ecosystem credits

PCT	TEC/EC	Impact area (ha)	Number of ecosystem credits required
3437 Hunter Coast Lowland Spotted Gum Dry Forest	N/A	0.11	1

A number of mitigation measures have been proposed for the construction and operational phase of the Project including:

- Clearing limits will be clearly marked to prevent unnecessary clearing beyond the extent of the development footprint. Tree clearing and disturbance will be limited to the development site
- A suitably qualified and experienced ecologist should be engaged to conduct preclearance survey for habitat features including active bird nests and Bandicoot ground shelters.
- Timing of vegetation clearance should also occur outside of the bird nesting season (late August - December) and to avoid critical life cycle events such as breeding for avifauna species
- Prior to entering site vehicles and machinery must be inspected for soils, vegetation and seeds. If present this must be washed off in a suitable location prior to entering the site.

Contents

Document control	ii
Executive Summary	iii
Contents	v
List of Tables	vii
List of Figures	viii
List of Plates	ix
Shortened forms	xi
Declarations	xii
Stage 1: Biodiversity Assessment	15
1.0 Introduction	15
1.1 Proposed development	15
1.2 Legislative Context	21
1.3 Excluded impacts	26
1.4 Information sources	26
2.0 Methods	29
2.1 Site context methods	29
2.2 Native vegetation, threatened ecological communities and vegetation integrity methods	29
2.3 Threatened flora survey methods	31
2.4 Threatened fauna survey methods	34
2.5 Weather conditions	37
2.6 Limitations	39
2.7 Licences	39
3.0 Site context	40
3.1 Assessment area	40
3.2 Landscape features	40
3.3 Native vegetation cover	42
3.4 Past and current disturbance to native vegetation	47
4.0 Native vegetation, threatened ecological communities and vegetation integrity	49
4.1 Native vegetation extent	49
4.2 Native Vegetation	54
4.3 Threatened ecological communities	61
4.4 Vegetation zones	61
4.5 Vegetation integrity (vegetation condition)	64
4.6 Tree Survey	65
4.7 Movement Corridors	65

5.0	Habitat suitability for threatened species	68
5.1	Identification of threatened species for assessment	68
5.2	Presence of candidate species credit species	73
5.3	Threatened species surveys	73
5.4	Recorded threatened fauna species	75
5.5	Expert reports	75
5.6	Area or count, and location of suitable habitat for a species credit species (a species polygon)	75
6.0	Identifying prescribed impacts	76
Stage 2: Impact assessment (biodiversity values and prescribed impacts)		77
7.0	Avoid and minimise impacts	77
7.1	Avoid and minimise direct and indirect impacts	77
7.2	Avoid and minimise prescribed impacts	77
7.3	Other measures considered	78
7.4	Summary of measures to avoid and minimise impacts	78
8.0	Impact assessment	85
8.1	Direct impacts	85
8.2	Residual Indirect impacts	87
8.3	Prescribed impacts	88
8.4	Mitigating residual impacts – management measures and implementation	91
9.0	Serious and irreversible impacts	92
9.1	Assessment for serious and irreversible impacts on biodiversity values	92
10.0	Impact summary	93
10.1	Determine offset requirement for impacts	93
11.0	Biodiversity credit report	95
11.1	Ecosystem credits	95
12.0	Considerations under State Environmental Planning Policy (Resilience and Hazards) 2021	96
12.1	Chapter 2 Coastal Management	96
13.0	NSW Biosecurity Act 2015	99
14.0	Commonwealth Environment Protection and Biodiversity Conservation Act 1999 & Matters of National Environmental Significance	100
15.0	References	101
Appendix A: BDAR requirements compliance		105

Appendix B: SEARS	121
Appendix C Biodiversity Values Map and Threshold tool report	129
Appendix D: Decision-Making Key for Planted Native Vegetation (Appendix D BAM 2020)	133
Appendix E: Commonwealth Environment Protection and Biodiversity Conservation Act 1999 & Matters of National Environmental Significance	136
Appendix F: Vegetation survey data	200
Appendix G: Credit reports	205
Appendix H: Total Flora List	214
Appendix I: Fauna Survey Results	222
Appendix J Tree Survey Results	225

List of Tables

Table E.1	PCTs and EECs identified within the subject land	iii
Table E2	Impacts that require an offset – ecosystem credits	iv
Table 1.1:	Criteria for entry into the Biodiversity Offsets Scheme in relation to the Project	23
Table 1.2:	Desktop Resources	26
Table 2.1:	Environmental conditions during threatened species surveys	37
Table 3.1:	Native vegetation cover in the assessment area	43
Table 4.1:	PCTs and planted vegetation identified within the subject land	54
Table 4.2:	PCT 3437 Hunter Coast Lowland Spotted Gum Dry Forest	54
Table 4.3:	Vegetation zones and patch sizes	63
Table 4.4:	Vegetation integrity scores	64
Table 5.1:	Predicted ecosystem credit species	68
Table 5.2	Predicted flora species credit species	71
Table 5.3	Predicted fauna species credit species	71
Table 5.4	Determining the presence of candidate flora species credit species on the subject land	73
Table 5.5	Threatened species surveys for candidate flora species credit species on the subject land	74
Table 6.1	Prescribed impacts identified	76
Table 7.1	Avoidance and minimisation measures for direct, indirect and prescribed impacts	79
Table 8.1	Summary of residual direct impacts	85
Table 8.2	Impacts to vegetation integrity	86

Table 8.3	Summary of residual indirect impacts	87
Table 8.4:	Summary of proposed mitigation and management measures for residual impacts (direct, indirect and prescribed)	91
Table 9.1	Entities at risk of an SAI	92
Table 10.1	Impacts that require an offset – ecosystem credits	93
Table 11.1:	Ecosystem credit class and matching credit profile	95
Table 13.1	Priority Weed species found within the subject land.	99
Table A 1	Assessment of compliance with BDAR minimum information requirements	105
Table 1.1	105	
Table E1:	Assessment of likelihood of occurrence of threatened species recorded on the PMST and BioNet database (Oceanic Birds have been removed from assessment)	139
Table F1	Vegetation BAM Plot survey data and locations	200
Table H1	Total Flora List	215
Table J1:	Details of surveyed trees within the subject land and within close proximity	226

List of Figures

Figure 1.1	Location Map	16
Figure 1.2	Aerial Image of Subject Land	17
Figure 1.3	Design Plans	18
Figure 1.4	Operational and Construction Footprint	19
Figure 1.5	Biodiversity Values	24
Figure 2.1:	Plot Survey Design	30
Figure 2.2	Flora Survey Tracks	33
Figure 2.3	Location of Anabat and Camera Surveys	36
Figure 3.1	Assessment area showing Prescribed Streams and Wetlands	41
Figure 3.2	Occurrence of Soil Landscapes and NSW (Mitchell) Landscapes within the Assessment Area	44
Figure 3.3	Migratory Shorebird Important Habitat Mapping within Assessment Area	45
Figure 3.4	Native Vegetation within the Assessment Area.	46
Figure 4.1	Areas of native and on-native vegetation within the subject	57
Figure 4.2	Vegetation Zones within the subject land	62
Figure 4.3	Significant trees within the subject land	66
Figure 4.4	Current and Future Movement Corridors	67

Figure 12.1	SEPP (Resilience and Hazards) 2021 – Coastal Management Areas	98
Figure F1	Vegetation BAM Plot location	201

List of Plates

Plate 3.1:	Aerial imagery of 1 McIntosh Drive before planting (September 2009)	47
Plate 3.2:	Aerial imagery of 1 McIntosh Drive after planting (September 2011)	48
Plate 3.3:	Aerial imagery of 1 McIntosh Drive with loss of plantings (October 2024)	48
Plate 4.1:	Unmaintained introduced vegetation along eastern boundary of impact area (facing north). Visible introduced plants: <i>Lantana camara</i> (Lantana)	50
Plate 4.2:	Unmaintained introduced vegetation within east of the impact area (facing south-east). Visible introduced plants: <i>Lantana camara</i> (Lantana) and <i>Chloris gayana</i> (Rhodes Grass)	51
Plate 4.3:	Unmaintained introduced vegetation north-east of the impact area (facing south-east).	51
	Visible introduced plants: <i>Hyparrhenia hirta</i> (Coolatai Grass) in the front, <i>Lantana camara</i> (Lantana) in the middle and <i>Acacia saligna</i> (Golden Wreath Wattle) in the back	51
Plate 4.4:	Unmaintained introduced vegetation on eastern side of unnamed road (facing south-east). Visible introduced plants: <i>Acacia saligna</i> (Golden Wreath Wattle) and <i>Chloris gayana</i> (Rhodes Grass)	52
Plate 4.5:	Maintained lawns north of substation (facing north-west from road). Visible introduced species: <i>Medicago polymorpha</i> (Burr Medic) and <i>Cenchrus clandestinus</i> (Kikuyu)	52
Plate 4.6:	Maintained Lawns north of substation (facing north toward data centre). Visible introduced species: <i>Medicago polymorpha</i> (Burr Medic) and <i>Cenchrus clandestinus</i> (Kikuyu)	53
Plate 4.7:	PCT 3437 within the south-east portion of the subject land. Visible native species: <i>Corymbia maculata</i> (Spotted Gum) and <i>Eucalyptus tereticornis</i> (Forest Red Gum). Visible introduced species: <i>Lantana camara</i> (Lantana) and <i>Acacia saligna</i> (Golden Wreath Wattle)	56
Plate 4.8:	PCT 3437 within the south-east portion of the subject land. Visible native species: <i>Corymbia maculata</i> (Spotted Gum) and	

<i>Eucalyptus tereticornis</i> (Forest Red Gum). Visible introduced species: <i>Lantana camara</i> (Lantana)	56
Plate 4.11: Landscaping - Planted Native and Introduced Species eastern side of Substation. Visible native species: <i>Lomandra longifolia</i> (Spiny Mat Rush), <i>Casuarina glauca</i> (Swamp Oak). Visible introduces species: <i>Acacia saligna</i> (Golden Wreath Wattle)	58
Plate 4.12: Landscaping - Planted Native and Introduced Species southern side of Substation. Visible native species: <i>Lomandra longifolia</i> (Spiny Mat Rush), <i>Casuarina glauca</i> (Swamp Oak). Visible introduces species: <i>Acacia saligna</i> (Golden Wreath Wattle)	59
Plate 4.13: Landscaping - Planted Native and Introduced Species western side of Substation. Visible native species: <i>Lomandra longifolia</i> (Spiny Mat Rush), <i>Casuarina glauca</i> (Swamp Oak). Visible introduces species: <i>Bidens pilosa</i> (Cobblers Pegs).	59
Plate 4.14: Landscaping - Planted Native and Introduced Species western side of Substation. Visible native species: <i>Casuarina glauca</i> (Swamp Oak). Visible introduced species: <i>Chloris gayana</i> (Rhodes Grass).	60
Plate F1: Plot 1A-PCT 3437_Disturbed Front Peg.	204
Plate F2: Plot 1A-3437_Disturbed Back Peg.	204
Plate I1: Northern Brown Bandicoot on remote camera - 13/01/2025 (date on camera is incorrect)	223
Plate I2: Red Fox on remote camera - 14/01/2025 (date on camera is incorrect)	223

Shortened forms

APZ	Asset Protection zone
BAM	Biodiversity Assessment Method
BAM-C	Biodiversity Assessment Method Calculator
BC Act	Biodiversity Conservation Act 2016 (NSW)
BC Regulation	Biodiversity Conservation Regulation 2017 (NSW)
BDAR	Biodiversity Development Assessment Report
BCAR	Biodiversity Certification Assessment Report
BOAMS	Biodiversity Offsets and Agreement Management System
BOS	Biodiversity Offsets Scheme
CEEC	Critically Endangered Ecological Community
CKPoM	Comprehensive Koala Plan of Management
DCCEEW	Department of Climate Change, Energy the Environment and Water
DBH	Diameter at Breast height over bark
DPE	Department of Planning and Environment
EC	Ecological Community listed under the EPBC Act
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
EP&A Act	Environmental Planning and Assessment Act 1979 (NSW)
EEC	Endangered Ecological Community
HTW	High Threat Weed
IBRA	Interim Biogeographic Regionalisation for Australia
LLS Act	Local Land Services Act 2013 (NSW)
MNES	Matters of National Environmental Significance
NPW Act	National Parks and Wildlife Act 1974 (NSW)
NSW	New South Wales
PAD	Potential Archaeological Discovery
PCT	Plant Community Type
PSC	Port Stephens Council
SAII	Serious and Irreversible Impact
SEARs	Secretary's Environmental Assessment Requirements
TBDC	Threatened Biodiversity Data Collection
TEC	Threatened Ecological Community
VEC	Vulnerable Ecological Community
VMP	Vegetation Management Plan
Vegetation SEPP	State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017 (NSW)

Declarations

i. Certification under clause 6.15 *Biodiversity Conservation Act 2016*

I certify that this report has been prepared based on the requirements of, and information provided under, the Biodiversity Assessment Method and clause 6.15 of the *Biodiversity Conservation Act 2016* (BC Act).



Signature:

Date: 24/03/2025

BAM Assessor Accreditation no: BAAS23007

This BDAR has been prepared to meet the requirements of BAM 2020. Appendix A provides an assessment of compliance with the minimum information requirements outlined in BAM Appendix K.

ii. Details and experience of author/s and contributors

Authors and contributors

Name	BAM Assessor Accreditation no. (if relevant)	Position/Role	Tasks performed	Relevant qualifications
Daryl Harman	BAAS17074	Senior Ecologist	Targeted threatened species surveys BAM plot surveys Report preparation	BEnvSc
Nicola Mohr	BAAS23007	Ecologist	Targeted threatened species surveys BAM plot surveys BAM-C data entry and analysis Figure preparation Report preparation	BSc & MSc
Mungo Worth	N/A	Ecologist	Bat Call Analysis	

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW



iii. Conflict of interest

I declare that I have considered the circumstances and there is no actual, perceived or potential conflict of interest OR I wish to openly declare the following actual, perceived or potential conflict of interest and the management strategies employed:

This declaration has been made in the interests of full disclosure to the decision-maker. Full disclosure has also been provided to the client.

A handwritten signature in black ink that reads "Nicola Moha". The signature is written in a cursive, flowing style.

Signature:

Date: 24/03/2025

BAM Assessor Accreditation no: BAAS23007

Stage 1: Biodiversity Assessment

1.0 Introduction

1.1 Proposed development

1.1.1 Development overview

This assessment covers the proposed construction of a Battery Energy Storage Systems (BESS) (the Project) next to existing Ausgrid Substation at Lot 16 DP 270249 (No. 1) McIntosh Drive, Mayfield West (the site). The Project is designated as a State Significant Development (SSD-77450458) under the NSW Environmental Planning and Assessment Act 1979 (EP&A Act). The Planning Secretary's Environmental Assessment Requirements (SEARS) for the project were issued on 20 November 2024. A copy of the SEARS is contained in Appendix B.

1.1.2 Location

The site is located on the north side of McIntosh Drive and has a total area of 5.06 ha. It contained the Mayfield West Substation and a data centre. An unnamed sealed road on the eastern side of the substation running through the site provides access to Benedict Recycling to the north. A location map of the site has been provided in Figure 1.1 and an aerial photo of the site is shown in Figure 1.2.

1.1.3 Project Description

The Project includes the construction, operation, and maintenance of a BESS with a 200 MW maximum power output capacity with 2-hour duration (i.e. 400 MWh). The BESS will include containerised battery units (112 Megapacks) and associated infrastructure, including inverters and 56 medium voltage transformers. A 33 kV underground cable will connect the battery units to Mayfield West zone substation. Other BESS infrastructure will include combined switch room and control room building, eight Ring Main Units (RMU), an onsite workshop facility, two auxiliary transformers, a backup diesel generator and two spaces for onsite car parking. Other ancillary infrastructure, including fire suppression, stormwater management, 2.4m high boundary security chain wire fencing, lighting and CCTV, are also proposed

The Project will be located within the far east of the site where it will be bound by the unnamed road to the west, Tourle Street to the east, a constructed walking/cycling path to the south and Benedict Recycling to the north. The Project Area accounts for the construction and operational footprint of the development. It is equivalent to the subject land and is 2.74 ha. Project plans are shown in Figure 1.3 and the operational and construction footprint have been presented in Figure 1.4.

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW

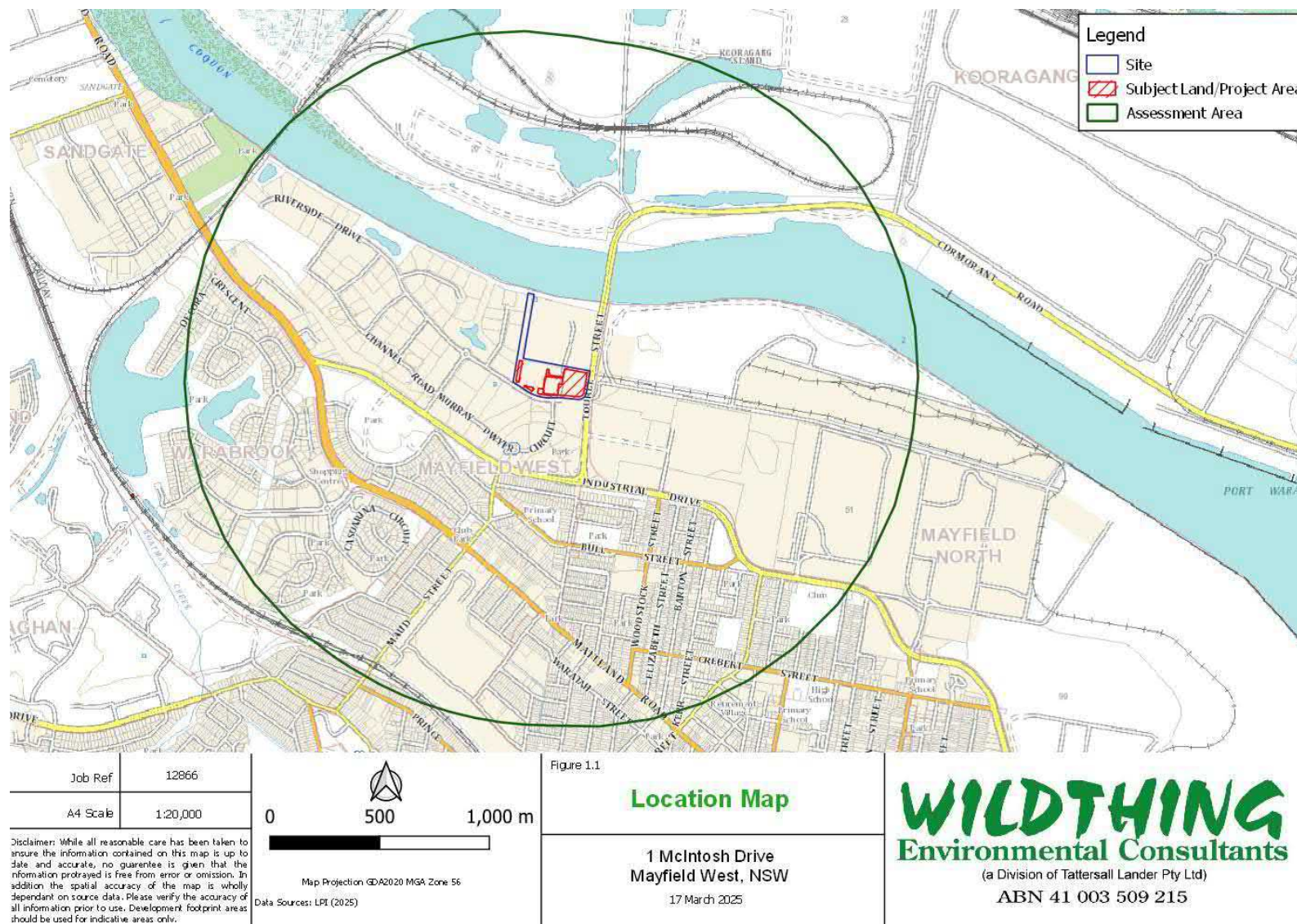


Figure 1.1 Location Map

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW

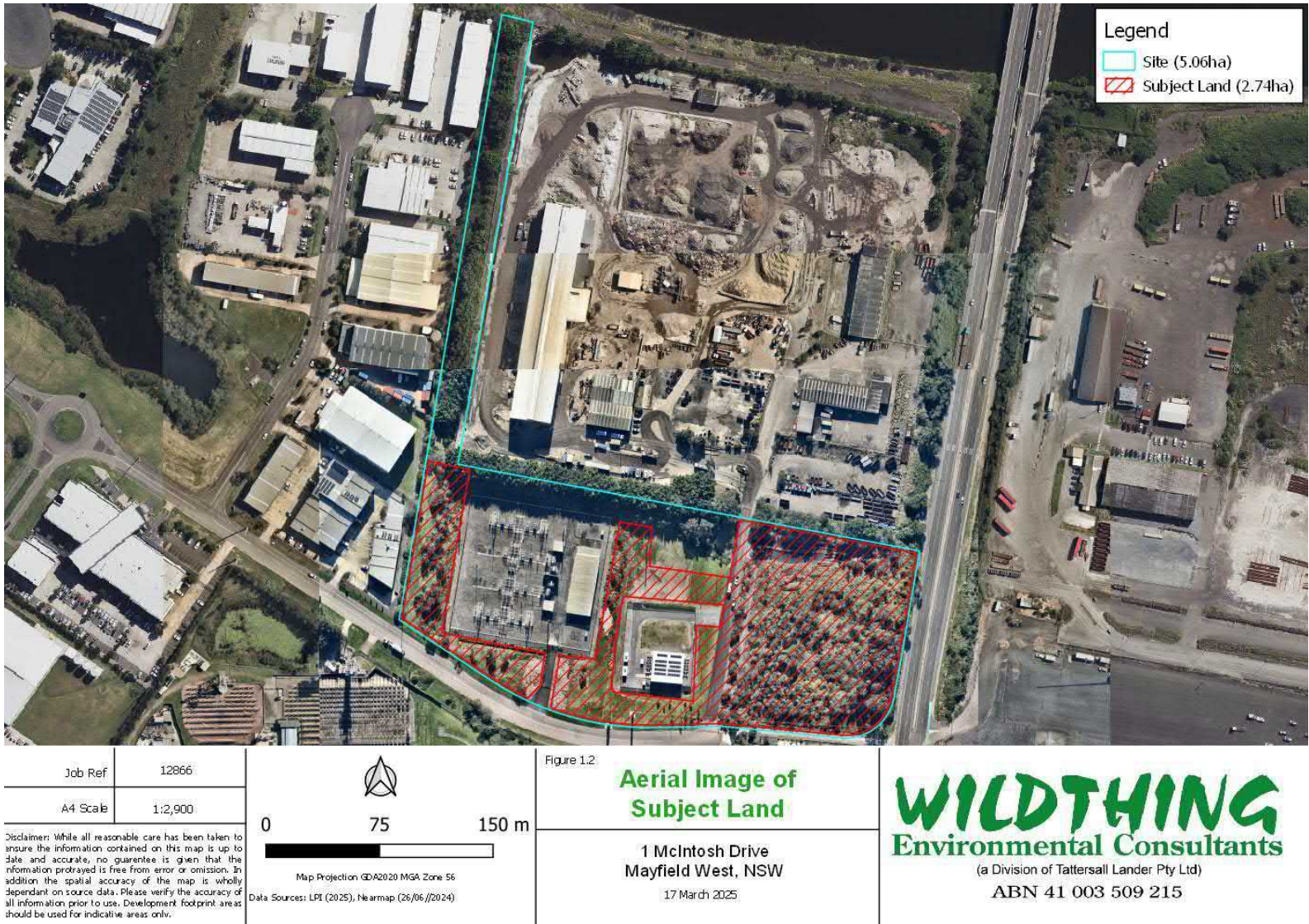


Figure 1.2 Aerial Image of Subject Land

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW

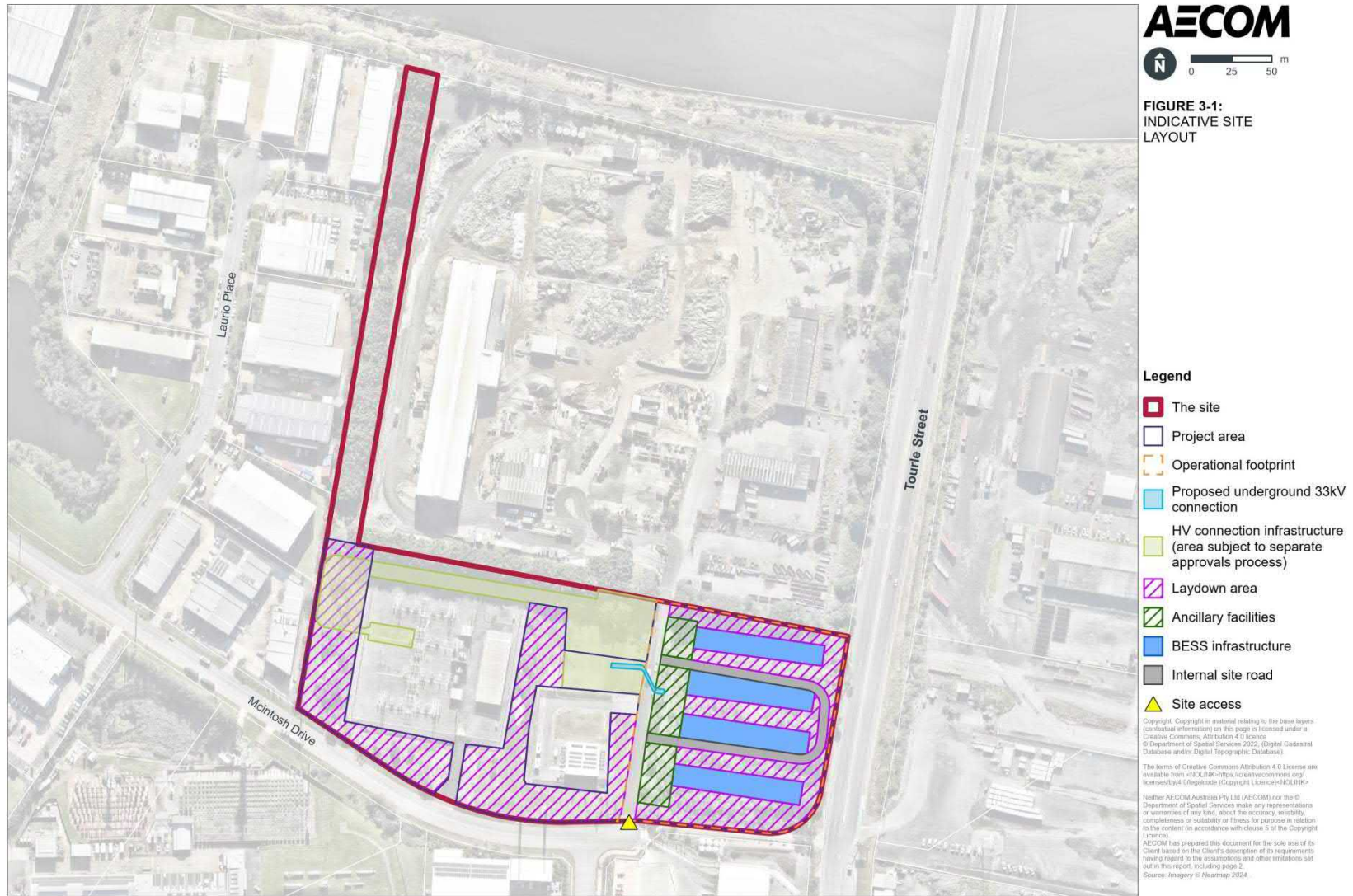


Figure 1.3 Design Plans

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW

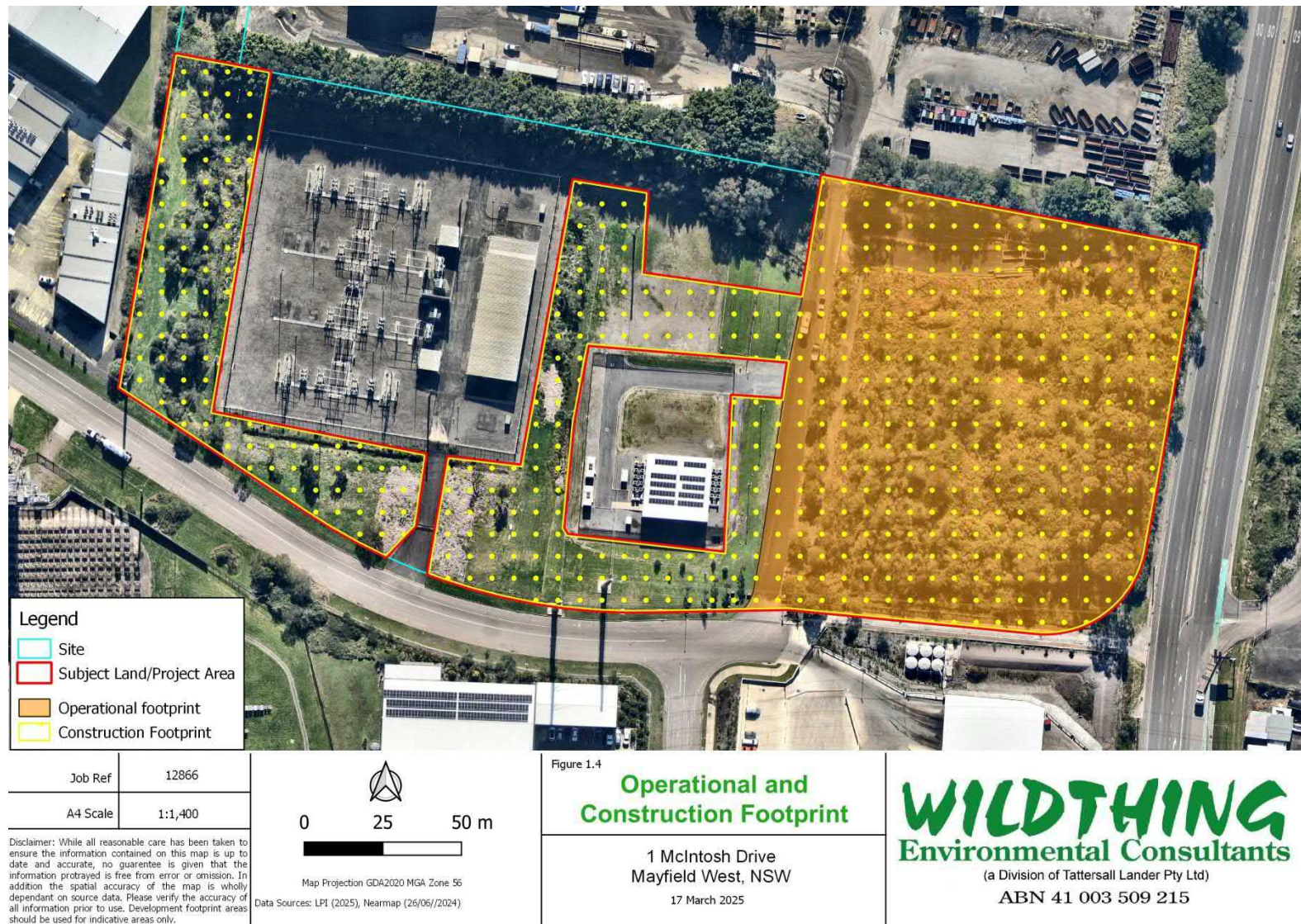


Figure 1.4 Operational and Construction Footprint

1.1.4 Description of the subject land and existing environment

The subject land includes the operational and construction footprint of the Project and is equivalent to the Project Area. It includes most of Lot 16 DP 270249 (No. 1) McIntosh Drive, Mayfield West with the exception of vegetation along the northern boundary and a narrow corridor running to the north and connecting to the South Channel of the Hunter River. The 2.74ha subject land is zoned as E4 General Industrial and located within Newcastle City Council LGA.

The entire site and surrounding area have undergone considerable changes and is situated on the site of the former "Platt's Channel". This was a former broad arm of the Hunter River to the south of Spit Island (now consolidated into Kooragang Island). The entirety of Platt's Channel was filled in by B.H.P. from 1950. The channel was firstly used as a disposal site for waste and then as an expansion site for industrial facilities.

The subject land was highly disturbed by previous industrial land use and was largely composed of introduced flora species. Common weed species were *Lantana camara* (Lantana), the Western Australian *Acacia saligna* (Golden Wreath Wattle) and introduced perennial grasses such as *Chloris gayana* (Rhodes Grass). An area containing native tree species such as *Corymbia maculata* (Spotted Gum) and *Eucalyptus tereticornis* (Forest Red Gum) was present within the south-east of the subject land. These trees have been previously planted after the Platt's Channel was filled in and since then regeneration has occurred. Other areas of native vegetation were present around the existing substation and included species such as *Casuarina glauca* (Swamp Oak), *Eucalyptus tereticornis* (Forest Red Gum) and *Lomandra longifolia* (Spiny Mat Rush). These species have been planted more recently for the purpose of screening after construction of the existing substation.

1.2 Legislative Context

1.2.1 NSW Environmental Planning and Assessment Amendment Act 2017

The *Environmental Planning & Assessment Act 1979* (EP&A Act) requires the consideration and management of impacts of proposed development and land use change on the environment. It is also supported by other statutory environmental planning instruments, including State Environmental Planning Policies (SEPPs).

1.2.2 Biodiversity Offsets Scheme entry

The Biodiversity Offsets Scheme (BOS) provides a mechanism to avoid, minimise and offset the impacts of development and some types of clearing on biodiversity in New South Wales. Entry into the scheme is applicable to development activities that meet any of the following criteria:

- Part 4 development activities deemed to be 'State Significant' under the EP&A Act 1979
- Development activities that have the potential to impact Areas of Outstanding Biodiversity Value (AOBV) as listed under Part 3 of the BC Act
- Development activities that have the potential to cause a significant impact on a threatened species, population or ecological community, listed under Schedules 1 and 2 of the BC Act, as determined by application of a five-part-test of significance in accordance with Section 7.3 of the BC Act
- Development activities that have the potential to impact areas mapped as having 'high biodiversity value' as indicated by the NSW Biodiversity Values Map (BV Map)
- Development activities that involve clearing of native vegetation that exceeds the Biodiversity Offset Scheme thresholds (BOS thresholds), as determined by the NSW BC regulation

Activities that meet any of the above criteria require a Biodiversity Development Assessment Report (BDAR) to be prepared in accordance with the BC Act through the application of the Biodiversity Assessment Method (BAM).

The Project is deemed to be 'State Significant' under the EP&A Act 1979 therefore the BOS applies. This report has been prepared according to the methodology detailed within the BAM. The criteria in relation to the Project's entry into the BOS are shown in Table 1.1. Taking into consideration the total area of impact to native vegetation for the Project (0.11ha) and the minimum lot size as stated in the BMAT report (0.4 ha), this development falls below the area clearing limit as outlined in Table 12 of the BAM (DPIE 2020a). Therefore, the 'Streamlined Assessment Module – Small Area BDAR' under the BAM has been applied.

A total of 0.46 ha of native vegetation present within the subject land was classified as 'Planted Native Vegetation' under BAM 2020 Appendix D: Streamlined Assessment Module – Planted Native Vegetation. The Planted Native Vegetation Module may be used in conjunction with the standard BAM to assess parts of the subject land. Areas classified as 'Planted Native Vegetation' have been considered in all sections of this BDAR except Chapters 4 and 5. Determination and demonstration of the application of this module has been presented in Appendix D.

1.2.3 Serious and Irreversible Impacts

The BC Act imposes various obligations on determining authorities in relation to impacts on biodiversity values that are at risk of a serious and irreversible impact. Under the BC Act, a determination of whether an impact is serious and irreversible must be made in accordance with the principles prescribed in section 6.7 of the BC Regulation 2017. Species and ecological communities (SAIL entities) that are likely to be the subject of serious and irreversible impacts are listed on the NSW DCCEEW website (NSW DCCEEW 2025f). No candidate SAIL entities were found to be present within the site.

Table 1.1: Criteria for entry into the Biodiversity Offsets Scheme in relation to the Project

Criteria For Entry into The Biodiversity Offsets Scheme (BOS)	Section Criteria Addressed	Assessment Of Criteria
Part 4 development activities deemed to be 'State Significant' under the NSW Environmental Planning and Assessment Act 1979 (NSW EP&A Act)		The Project is recognised as State Significant therefore entry criteria into the BOS is met and a BDAR is required.
Development activities that have the potential to impact Areas of Outstanding Biodiversity Value (AOBV) as listed under Part 3 of the BC Act.		No AOBV were present within or in proximity to the subject land.
Development activities that have the potential to cause a significant impact on a threatened species, population or ecological community, listed under Schedules 1 and 2 of the BC Act, as determined by application of a five-part-test of significance in accordance with Section 7.3 of the BC Act;		No five-part test was undertaken as entry into the BOS has already been established.
Development activities that have the potential to impact areas mapped as having 'high biodiversity value' as indicated by the NSW Biodiversity Values Map (BV Map).	Section 1.2.2 Figure 1.5	The NSW Biodiversity Values Map was last consulted on the 10 February 2025. As of this date it was determined that there was a small area of mapped 'Biodiversity Values' within the far north of the site but outside of the subject land. This area will not be directly or indirectly impacted by the Project.
Development activities that involve clearing of native vegetation that exceeds the Biodiversity Offset Scheme thresholds (BOS thresholds) as determined by the NSW BC regulation.		The clearing threshold for the subject land is 0.25 ha. The impact to native vegetation will be under 0.25 ha.

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW



Figure 1.5 Biodiversity Values

1.2.4 STATE ENVIRONMENTAL PLANNING POLICY (RESILIENCE AND HAZARDS) 2021

1.2.4.1 Chapter 2 Coastal Management

This Chapter aims to promote an integrated and co-ordinated approach to land use planning in the coastal zone in a manner consistent with the objects of the *Coastal Management Act 2016*. Section 5 of the *Coastal Management Act 2016* outlined that the coastal zone includes land of the following coastal management areas:

- (a) the coastal wetlands and littoral rainforests area,
- (b) the coastal vulnerability area,
- (c) the coastal environment area,
- (d) the coastal use area.

Chapter 2 states that a consent authority must consider whether the proposed development is likely to cause adverse impacts on conditions specific to each management zone. The subject area was located in the Coastal Environment Area and Coastal Use Area, therefore the impacts of the Project must be evaluated against the requirements for consent for these management zones. This has been addressed in Section 13.0 of this report.

1.2.5 NSW Biosecurity Act 2015

The *NSW Biosecurity Act 2015* (BS Act 2015) provides regulatory controls and powers to manage biosecurity risks in NSW. The BS Act 2015 defines priority weeds as any weed identified in a local strategic plan, for a region that includes that land or area, as a weed that is or should be prevented, managed, controlled or eradicated in the region. Land managers and users of land have a responsibility for managing weed biosecurity risks that they know about or could reasonably be expected to know about. Priority weeds identified within the subject land have been detailed in Section 14.0 of this report.

1.2.6 Commonwealth Environment Protection and Biodiversity Conservation Act 1999

The purpose of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is to ensure that 'actions' likely to cause a significant impact on MNES undergo assessment. Under the EPBC Act, an action includes a project, undertaking, development or activity that may impact MNES. An action that 'has, will have or is likely to have a significant impact on a MNES' is referred to the minister and can be deemed to be a 'controlled action' and may not be undertaken without prior approval from the commonwealth minister for the Environment and Water. MNES categories listed under the EPBC Act are:

- world heritage properties
- national heritage places

- wetlands of international importance (Ramsar wetlands)
- threatened species and ecological communities
- migratory species
- commonwealth marine areas
- nuclear actions (including uranium mining)
- a water resource, in relation to coal seam gas development and large coal mining development.

Initially, MNES are assessed in accordance with the Significant Impact Guidelines 1.1 - Matters of National Environmental Significance (DoE 2013). This document guides a self-assessment to determine if an action may result a significant impact on MNES. An action will require referral to, and may require the approval of, the commonwealth minister for the Environment and Water (in addition to any local or state government consent or approval) if the self-assessment determines that the action will have, or is likely to have, a significant impact on a MNES.

Considerations under the EPBC Act 1999 and assessment in line with the Significant Impact Guidelines 1.1 - Matters of National Environmental Significance have been given in Appendix E.

1.3 Excluded impacts

No excluded impacts (i.e., category 1-exempt land) were identified within the subject land.

1.4 Information sources

A list of the resources used to inform this BDAR, the date they were accessed and the spatial extent captured, where relevant, is provided in Table 1.2.

Table 1.2: Desktop Resources

Resource	Last Access Date	Spatial Extent
Zoning and Regulatory Maps		
Newcastle Local Environment Plan 2012	Various dates	Entire site
Biodiversity Values and Landscape Maps		
NSW Biodiversity Values Map (NSW DCCEEW 2025a)	February 2025	Entire site
SIX Maps -Base Map - LPI 1:25,000 digital topographic databases (DTDB) (LPI 2025) -Cadastral data LPI digital cadastral database (DCDB) (LPI 2025)	Various dates	Entire site
NSW SEED Mapping (NSW Gov 2025)	Various dates	Entire site
BioNet NSW (Mitchell) Landscapes – Version 3.1 (NSW DCCEEW 2016)	February 2025	Entire site
NSW Interim Biogeographic Regions of Australia (IBRA region and sub-regions) –	February 2025	Entire site

Resource	Last Access Date	Spatial Extent
Version 7 (Commonwealth DCCEEW 2025c)		
Atlas of Groundwater Dependent Ecosystems (DPE – Water 2025)	February 2025	Entire site
Nearmap (Nearmap 2025)	February 2025	Entire site
Threatened Species, Vegetation and Landscape Databases		
BioNet Atlas of NSW Wildlife (BioNet) (NSW DCCEEW 2025b)	February 2025	10x10km radius off boundary of subject land
Commonwealth Protected Matters Search Tool (PMST) (Commonwealth DCCEEW 2025a)	February 2025	10x10km radius off boundary of subject land
Commonwealth species profiles and threats database (SPRAT) (Commonwealth DCCEEW 2025b)	February 2025	No spatial dimension
NSW BioNet Threatened Biodiversity Profile Data Collection (NSW DCCEEW 2025e)	February 2025	No spatial dimension
BioNet vegetation classification database (NSW DCCEEW 2025c)	February 2025	No spatial dimension
NSW List of threatened entities at risk of SAI (NSW DCCEEW 2025f)	February 2025	No spatial dimension
State Vegetation Type Map (SVTM) (NSW DPE 2021)	February 2025	The site and close proximity
PlantNET NSW (PlantNET 2025).	February 2025	No spatial dimension
Directory of Important Wetlands in Australia (DIWA) (DoE 2015)	February 2025	No spatial dimension
Geological sites of NSW (Cartoscope 2025)	February 2025	No spatial dimension
Important habitat maps for a threatened species (NSW DCCEEW 2025d)	February 2025	No spatial dimension
Survey and Reporting Methodology		
Biodiversity Assessment Method (BAM) (DPIE 2020a)	Various dates	No spatial dimension
Biodiversity Assessment Method Operational Manual – Stage 1 (DPIE 2020b)	Various dates	No spatial dimension
Biodiversity Assessment Method – Operational Manual – Stage 2 (DPIE 2019)	Various dates	No spatial dimension
Biodiversity Assessment Method – Operational Manual – Stage 3 (DPIE, 2020c)	Various dates	No spatial dimension
Threatened species survey and assessment guidelines: field survey methods for fauna – amphibians (DECC 2009)	Various dates	No spatial dimension
DPE Koala (<i>Phascolarctos cinereus</i>) Biodiversity Assessment Method Survey Guide (DPE 2022)	Various dates	No spatial dimension
NSW Survey Guide for Threatened Frogs (DPIE 2020d)	Various dates	No spatial dimension
DPIE Surveying threatened plants and their habitats NSW survey guide for the Biodiversity Assessment Method (DPIE 2020)	Various dates	No spatial dimension
NSW Guide to Surveying threatened plants and their habitats (DPIE 2020e)	Various dates	No spatial dimension
Threatened Biodiversity Survey and Assessment Guidelines. Guidelines for Developments and Activities (DEC 2004)	Various dates	No spatial dimension
Biodiversity Assessment Method Credit Calculator (BAM-CC) (DPIE 2022f)	February 2025	No spatial dimension
Climactic Data		

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW



Resource	Last Access Date	Spatial Extent
BOM – Station 061055, Newcastle Nobbys NSW (Commonwealth of Australia 2025)	Various dates	Newcastle

2.0 Methods

2.1 Site context methods

2.1.1 Landscape features

Landscape feature extents within the subject land were determined by undertaking searches of external resources listed in Table 1.2. Field reconnaissance was also undertaken (Table 2.1:) to determine the condition and extent of landscape features within the subject land and surrounding locality.

2.1.2 Native vegetation cover

Native vegetation cover is determined across the assessment area (the subject land and the area within a 1,500m buffer from the edge of the subject land). The percent native vegetation cover is assessed by digitising all native vegetation within the assessment area, using GIS editing tools and recent aerial photography. The BAM Operational Manual Stage 1 (DPIE, 2020b) defines 'Native Vegetation Cover' as:

The amount of native vegetation (woody and non-woody vegetation including regrowth and plantations comprised of plants native to New South Wales) that is estimated to remain in the landscape proximal to the assessment area.

2.2 Native vegetation, threatened ecological communities and vegetation integrity methods

2.2.1 Existing information

Searches were undertaken of the BioNet VIS Database (NSW DCCEEW 2025c) and NSW SEED mapping (2025). Past aerial imagery of the site available on Google Earth Pro and Six Maps (LPI 2025) was also consulted.

2.2.2 Mapping native vegetation extent

Native vegetation was mapped by using existing information to produce an initial base map of native vegetation. Appropriate surveys of the subject land were then undertaken to validate and refine the mapping. Surveys included identification of all plants encountered to the species level, observations of broad vegetation composition and landform. Changes in vegetation and landform were recorded using hand-held GPS units. Results of these surveys were used to make final iterations and amendments to the mapping of native vegetation extent.

The areas of vegetation with similar species and structure composition were compared to the base map and cross-referenced with the vegetation community profiles held within the BioNet VIS

Database (NSW DCCEEW 2025c). Composition of flora species observed was compared to diagnostic species listed for each vegetation community to determine consistency. These comparisons confirmed the vegetation communities present in the subject land.

2.2.3 Plot-based vegetation survey and vegetation integrity survey

Detailed floristic surveys were undertaken in February 2025 by Wildthing Environmental Consultants. These surveys included the appropriate number of plot-based vegetation surveys and vegetation integrity surveys for each identified vegetation zone. Vegetation zones are relatively homogeneous areas of native vegetation with the same PCT and broad condition state. One plot-based vegetation survey and vegetation integrity survey was conducted for this assessment. Data was collected in accordance with the BAM (BAM, 2020b) by persons trained in the BAM and under the direction of persons accredited under the BAM. The field data collected during these assessments is provided in Appendix F along with photos of the BAM plots. Survey plot locations were selected such that they included all functional attributes relevant to the mapped PCT and vegetation zone. Figure 2.1 demonstrates the layout of a standard plot and details the survey methodology.

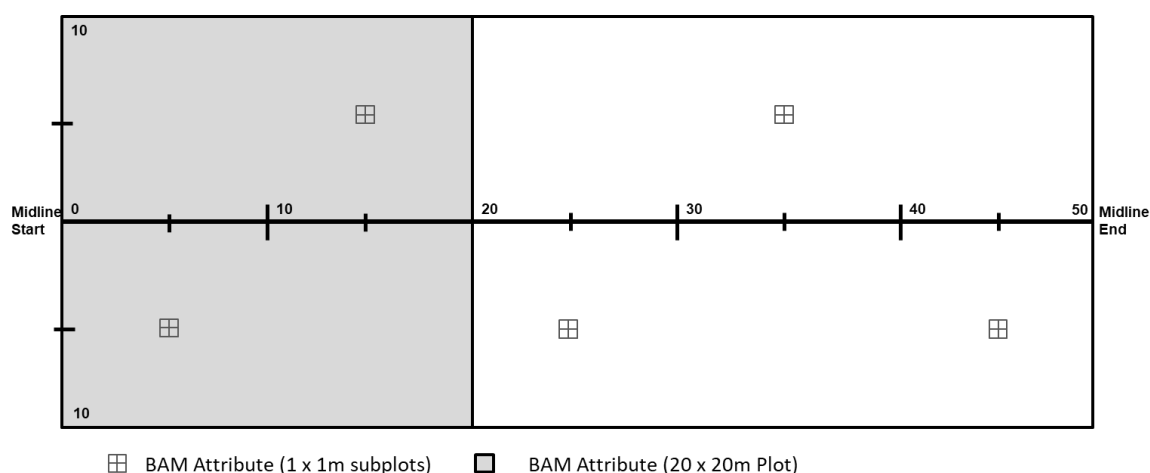


Figure 2.1: Plot Survey Design

The following site attributes were recorded at each survey plot:

- Midline start and end points (easting – northing grid type MGA 2020, Zone 56);
- Vegetation structure and dominant species and vegetation condition.

1. Composition attributes (20 x 20 m plot)

- All native species
- All introduced species (including high threat weeds)

2. Structure attributes (20 x 20 m plot normally)

- Estimate of foliage cover of every native and introduced species recorded. Foliage cover is defined as the percentage of the plot covered by a vertical projection of all attached plant material, regardless of whether it appears alive or dead, of all individuals of a species.

3. Function attributes (20 x 50 m plot)

- Presence or absence of each tree stem size class (diameter at breast height (DBH), over bark and measured at 1.3 metres above ground level). Classes include 5–9 cm, 10–19 cm, 20–29 cm, 30–49 cm
- Tally and DBH of large trees where DBH is between 50-79 cm or equal to or above 80cm
- Tally and DBH of regenerating trees with a DBH below 5 cm
- Length of all fallen logs. Fallen logs are defined as dead woody material with a diameter greater than 10 cm. Where logs extend outside the plot only the length within the plot is recorded.
- Percentage cover of leaf litter, bare ground, cryptograms and bare rock in each 1 x 1m plot. Litter is taken as plant material detached from a plant including leaves, seeds, twigs, branchlets and branches with diameter of <10 cm.

4. Other Attributes

- Number of stems with hollows is counted in the plot (50 x 20 m). A tree is considered to contain a hollow if:
 - the entrance can be seen.
 - the entrance width is at least 5 centimetres.
 - the hollow appears to have depth (i.e., solid wood cannot be seen beyond the entrance); and
 - the hollow is at least 1 metre above the ground.

2.3 Threatened flora survey methods

2.3.1 Review of existing information

Habitat constraints for threatened species were identified by reviewing the species specific constraints automatically populated in the BAM-C and by consulting species profiles in the Threatened Biodiversity Data Collection (TBDC).

2.3.2 Habitat constraints assessment

Habitat constraints identified for threatened species assessed in this BDAR were surveyed for within the subject land and its proximity during field assessments.

2.3.3 Field surveys

2.3.3.1 Targeted Flora Surveys

Flora species credit species generated by the BAM-C or added to the assessment due to local, nearby records were subject to targeted searches. These species included *Eucalyptus pumila* (Pokolbin Mallee) and *Rhodamnia rubescens* (Scrub Turpentine).

Targeted surveys were undertaken in accordance with the following guidelines:

- NSW Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities (Working Draft) (DoEC 2004)
- NSW Guide to Surveying threatened plants and their habitats (DPIE 2020d)

Each target threatened flora species was allocated areas of potential habitat. All vegetation communities considered to be habitat for the target species were searched within the subject land and

surrounding vegetation within the lot. Parallel field traverses (i.e., parallel transects, as used by Cropper 1993) were conducted 5 m apart along as straight of a path as possible while using the tracks being recorded on a GPS to guide the surveyors. Surveys were conducted within the survey period specified in the TBDC and BAM-C. Both species requiring surveys for this report could be surveyed year-round.. The location of the targeted flora tracks is shown in Figure 2.2.

2.3.3.2 Significant Tree Survey

A significant tree survey was conducted over the subject land to assess trees within and within close proximity to the subject land. The field survey recorded the details of each tree within the impact area including height, DBH, its GPS coordinates and fauna habitat attributes such as hollows. The presence of activity in the form of scratches, scats on the trunks of trees and scats around the base were also noted.

It must be noted that observations made from ground level may fail to record a small number of hollows that are obscured. Some entrances may also not lead to a cavity. The internal dimensions of the hollows are also impossible in many cases to determine from the ground.

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW

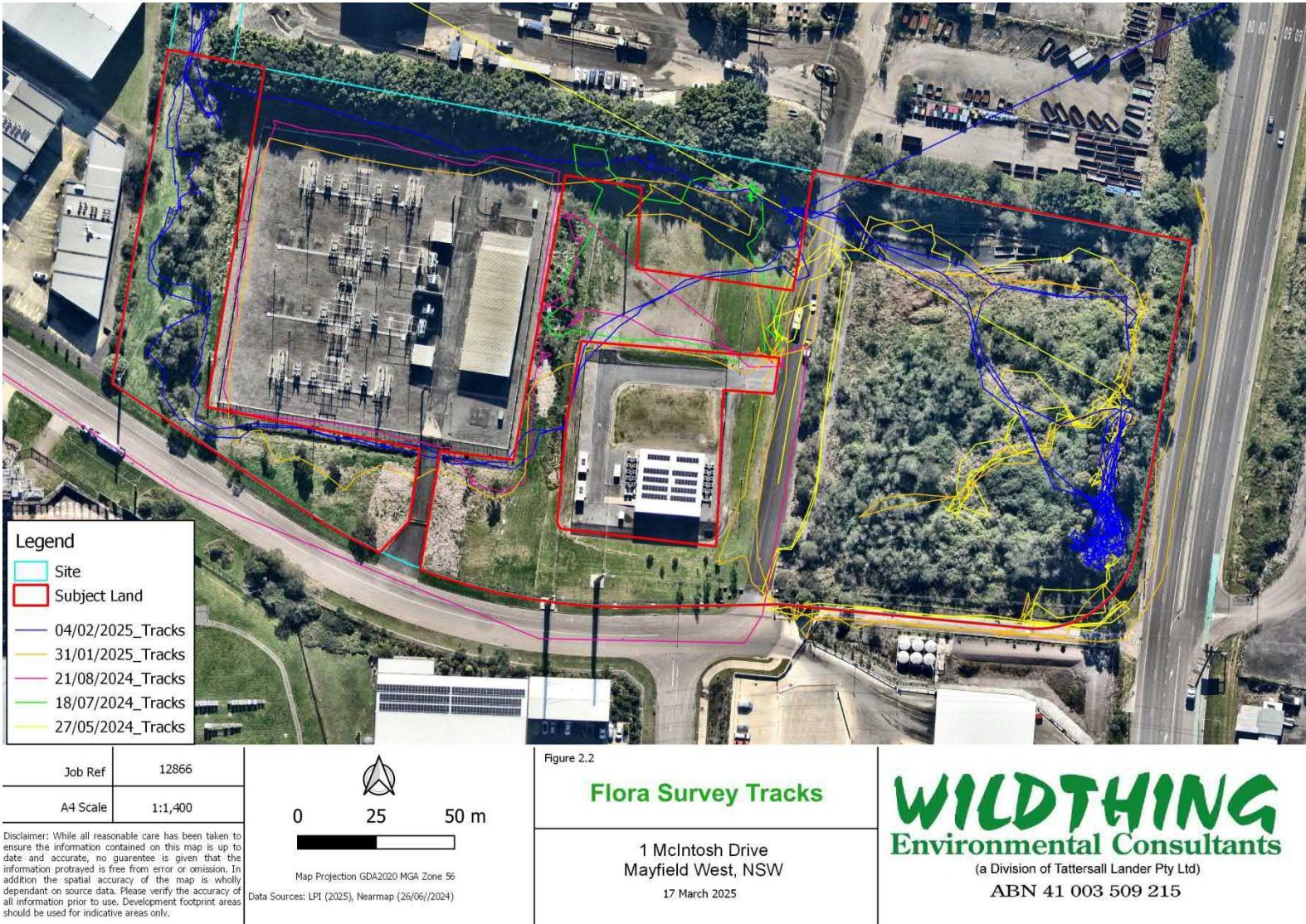


Figure 2.2 Flora Survey Tracks

2.4 Threatened fauna survey methods

2.4.1 Review of existing information

Habitat constraints for threatened fauna species were identified by reviewing the species specific constraints automatically populated in the BAM-C and by consulting species profiles in the Threatened Biodiversity Data Collection (TBDC).

2.4.2 Habitat constraints assessment

The presence of habitat constraints associated with the threatened fauna species assessed in this BDAR were surveyed for within the subject land and its proximity using field surveys and existing information. Field surveys determined the presence of habitat constraints such as hollows, man-made structures or specific flora. Recent aerial imagery on Nearmap (2025) and topographic mapping was consulted to determine the proximity of other constraints such as breeding structures for threatened microchiropteran bat species and waterbodies for aquatic avifauna species.

Habitat constraints identified for threatened species assessed in this BDAR were surveyed for within the subject land and proximity during field assessments

2.4.3 Field surveys

Fauna surveys carried out for this assessment were determined by consulting the list of species credit species generated in the BAM-C and reviewing species with nearby records. Surveys were conducted that targeted these species using methods described in TBDC, fauna specific BAM survey guidelines or the Department of Environment and Conservation's (NSW) Threatened Biodiversity Survey and Assessment Guidelines – Working Draft (DEC, 2004).

Survey details including dates, timing and weather conditions are displayed in Table 2.1:.

2.4.3.1 Diurnal Avifauna Survey

The diurnal avifauna survey involved point assessments and a number of incidental observations of avifauna were also made during other surveys. Point assessments involved quietly standing in a stationary location for at least 15 minutes and noting all avifauna species observed and heard. Observations of secondary indications (i.e., distinctive feathers and nests) of avifauna were also recorded.

2.4.3.2 Terrestrial Mammals

One camera trap (Browning Patriot Trail Camera) was set at a height below 1m, targeting terrestrial mammal species within the subject land. The camera was placed along a worn path likely used by

animals to target any terrestrial fauna within the site. A tin of sardines was attached to a tree as bait for native carnivores and omnivores. The camera trap was set from 13 January – 15 January 2025. The location of the camera trap within the subject land is shown in Figure 2.3.

2.4.3.3 Microchiropteran Bat Survey

An Anabat Swift detector was used to record bat echo-location calls for later analysis. The stationary detector was positioned to sample potential hunting sites for bats, including flyways, clearings and ecotones. The detector was set from 13 January – 15 January 2025. The bat calls recorded were analysed in-house by Mungo Worth. The location of the anabat is shown in Figure 2.3.

2.4.3.4 Incidental Observations and Secondary Indications

All incidental observations and secondary indications such as the presence of scats were recorded.

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW



Figure 2.3 Location of Anabat and Camera Surveys

2.5 Weather conditions

Survey effort, dates and timing and conditions are presented in Table 2.1:.

Table 2.1: Environmental conditions during threatened species surveys

Survey undertaken (e.g. method / targeted species)	Date	Time	Survey Effort (Person Hours)	Temperature	Wind (light, mod...)	Other conditions relevant to the species
General site inspection Native vegetation mapping survey Targeted flora survey Significant Tree Survey Diurnal avifauna survey Incidental observations	Monday 27/05/2024	1200 - 1330	3.0 h (2 Persons)	18°C	7km/hr SSE	2/8 Cloud, 74% relative humidity
Additional survey western side of Project. Native vegetation mapping survey Targeted flora survey Diurnal avifauna survey Incidental observations	Thursday 18/07/2024	1130 - 1230	1.0 h (2 Persons)	16.6°C	17km/hr NW	2/8 Cloud, 55% relative humidity
Additional survey western side of Project. Native vegetation mapping survey Targeted flora survey Diurnal avifauna survey Incidental observations	Wednesday 21/08/2024	1430 - 1530	1.0 h (1 Person)	23°C	10km/hr NW	3/8 Cloud, 67% relative humidity
Native vegetation mapping survey Targeted flora survey Diurnal avifauna survey Incidental observations	Thursday 31/10/2024	800 – 930	1.5 h (1 Person)	20.7°C	6km/hr WSW	0/8 Cloud, 73% relative humidity
Set Anabat Set Camera Trap	Monday 13/01/2025	1300 - 1400	1 h (1 Person)	25.3°C	22km/hr ENE	1/8 Cloud, 54% relative humidity
Retrieve Anabat	Wednesday 15/01/2025	800 – 830	0.5 h (1 Person)	24.1°C	13km/hr NNE	0/8 Cloud, 88% relative humidity
Retrieve Camera Trap	Friday	1230 – 1300	0.5 h	21.7°C	33km/hr	7/8 Cloud, 77% relative

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW



Survey undertaken (e.g. method / targeted species)	Date	Time	Survey Effort (Person Hours)	Temperature	Wind (light, mod...)	Other conditions relevant to the species
	24/01/2025		(1 Person)		SSW	humidity
Floristic BAM plot Targeted flora survey Diurnal avifauna survey	Tuesday 4/02/2025	900 – 1145	5.5 h (2 Persons)	23.7°C	15km/hr N	7/8 Cloud, 75% relative humidity

2.6 Limitations

Limiting factors relevant to the field assessment included the detection of species with large home ranges such as *Dasyurus maculatus* (Tiger Quoll) and Large Forest Owls. Climate variability may also affect the occurrence of some species such as *Lathamus discolor* (Swift Parrot) and *Anthochaera phrygia* (Regent Honeyeater).

Limitations have been overcome by applying the precautionary principle in all cases where the survey methodology may have given a false negative result. This precautionary principle was applied by recognising that most threatened species are rare and therefore unlikely to be encountered during a survey even if they may utilise the site at other times. These species have been assessed on the basis of the presence of their habitat and the likely significance of that habitat to a viable local population.

2.7 Licences

Fieldwork undertaken by Wildthing Environmental Consultants was carried out under the NPWS Scientific Investigation Licence SL 100345 and under Animal Care and Ethics Approval: Animal Research Authority Issue by the Director General of NSW Agriculture (File No. TRIM 13/251).

3.0 Site context

3.1 Assessment area

For this report, the assessment area includes the subject land and all land within a 1,500 m buffer around the boundary of the subject land.

The assessment area had a total area of 841.92 ha. The assessment area is presented in Figure 3.1.

3.2 Landscape features

3.2.1 IBRA bioregions and IBRA subregions

Interim Biogeographic Regionalisation for Australia (IBRA) Bioregions are large, geographically distinct areas of land with common characteristics such as geology, landform patterns, climate, ecological features, and flora and fauna communities. The subject land is located within the Sydney Basin IBRA Bioregion and the Hunter IBRA Subregion (DAWE 2016). Both IBRA and IBRA Subregional Boundaries do not occur near the subject land and hence are not shown within any figures.

3.2.2 Rivers, streams, estuaries and wetlands

No prescribed streams or water bodies are present within the subject land. A narrow strip of the site extends approximately 300 m to the north and connects to the edge of the South Channel of the Hunter River. Parts of Kooragang Nature Reserve (listed under the DIWA) are located along this Southern Channel of the Hunter River. Prescribed streams and areas of Kooragang Nature Reserve within the Assessment Area are shown in Figure 3.1.

3.2.3 Habitat connectivity

No areas of mapped within Fauna Key Habitats and Corridors for North East NSW (DPIE 2011) were located within the subject land or assessment area. The subject land is surrounded by industrial infrastructure, roads and the Hunter River. There is little to no connectivity between habitat on site and other available habitat in the surroundings. Only planted trees located between industrial buildings and lining roads provide very loose connection from vegetation within the site to other isolated and disturbed patches of habitat.

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW

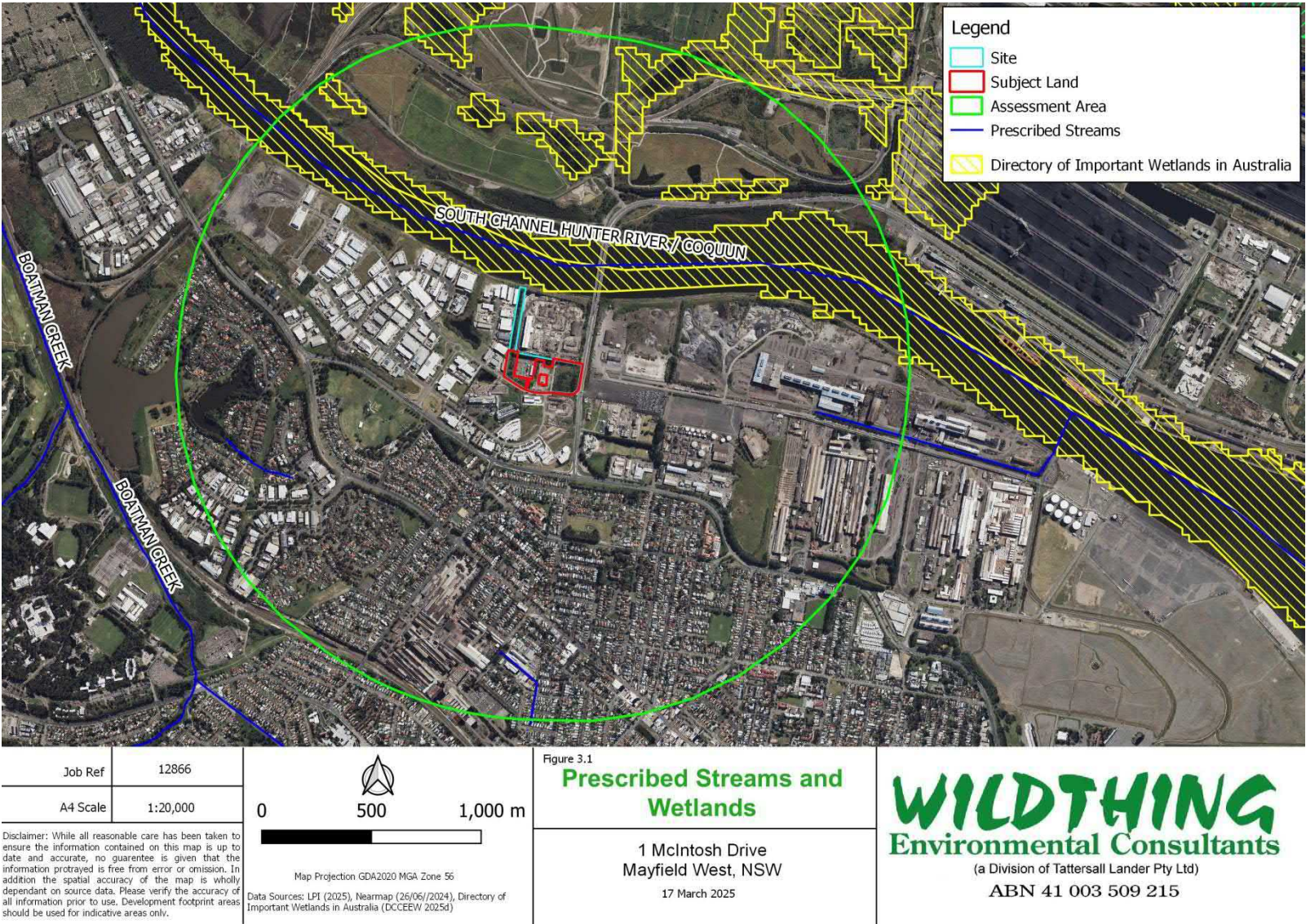


Figure 3.1 Assessment area showing Prescribed Streams and Wetlands

3.2.4 Karst, caves, crevices, cliffs, rocks or other geological features of significance

No significant geological features are present within the subject land.

3.2.5 Areas of outstanding biodiversity value

No areas of outstanding biodiversity value were identified within the subject land or assessment area.

3.2.6 NSW Landscapes NSW

The subject land fell within one NSW Landscape (formerly Mitchell Landscapes) (NSW DCCEEW 2016) Gosford - Cooranbong Coastal Slopes. BioNet Landscapes occurring within subject land and assessment area are shown in Figure 3.2.

3.2.7 Geology and Soils

The northern portion of the subject land was located on Disturbed Terrain (xx) Soil Landscape (Matthei 1995). This consisted of level plain to hummocky terrain, extensively disturbed by human activity, including complete disturbance, removal or burial of soil. Local relief and slopes are highly variable. Landfill includes soil, rock, building and waste materials.

The remainder of the subject land was located on Beresfield (be) Soil Landscape (Matthei 1995). This consisted of undulating low hills and rises on Permian sediments.

Soil Landscapes occurring within subject land and assessment area are shown in Figure 3.2.

3.2.8 Important Areas Map

The Important Areas Map was consulted on 9 January 2025 (NSW DCCEEW 2025d). This is a map approved by the Department that identifies areas of habitat that are considered to be important for the survival of a threatened species in the wild. Important habitat for migratory shore birds is located in the far north of the site, along the edge of the South Channel of the Hunter River. This area is outside of the subject land and will not be impacted by the Project.

Important Areas occurring within the site and assessment area are shown in Figure 3.3.

3.3 Native vegetation cover

Approximately 81.93 ha of native vegetation was mapped within the 841.92 ha assessment area. Native vegetation cover within the assessment area is approximately 10% and falls within class 0-10% according to the BAM (2020c).

Table 3.1 summarises the extent of native vegetation cover within the assessment area. Figure 3.4 shows native vegetation cover within the assessment area.

Table 3.1: Native vegetation cover in the assessment area

Assessment area (ha)	841.92 ha
Total area of native vegetation cover (ha)	81.93 ha
Percentage of native vegetation cover (%)	10%
Class (0-10, >10-30, >30-70 or >70%)	0-10%

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW

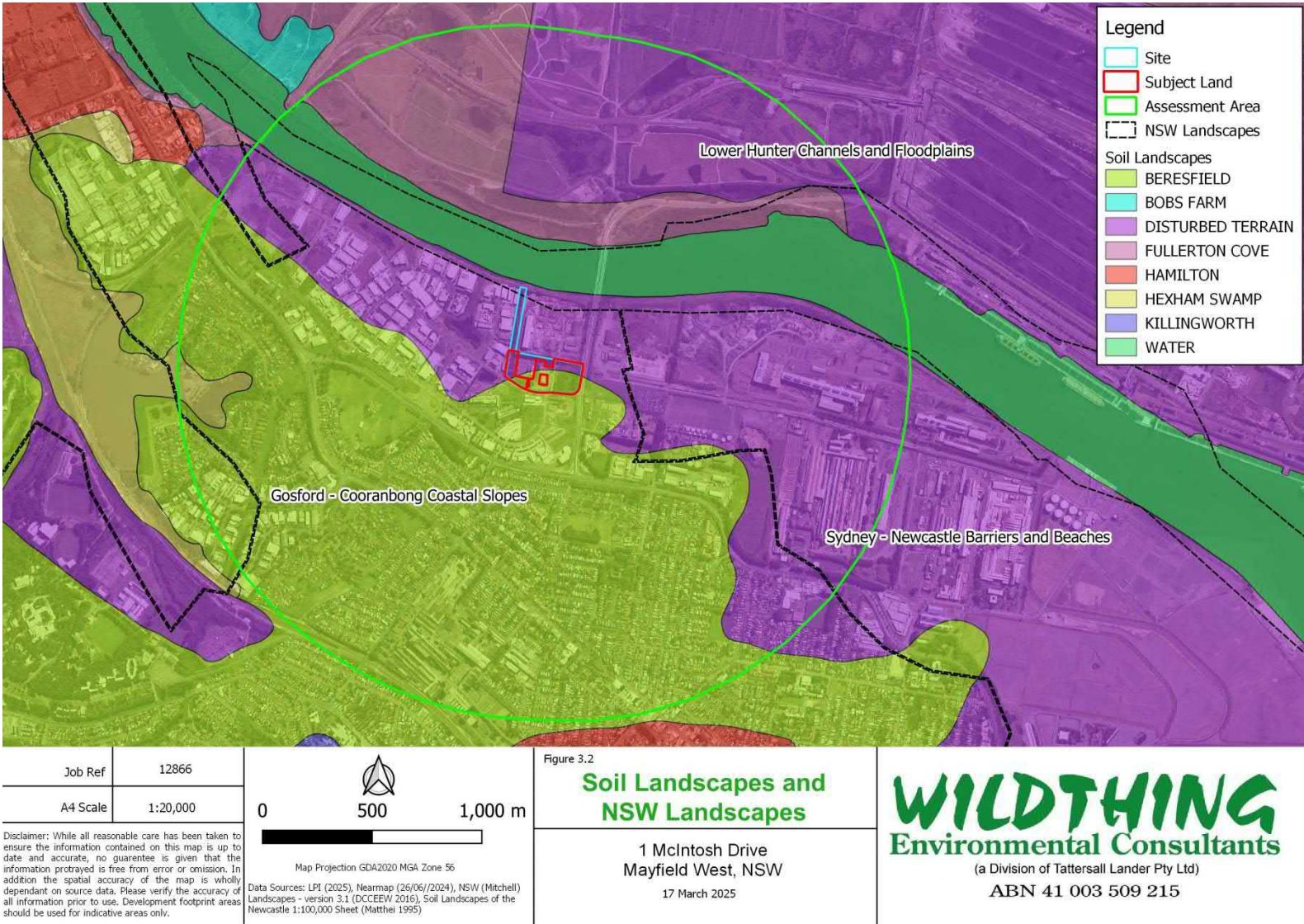


Figure 3.2 Occurrence of Soil Landscapes and NSW (Mitchell) Landscapes within the Assessment Area

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW

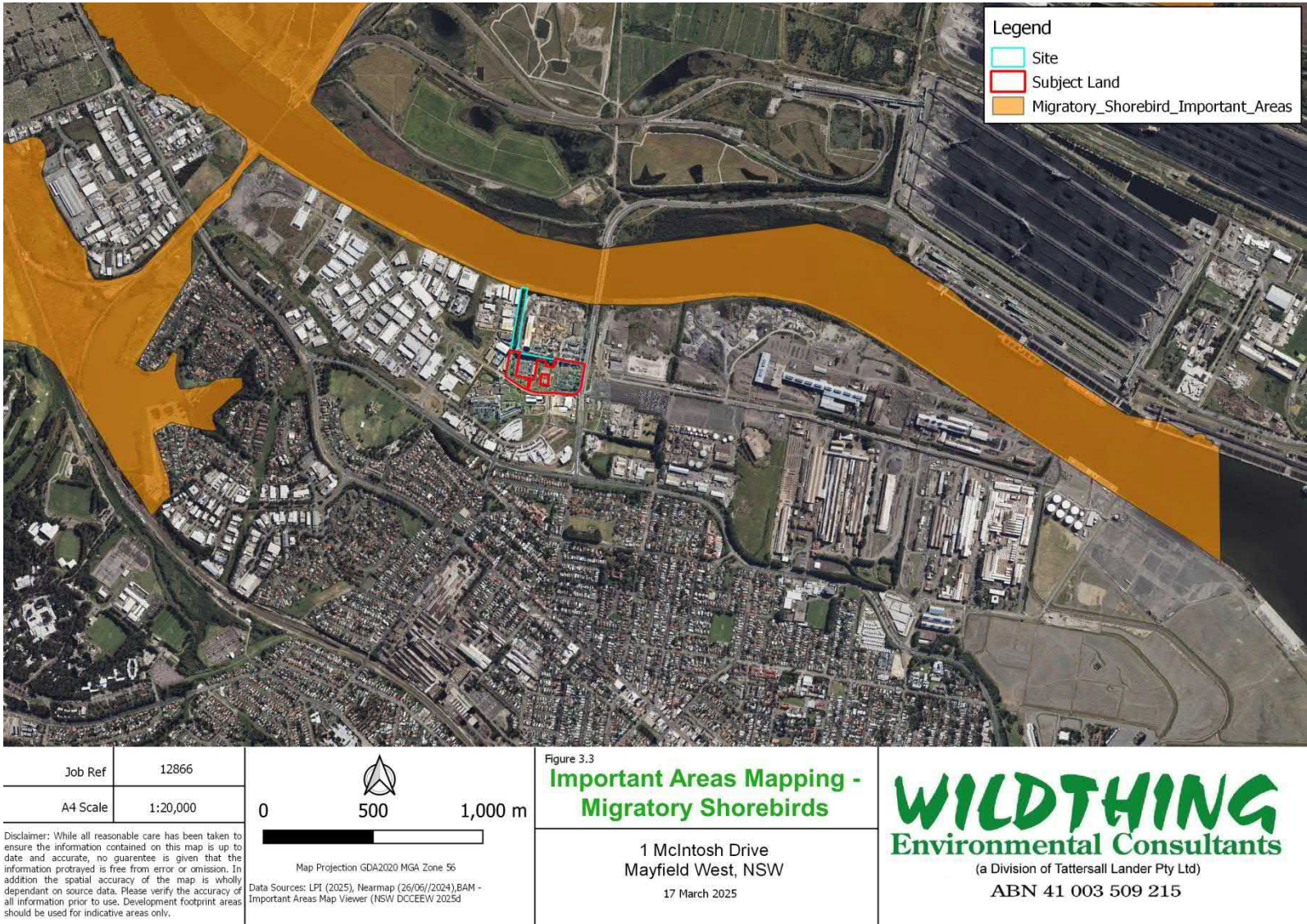


Figure 3.3 Migratory Shorebird Important Habitat Mapping within Assessment Area

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW

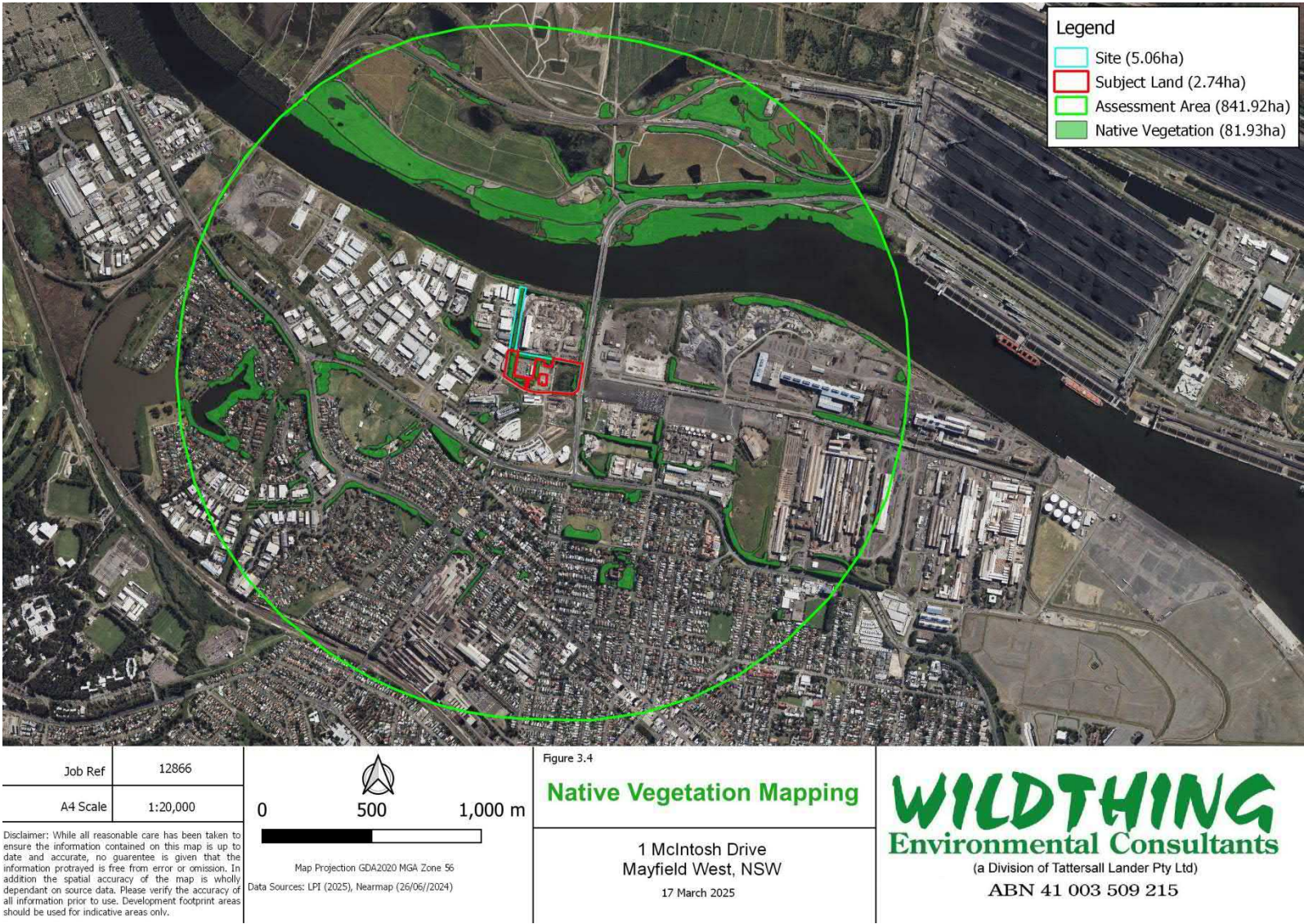


Figure 3.4 Native Vegetation within the Assessment Area.

3.4 Past and current disturbance to native vegetation

The entire site and surrounding area have undergone considerable changes and is situated on the site of the former “Platt’s Channel”. This was a former broad arm of the Hunter River to the south of Spit Island (now consolidated into Kooragang Island). The entirety of Platt’s Channel was filled in by B.H.P. from 1950. The channel was firstly used as a disposal site for waste and then as an expansion site for industrial facilities.

Aerial imagery shows that no native vegetation was present in the west of the subject land immediately after the construction of the existing substation in 2009, however the small area of native trees along the eastern boundary were already present (Google Earth Pro 2025a). Native vegetation was planted around the substation post-construction (Google Earth Pro 2025b), since then areas have been remove for the construction of the data centre and for other unknown reasons (Google Earth Pro 2025c).

Plate 3.1 shows aerial imagery after substation construction but prior to native vegetation planting. Plate 3.2 shows planted vegetation around the substation and Plate 3.3 shows the partial loss of this vegetation that has since occurred.



Plate 3.1: Aerial imagery of 1 McIntosh Drive before planting (September 2009)



Plate 3.2: Aerial imagery of 1 McIntosh Drive after planting (September 2011)

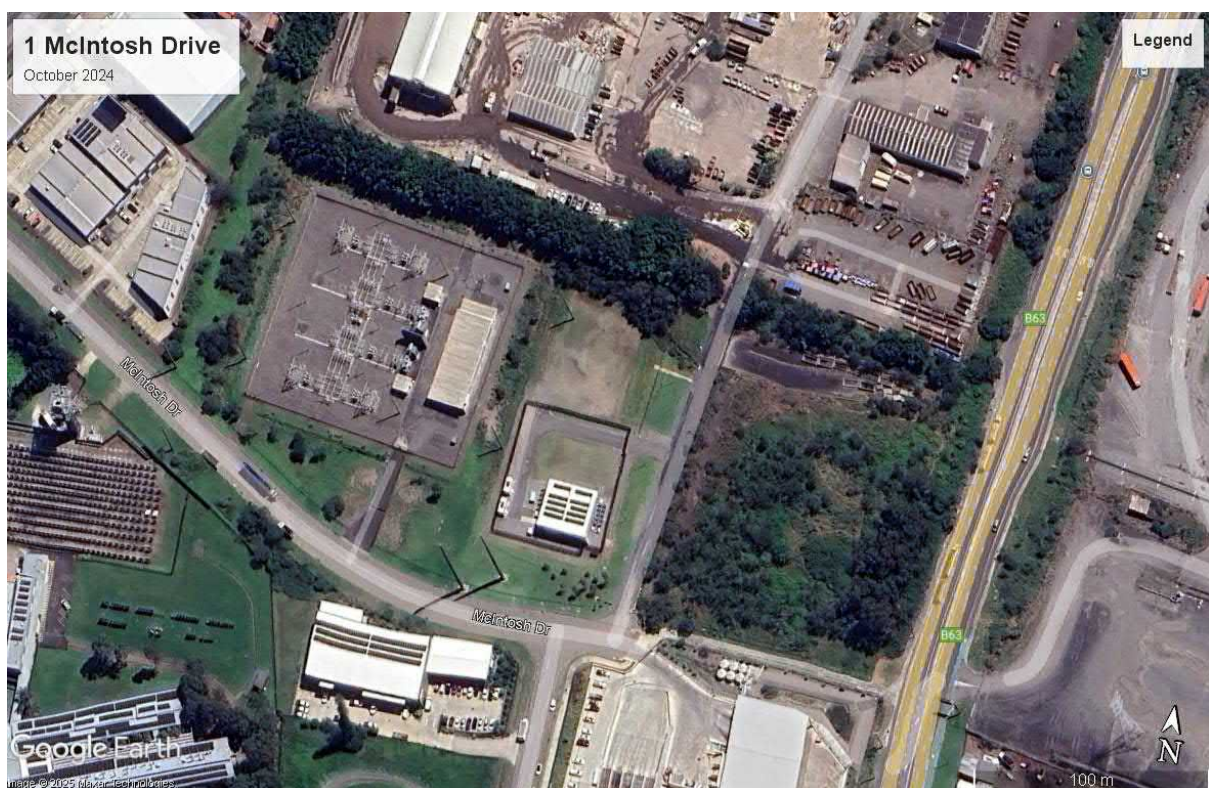


Plate 3.3: Aerial imagery of 1 McIntosh Drive with loss of plantings (October 2024)

4.0 Native vegetation, threatened ecological communities and vegetation integrity

4.1 Native vegetation extent

Approximately 81.93 ha of native vegetation was mapped within the 841.92 ha assessment area. Native vegetation cover within the assessment area is approximately 10% and falls within Class 0-10% according to the BAM (2020c).

Figure 3.4 shows the native vegetation extant within the assessment area.

4.1.1 Differences in mapped native vegetation extent and aerial imagery

Native vegetation within the subject land was found to reflect the review of aerial mapping interpretation and did not appear to be recently altered.

4.1.2 Areas that are not native vegetation

Areas of non-native vegetation were present throughout much of the subject land. This included areas of unmaintained introduced vegetation and maintained lawns.

Unmaintained Introduced Species

Areas of unmaintained introduced species commonly included non-native small tree and shrub species such as:

- *Lantana camara* (Lantana)
- *Chrysanthemoides monilifera* subsp. *rotundata* (Bitou Bush)
- *Acacia saligna* (Golden Wreath Wattle) from Western Australia
- *Ricinus communis* (Caster Oil Plant)
- *Cestrum parqui* (Green Cestrum)

Introduced perennial grasses included:

- *Chloris gayana* (Rhodes Grass)
- *Cenchrus clandestinus* (Kikuyu)
- *Melinis repens* (Red Natal Grass)
- *Hyparrhenia hirta* (Coolatai Grass)
- *Pennisetum setaceum* (African Fountain Grass)

Other common introduced groundcovers were:

- *Bidens pilosa* (Cobblers Pegs)
- *Galium aparine* (Clevers)
- *Foeniculum vulgare* (Fennel)
- *Cirsium vulgare* (Black Thistle)
- *Gomphocarpus fruticosus* (Narrow-leaved Cottonbush)
- *Sida rhombifolia* (Paddys Lucerne)

Generally, only a small number of native species were present, these being *Casuarina glauca* (Swamp Oak), *Melia azedarach* var. *australasica* (White Cedar) and *Commelina cyanea* (Scurvy Weed).

Maintained Lawn

A large area of maintained lawn was present to the east of the substation and north of the data centre. Other pockets of lawn were also present around the western and northern sides of the substation. The lawns were composed of introduced species such as *Medicago polymorpha* (Burr Medic), *Cenchrus clandestinus* (Kikuyu) and low frequencies of the native species *Cynodon dactylon* (Couch).

In total 1.25 ha of unmaintained introduced vegetation and 0.69 ha of maintained lawns was mapped within the subject land (1.94 ha in total). Examples of unmaintained introduced vegetation and maintained lawns within the subject land are presented in Plate 4.1-Plate 4.6.



**Plate 4.1: Unmaintained introduced vegetation along eastern boundary of impact area (facing north).
Visible introduced plants: *Lantana camara* (Lantana)**



Plate 4.2: Unmaintained introduced vegetation within east of the impact area (facing south-east). Visible introduced plants: *Lantana camara* (Lantana) and *Chloris gayana* (Rhodes Grass)

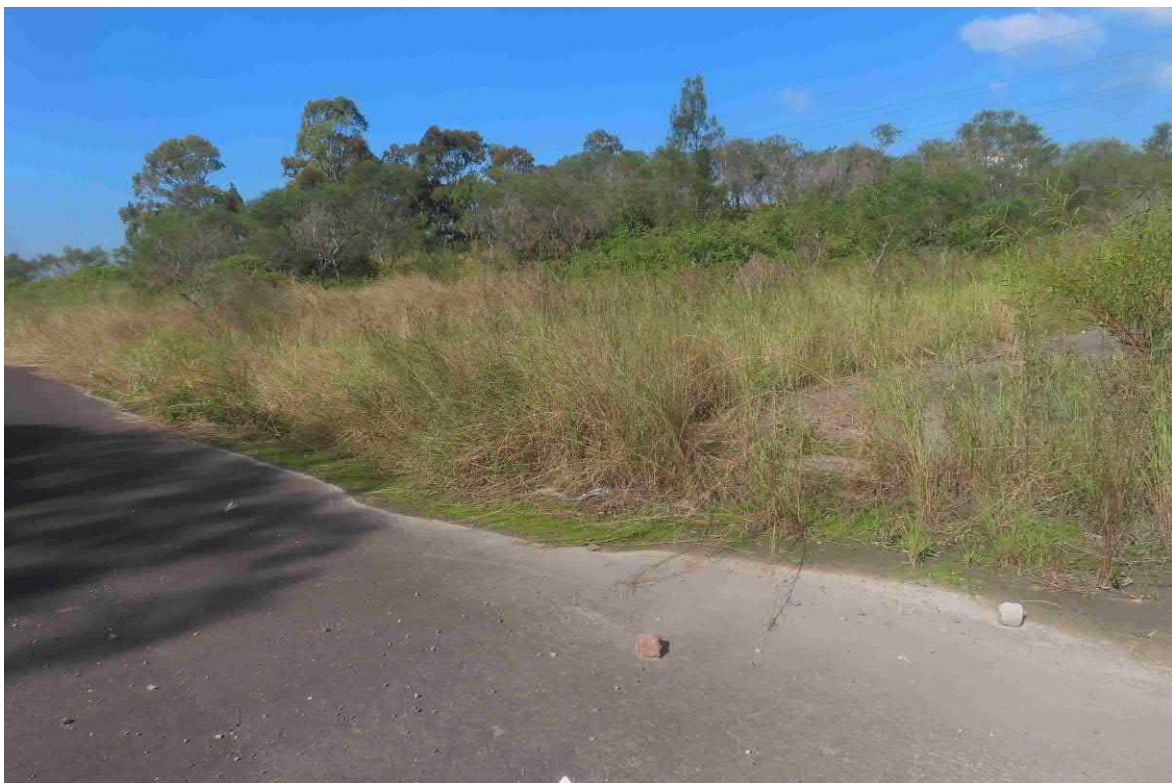


Plate 4.3: Unmaintained introduced vegetation north-east of the impact area (facing south-east). Visible introduced plants: *Hyparrhenia hirta* (Coolatai Grass) in the front, *Lantana camara* (Lantana) in the middle and *Acacia saligna* (Golden Wreath Wattle) in the back



Plate 4.4: Unmaintained introduced vegetation on eastern side of unnamed road (facing south-east). Visible introduced plants: *Acacia saligna* (Golden Wreath Wattle) and *Chloris gayana* (Rhodes Grass)



Plate 4.5: Maintained lawns north of substation (facing north-west from road). Visible introduced species: *Medicago polymorpha* (Burr Medic) and *Cenchrus clandestinus* (Kikuyu)



Plate 4.6: Maintained Lawns north of substation (facing north toward data centre). Visible introduced species: *Medicago polymorpha* (Burr Medic) and *Cenchrus clandestinus* (Kikuyu)

4.2 Native Vegetation

Native vegetation was present in the form of planted vegetation around the existing substation and different planted vegetation in the east of the subject land that was established over 70 years ago for unknown purposes. Due to the lack of information surrounding this older area of planted vegetation and the presence of regenerating native tree species, this area could not be assessed under the planted native vegetation module. This area of vegetation was assigned to a BioNet Vegetation Classification Plant Community Types (PCTs).

4.2.1 Plant Community Types

4.2.1.1 Overview

Vegetation planted in the east of the subject land contained locally native tree species and some regenerating specimens. This area of vegetation was assessed as aligning with the BioNet Vegetation Classification Plant Community Type (PCT) identified within Table 4.1. Detailed descriptions of the PCT is provided in the following subsections.

Table 4.1: PCTs and planted vegetation identified within the subject land

PCT ID	PCT name/ landscaping vegetation name	Subject area (ha)	land
3437	Hunter Coast Lowland Spotted Gum Dry Forest	0.11	
Total area		0.11	

4.2.1.2 PCT 3437 - Hunter Coast Lowland Spotted Gum Dry Forest

Table 4.2: PCT 3437 Hunter Coast Lowland Spotted Gum Dry Forest

PCT ID	3437
PCT name	Hunter Coast Lowland Spotted Gum Dry Forest
Vegetation formation	Dry Sclerophyll Forest (Shrub/grass sub-formation)
Vegetation class	Hunter-Macleay Dry Sclerophyll Forests
Per cent cleared value (%)	59.81
Extent within subject land (ha)	0.11

Native vegetation most consistent with that of PCT 3437 Hunter Coast Lowland Spotted Gum Dry Forest was identified within a small area near the eastern boundary of the subject land. The dominant canopy species within this area were *Corymbia maculata* (Spotted Gum), *Eucalyptus punctata* (Grey Gum), *Eucalyptus paniculata* (Grey Ironbark) and *Eucalyptus tereticornis* (Forest Red Gum). These trees have either been previously planted or are new regeneration from the planted trees.

The understorey was composed of introduced species, particularly *Lantana camara* (Lantana). Other less common introduced species included *Megathyrsus maximus* (Guinea Grass) and *Acacia saligna* (Golden Wreath Wattle).

4.2.1.3 Condition states

PCT 3437 was only found to occur in one condition state containing native canopy species, regenerating tree species and introduced mid-canopy and ground cover.

4.2.1.4 Justification of PCT selection

The above PCT was identified through consultation of the SVTM (NSW DPE 2021).

A list of mapped, nearby vegetation was compiled and consisted of PCTs: 3083, 3432, 3433, 3437, 3581, 3967, 4091 and 4097. Most of these PCTs were aquatic or rainforest vegetation and were not considered further. Next, the species composition of these PCTs, as described in BioNet Vegetation Classification (NSW DCCEEW 2025c), was compared with what was observed during field surveys. PCTs 3432 and 3581 were excluded because their dominant species (*Angophora costata*) was not present on site. PCT 3437 was found to contain a species composition more consistent with what was observed on site compared to PCT 3433. No Mahogany species were present which are described in both PCTs however PCT 3437 contains higher frequencies of *Allocasuarina torulosa* (Forest Oak) and *Eucalyptus punctata* (Grey Gum). It is described that as distance from the coast and elevation increases, PCT 3437 grades into drier shrub grass *Corymbia maculata* forest PCT 3433. The site was located closer to the coast, at low elevation and not considered to be a drier *Corymbia maculata* forest therefore PCT 3437 was identified as the best fit PCT for native vegetation within the subject land

Photos of PCT 3437 are shown in Plate 4.7 and Plate 4.8. The extent of PCT 3437 within the subject land is shown in Figure 4.1.

4.2.1.5 Alignment with BC Act listed TECs

Areas of PCT 3437 were not found to be consistent with any Threatened Ecological Communities.

4.2.1.6 Alignment with EPBC Act listed TECs

This PCT is not associated with any EPBC Act listed TECs.



Plate 4.7: PCT 3437 within the south-east portion of the subject land. Visible native species: *Corymbia maculata* (Spotted Gum) and *Eucalyptus tereticornis* (Forest Red Gum). Visible introduced species: *Lantana camara* (Lantana) and *Acacia saligna* (Golden Wreath Wattle)



Plate 4.8: PCT 3437 within the south-east portion of the subject land. Visible native species: *Corymbia maculata* (Spotted Gum) and *Eucalyptus tereticornis* (Forest Red Gum). Visible introduced species: *Lantana camara* (Lantana)

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW

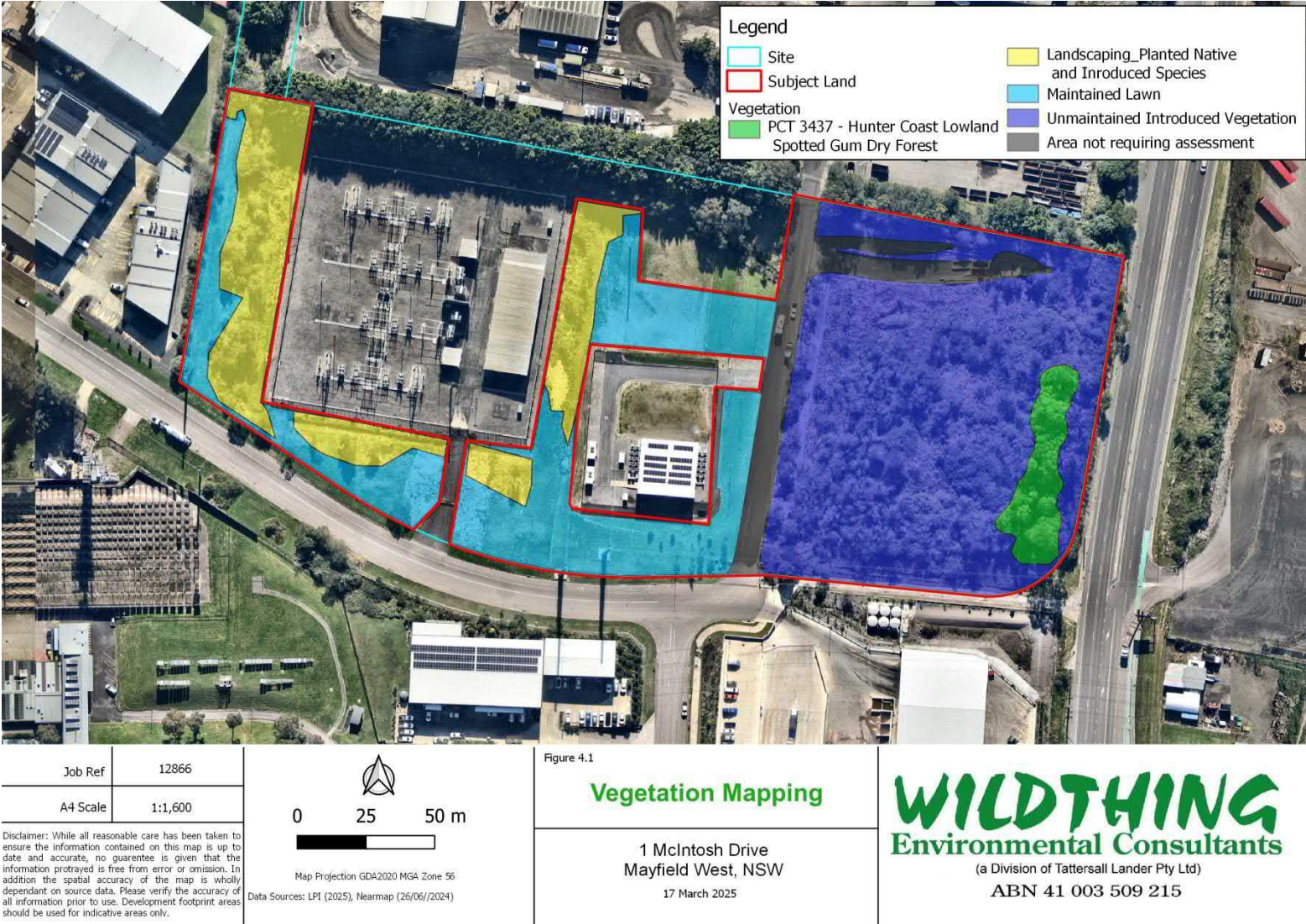


Figure 4.1 Areas of native and on-native vegetation within the subject

4.2.2 Planted Vegetation

4.2.2.1 Landscaping - Planted Native and Introduced Species

Landscaping composed of planted native and introduced species was present around the substation. Planted natives included *Casuarina glauca* (Swamp Oak). A layer of *Lomandra longifolia* (Spiny Mat Rush) had been planted on the ground that was denser than that in the area planted swamp oak. Introduced small tree species the Western Australian Wattle *Acacia saligna* (Golden Wreath Wattle) was also present. Introduced groundcovers were more dense and diverse on the ground compared to areas of planted swamp oak. Introduced groundcovers included *Medicago polymorpha* (Burr Medic), *Bidens pilosa* (Cobblers Peg), *Hypochaeris radicata* (Flatweed), *Chloris gayana* (Rhodes Grass), *Melinis repens* (Red Natal Grass) and *Lantana camara* (Lantana).

This vegetation was planted after construction of the existing substation. Impacts to this vegetation has been assessed under the streamlined assessment module - planted native vegetation.

Photos of Planted Native and Introduced Species are shown in Plate 4.9 - Plate 4.12. The extent of Planted Native and Introduced Species within the subject land is shown in Figure 4.1.



Plate 4.9: Landscaping - Planted Native and Introduced Species eastern side of Substation. Visible native species: *Lomandra longifolia* (Spiny Mat Rush), *Casuarina glauca* (Swamp Oak. Visible introduced species: *Acacia saligna* (Golden Wreath Wattle



Plate 4.10: Landscaping - Planted Native and Introduced Species southern side of Substation. Visible native species: *Lomandra longifolia* (Spiny Mat Rush), *Casuarina glauca* (Swamp Oak). Visible introduced species: *Acacia saligna* (Golden Wreath Wattle)



Plate 4.11: Landscaping - Planted Native and Introduced Species western side of Substation. Visible native species: *Lomandra longifolia* (Spiny Mat Rush), *Casuarina glauca* (Swamp Oak). Visible introduced species: *Bidens pilosa* (Cobblers Pegs).



Plate 4.12: Landscaping - Planted Native and Introduced Species western side of Substation. Visible native species: *Casuarina glauca* (Swamp Oak). Visible introduced species: *Chloris gayana* (Rhodes Grass).

4.3 Threatened ecological communities

No native vegetation within the subject land was found to be consistent with any TECs.

4.4 Vegetation zones

Designation of vegetation zones was undertaken accordance with the methodology for vegetation integrity assessment, as outlined in Section 4.3 of the BAM (OEH, 2017).

As described above, one PCT was identified within the subject land:

- PCT 3437 Hunter Coast Lowland Spotted Gum Dry Forest

This PCT was assessed to determine if vegetation could be further stratified into separate vegetation zones bases on current condition state or other environmental variables. Data from the random meander, overview inspection and detailed floristic plots have been used to inform this stratification.

Upon review of this data, PCT3437 was not stratified and was deemed to consist of only one vegetation zone.

Vegetation zones have been presented in Figure 4.2.

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW



Job Ref	12866
A4 Scale	1:1,400

Disclaimer: While all reasonable care has been taken to ensure the information contained on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. In addition the spatial accuracy of the map is wholly dependant on source data. Please verify the accuracy of all information prior to use. Development footprint areas should be used for indicative areas only.



Map Projection GDA2020 MGA Zone 56

Data Sources: LPI (2025), Nearmap (26/06/2024)

Figure 4.2

Vegetation Zones

1 McIntosh Drive
Mayfield West, NSW

17 March 2025

WILDTHING
Environmental Consultants

(a Division of Tattersall Lander Pty Ltd)

ABN 41 003 509 215

Figure 4.2 Vegetation Zones within the subject land

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW

Table 4.3: Vegetation zones and patch sizes

Vegetation zone ID	PCT ID number and name	Condition/ other defining feature	Area (ha)	Patch size class (select multiple if areas of native vegetation are discontinuous)	No. vegetation integrity plots required	No. vegetation integrity plots completed	No. vegetation integrity plots used in assessment	Plot IDs of vegetation integrity plots used in assessment
1	PCT 3437 Hunter Coast Lowland Spotted Gum Dry Forest	Disturbed	0.11	☒ <5 ha ☐ 5–24 ha ☐ 25–100 ha ☐ >100 ha	1	1	1	1A

4.5 Vegetation integrity (vegetation condition)

4.5.1 Vegetation integrity survey plots

The number of vegetation integrity plots sampled for each vegetation zone was determined by comparing the area of each vegetation zone with Table 3 of the BAM (DPIE 2020a). In all cases at least the minimum number of plots were sampled.

4.5.2 Scores

Table 4.4: Vegetation integrity scores

Vegetation zone ID	Composition condition score	Structure condition score	Function condition score (where relevant)	Vegetation integrity score	Hollow bearing trees present?
PCT 3437_Disturbed	11.8	23.3	45.3	23.2	No

4.5.3 Management Zones

No vegetation zones were split into any management zones as total removal of vegetation is assumed to occur throughout the subject land. All other future condition values were set to zero.

4.6 Tree Survey

A total of 35 larger native trees (generally DBHs of 0.30m – 0.45m) and several small, regenerating trees were recorded within the impact area. One larger specimen of *Eucalyptus tereticornis* (Forest Red Gum) (tree no. 24) was present within the south of the area mapped as PCT 3437. No trees were found to contain habitat in the form of hollows.

All trees recorded will likely require removal for the Project.

The location of surveyed trees within the subject land and within close proximity are shown in are shown in Figure 4.3.

4.7 Movement Corridors

There is little connectivity between habitat on site and other available habitat in the surroundings. The site is surrounded by industrial infrastructure, roads and the Hunter River. Only planted trees located between industrial buildings and lining roads provide very loose connections from vegetation within the site to other isolated and disturbed patches of habitat.

Within the site a narrow connection runs along its northern boundary connecting habitat in the east and west of the site. This connection is mostly comprised of overhanging vegetation and will not be directly impacted by the Project.

The Project is not likely to sever any of these connections within the site or to habitat in the surroundings.

Current and future movement corridors area shown in Figure 4.4.

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW

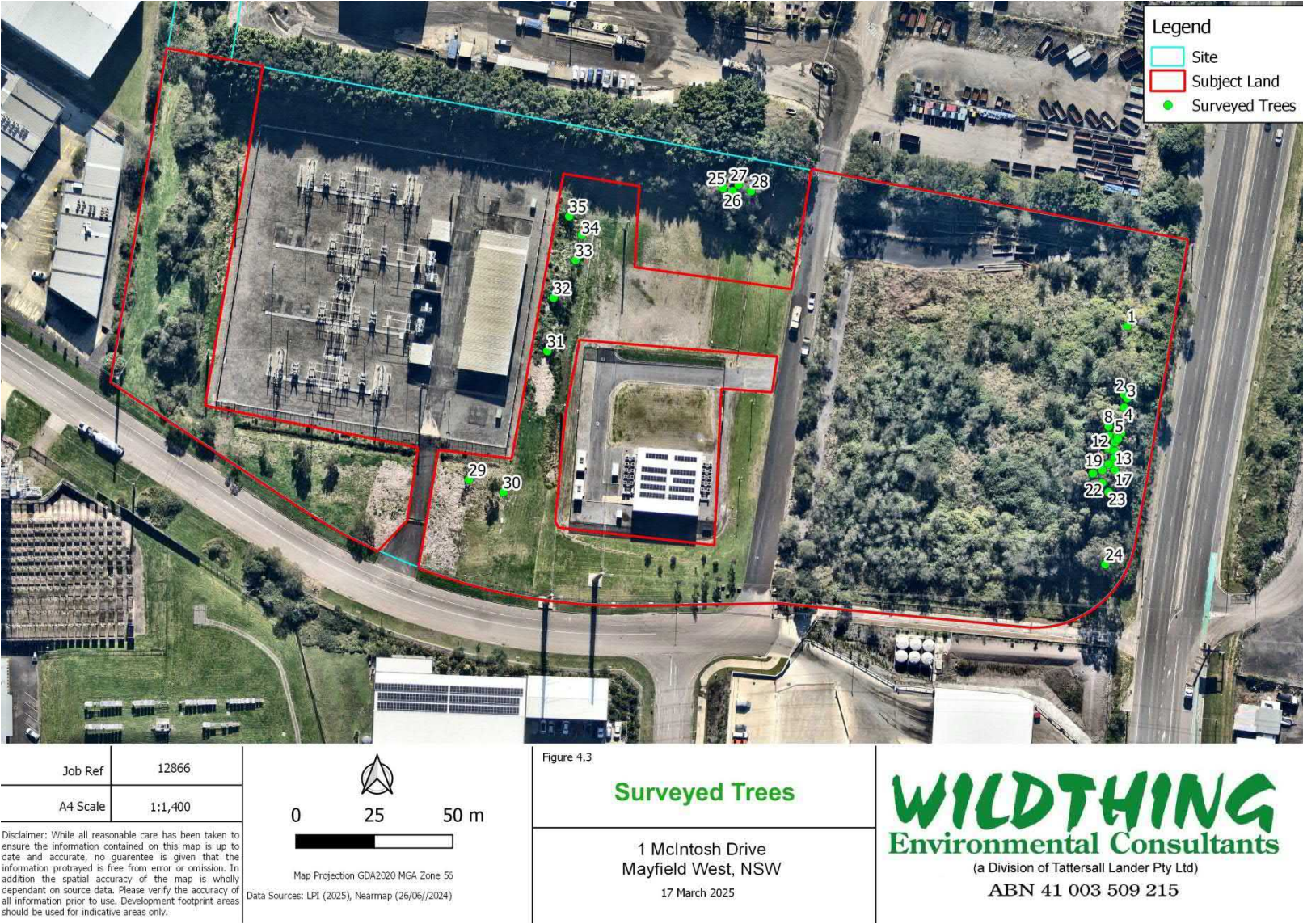


Figure 4.3 Significant trees within the subject land

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW

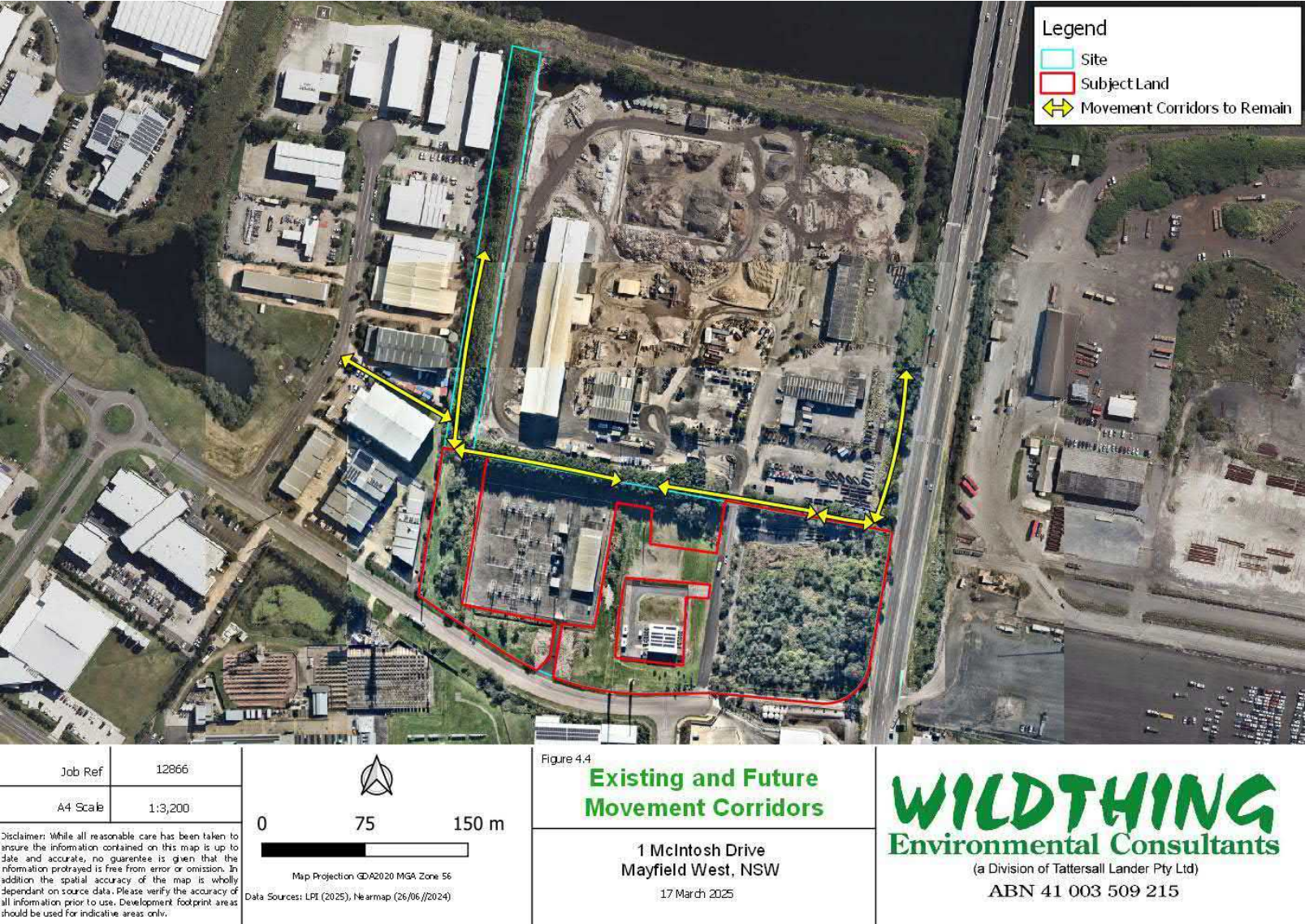


Figure 4.4 Current and Future Movement Corridors

5.0 Habitat suitability for threatened species

5.1 Identification of threatened species for assessment

5.1.1 Ecosystem credit species

Table 5.1: Predicted ecosystem credit species

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act						
Regent Honeyeater	<i>Anthochaera phrygia</i>	CE	CE	Yes	BAM-C	Yes	N/A	PCT 3437_Disturbed	High
Dusky Woodswallow	<i>Artamus cyanopterus cyanopterus</i>	V		No	BAM-C	Yes	N/A	PCT 3437_Disturbed	Moderate
Glossy Black-Cockatoo	<i>Calyptorhynchus lathami</i>	V		Yes	BAM-C	Yes	N/A	PCT 3437_Disturbed	High
Speckled Warbler	<i>Chthonicola sagittata</i>	V		No	BAM-C	Yes	N/A	PCT 3437_Disturbed	High
Brown Treecreeper (eastern subspecies)	<i>Climacteris picumnus victoriae</i>	V		No	BAM-C	Yes	N/A	PCT 3437_Disturbed	High
Spotted-tailed Quoll	<i>Dasyurus maculatus</i>	V	E	No	BAM-C	Yes	N/A	PCT 3437_Disturbed	High
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>	E		No	BAM-C	Yes	N/A	PCT 3437_Disturbed	Moderate
Black Falcon	<i>Falco subniger</i>	v		No	BAM-C	Yes	N/A	PCT 3437_Disturbed	High
Eastern False Pipistrelle	<i>Falsistrellus tasmaniensis</i>	V		No	Detected during surveys	Yes	N/A	PCT 3437_Disturbed	High

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for assessment?	Reason exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act						
Little Lorikeet	<i>Glossopsitta pusilla</i>	V		No	BAM-C	Yes	N/A	PCT 3437_Disturbed	High
White-bellied Sea-Eagle (foraging)	<i>Haliaeetus leucogaster</i>	V		No	BAM-C	Yes	N/A	PCT 3437_Disturbed	High
White-throated Needletail	<i>Hirundapus caudacutus</i>		V	No	BAM-C	Yes	N/A	PCT 3437_Disturbed	High
Swift Parrot (Foraging)	<i>Lathamus discolor</i>	E	CE	Yes	BAM-C	Yes	N/A	PCT 3437_Disturbed	Moderate
Broad-billed Sandpiper (Foraging)	<i>Limicola falcinellus</i>	V		Yes	BAM-C	Yes	N/A	PCT 3437_Disturbed	High
Eastern Coastal Free-tailed Bat	<i>Micronomus norfolkensis</i>	V		No	BAM-C	Yes	N/A	PCT 3437_Disturbed	High
Little Bent-winged-bat (Foraging)	<i>Miniopterus australis</i>	V		No	BAM-C	Yes	N/A	PCT 3437_Disturbed	High
Large Bent-winged-bat (Foraging)	<i>Miniopterus orianae oceanensis</i>	V		No	BAM-C	Yes	N/A	PCT 3437_Disturbed	High
Eastern Osprey (Foraging)	<i>Pandion cristatus</i>	V		No	BAM-C	Yes	N/A	PCT 3437_Disturbed	Moderate
Scarlet Robin	<i>Petroica boodang</i>	V		No	BAM-C	Yes	N/A	PCT 3437_Disturbed	Moderate
Flame Robin	<i>Petroica phoenicea</i>			No	BAM-C	Yes	N/A	PCT 3437_Disturbed	Moderate
Grey-crowned Babbler (eastern subspecies)	<i>Pomatostomus temporalis temporalis</i>	V		No	BAM-C	Yes	N/A	PCT 3437_Disturbed	Moderate

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID	Sensitivity to gain class
		BC Act	EPBC Act						
Grey-headed Flying-fox (Foraging)	<i>Pteropus poliocephalus</i>	V	V	Yes	BAM-C	Yes	N/A	PCT 3437_Disturbed	High
Superb Fruit-dove	<i>Ptilinopus superbus</i>	V		No	BAM-C	Yes	N/A	PCT 3437_Disturbed	Moderate
Diamond Firetail	<i>Stagonopleura guttata</i>	V	V	No	BAM-C	Yes	N/A	PCT 3437_Disturbed	Moderate

*Ecosystem credit species *Falsistrellus tasmaniensis* (Eastern False Pipistrelle) has been added as the species was recorded during surveys.

5.1.3 Species credit species

Table 5.2 Predicted flora species credit species

Common name	Scientific name	Listing status		Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act				
Pokolbin Mallee	<i>Eucalyptus pumila</i>	V	V	BAM-C	Yes	N/A	PCT 3437_Disturbed
Scrub Turpentine	<i>Rhodamnia rubescens</i>	CE	CE	BAM-C	Yes	N/A	PCT 3437_Disturbed

Table 5.3 Predicted fauna species credit species

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
Regent Honeyeater	<i>Anthochaera phrygia</i>	CE	CE	Yes	BAM-C	No	This species was excluded as a SCS as the subject land was not within the Important Areas Map for this species.	N/A
Swift Parrot (Breeding)	<i>Lathamus discolor</i>	E	CE	Yes	BAM-C	No	This species was excluded as a SCS as the subject land was not within the Important Areas Map for this species.	N/A
Little Bent-winged Bat (Breeding)	<i>Miniopterus australis</i>	V		Yes	BAM-C	No	None of the following habitat constraints were within the subject land: - Caves - Cave, tunnel, mine, culvert or other structure known or suspected to be used for breeding including species records in BioNet with microhabitat code 'IC – in cave' - observation type code 'E	N/A

Common name	Scientific name	Listing status		Dual credit species	Sources	Species retained for further assessment?	Reason for exclusion from further assessment	Vegetation zone ID species retained within, including PCT ID
		BC Act	EPBC Act					
							nest-roost' • with numbers of individuals >500 or from the scientific literature	
Large Bent-winged Bat (Breeding)	<i>Miniopterus orianae oceanensis</i>	V		Yes	BAM-C	No	None of the following habitat constraints were within the subject land: • Caves • Cave, tunnel, mine, culvert or other structure known or suspected to be used for breeding including species records in BioNet with microhabitat code 'IC – in cave' • observation type code 'E nest-roost' • with numbers of individuals >500 or from the scientific literature	N/A

5.2 Presence of candidate species credit species

Candidate species credit species that were retained for further assessment are presented in Table 5.4 (Flora). No fauna species credit species were retained for further assessment. In accordance with BAM Subsection 5.2.4, these species can be determined to be present or absent within the subject land based on:

- assumed presence within the subject land
- an important habitat map (for dual credit species)
- targeted threatened species surveys, or
- an expert report.

The presence or absence of all candidate species credit species was determined by targeted threatened species surveys.

Table 5.4 Determining the presence of candidate flora species credit species on the subject land

Common name	Scientific name	Listing status		Method used to determine presence	Present?	Further assessment required? (BAM Subsections 5.2.5 and 5.2.6)
		BC Act	EPBC Act			
Pokolbin Mallee	<i>Eucalyptus pumila</i>	V	V	Targeted threatened species survey	No	No
Scrub Turpentine	<i>Rhodamnia rubescens</i>	CE	CE	Targeted threatened species survey	No	No

No candidate species credit species were recorded during targeted surveys. No species credit species require further assessment.

5.3 Threatened species surveys

Candidate flora species were surveyed in accordance with the Surveying threatened plants and their habitats – NSW survey guide for the Biodiversity Assessment Method (DPIE, 2020d). Surveys were conducted using systematic parallel transects within suitable habitat. Parallel field traverses were separated by 5-10 m for orchids, herbs and forbs, 10-15 m for sub-shrubs and 10-20 m for tree and shrubs.

Table 5.5 Threatened species surveys for candidate flora species credit species on the subject land

Common name	Scientific name	Threatened flora species surveys			Present	Further assessment required (BAM Subsections 5.2.5 and 5.2.6)
		Survey method (transects or grids)	Timing of survey – within recommended period? (BAM-C / TBDC)	Effort (hours & no. people)		
Pokolbin Mallee	Eucalyptus pumila	Systematic parallel transects Methods described in NSW survey guide for the Biodiversity Assessment Method (DPIE 2020e)	☒ Yes 04/02/2025 31/10/2024 21/08/2024 18/07/2024 27/05/2024 ☐ No	3.5 hours (1 person) 8.5 hours (4.25hrs x 2 persons)	No	No
Scrub Turpentine	Rhodamnia rubescens	Systematic parallel transects Methods described in NSW survey guide for the Biodiversity Assessment Method (DPIE 2020e)	☒ Yes 04/02/2025 31/10/2024 21/08/2024 18/07/2024 27/05/2024 ☐ No	3.5 hours (1 person) 8.5 hours (4.25hrs x 2 persons)	No	No

5.4 Recorded threatened fauna species

One threatened fauna species was recorded during surveys. *Falsistrellus tasmaniensis* (Eastern False Pipistrelle) was identified from bat echo-location calls collected on site. This species is listed as Vulnerable under the BC Act and is listed as an ecosystem credit species under the BOS. This species has been added to the list of predicted ecosystem credit species in Table 5.1. All native and non-native vegetation present in the subject land is considered to provide hunting habitat for this species. The Project will therefore result in the removal of 2.51 ha of hunting habitat for this species.

5.5 Expert reports

No expert reports were required.

5.6 Area or count, and location of suitable habitat for a species credit species (a species polygon)

No species credit species were identified on site therefore no species credits require offsetting.

6.0 Identifying prescribed impacts

The Project will result in the following prescribed impacts outlined in Table 6.1.

Table 6.1 Prescribed impacts identified

Feature	Present	Description of feature characteristics and location	Threatened entities that use, are likely to use, or are part of the habitat feature. Where relevant, threatened species or fauna that are part of a TEC or EC, that are at risk of vehicle strike
Karst, caves, crevices, cliffs, rocks or other geological features of significance	☐ Yes / ☒ No	N/A	N/A
Human-made structures	☐ Yes / ☒ No	Existing substation, paved road, building, concrete blocks, fencing. The Project is not likely to impact existing human-made structures.	Sheltering species, microchiropteran bats or mud nest avifauna species.
Non-native vegetation	☒ Yes / ☐ No	The subject land contained 1.94 ha of non-native vegetation (Figure 4.1), comprised of maintained grass and unmaintained introduced vegetation.	Hunting avifauna species such as <i>Lophoictinia isura</i> (Square-tailed Kite) (Foraging) and <i>Hieraaetus morphnoides</i> (Little Eagle) (foraging).
Habitat connectivity	☒ Yes / ☐ No	The subject land is surrounded by industrial infrastructure, roads and the Hunter River. Only planted trees located between industrial buildings and lining roads provide very loose connections from vegetation within the site to other isolated and disturbed patches of habitat. Within the site a narrow connection runs along the northern boundary, connecting habitat in the east and west of the site. This connection is mostly comprised of overhanging vegetation and will not be directly impacted by the Project.	Highly mobile threatened species such as woodland birds (e.g. <i>Glossopsitta pusilla</i> (Little Lorikeet), <i>Lathamus discolor</i> (Swift Parrot) and arboreal mammals like <i>Petaurus norfolcensis</i> (Squirrel Glider)
Waterbodies, water quality and hydrological processes	☒ Yes / ☐ No	The South Channel of the Hunter River is present 300 m north of the subject land. No GDEs were located within or surrounding the subject land.	Amphibians, aquatic avifauna and hunting avifauna as well as microchiropteran bats (foraging).
Wind turbine strikes (wind farm development only)	☐ Yes / ☒ No	N/A	N/A
Vehicle strikes	☒ Yes / ☐ No	A paved road runs through the middle of the subject land providing vehicle access to Benedict Recycling. Internal roads are planned within the Project.	Mobile threatened species such as avifauna, microchiropteran bats and arboreal mammals such as <i>Petaurus norfolcensis</i> (Squirrel Glider)

Stage 2: Impact assessment (biodiversity values and prescribed impacts)

7.0 Avoid and minimise impacts

7.1 Avoid and minimise direct and indirect impacts

7.1.1 Project location

The land around the Mayfield West substation has been chosen as the location of the Project over other potential substation locations because of the high levels of disturbance already present. This location is already subject to noise pollution, vehicle traffic and contains disturbed vegetation that is mostly non-native.

The Project has been positioned in the east of the site, within an area that has been built up with waste and as part of industrial expansion. This area is mostly covered in introduced species and priority weeds. The location is highly disturbed and subject to continual disturbance such as noise pollution from large trucks driving through the site to access the Recycling Centre in the north. What native vegetation is present in this location is highly disturbed and only present in the form of planted and regenerating trees that lack habitat features such as hollows.

The placement of the Project has avoided impacting areas of better-quality habitat present in the narrow strip running to the north and connecting to the South Channel of the Hunter River. It also avoids impacting biodiversity values and important areas of migratory shorebird habitat mapped on the shores of this waterway.

7.1.2 Project design

The Project's design takes into account the largest possible impact outside of the operational footprint for potential laydown area. This area is likely to be reduced and most, if not all planted trees around the existing substation will be avoided.

7.2 Avoid and minimise prescribed impacts

7.2.1 Project location

The Project has been positioned to avoid impacting habitat connectivity and waterbodies (the South Channel of the Hunter River) are present within the site. The Project will not impact the overhanging vegetation in the north of the site that acts as a movement corridor. It will also not impact the narrow strip of habitat running to the north that connects to the South Channel of the Hunter River.

7.2.2 Project design

The Project design avoids impacting/trimming overhanging vegetation located in the north of the site which connects habitat in the east and west that extends to the north (Figure 4.4). New roads proposed to be created are located within a securely fenced off area of the Project. This fencing will reduce the ability of some fauna to enter the Project which reduces the potential for vehicle strikes on the newly created road. On top of this, the Project design avoids impacting existing human-made structures.

7.3 Other measures considered

No other measures have been considered.

7.4 Summary of measures to avoid and minimise impacts

Table 7.1 documents the measures to avoid and minimise direct, indirect and prescribed impacts associated with the development proposal.

Table 7.1 Avoidance and minimisation measures for direct, indirect and prescribed impacts

Impact	Impact Type	Avoidance and Minimisation Action	Outcome	Timing	Responsibility
Removal of 0.11 ha of native vegetation	Direct	The Project has been positioned overtop of highly disturbed land that was previously part of Platts Channel. Native vegetation present was likely planted after the Channel was filled. Native vegetation was highly disturbed and is generally limited to native trees only. The Project design covers most of the space in the east of the subject land no cannot be repositioned to avoid the native vegetation due to existing structures and infrastructure such as the substation, data centre and paved road.	The Project will remove native vegetation that is highly disturbed and was likely planted or naturally seeded.	During the Design phase	Project designer
Removal of 0.46 ha of planted native vegetation	Direct	The Project's design takes into account the largest possible impact outside of the operational footprint for a potential laydown area. This laydown area is likely to be reduced and most, if not all planted trees around the existing substation will be avoided. Trees will be retained wherever possible when determining laydown areas.	Some, if not all planted native trees, will be retained wherever possible.	During the Design phase	Project designer
Removal of 2.51 ha of hunting habitat for <i>Falsistrellus tasmaniensis</i> (Eastern False Pipistrelle)	Direct	The Project's design takes into account the largest possible impact outside of the operational footprint for a potential laydown area. This laydown area is likely to be reduced and most, if not all planted trees around the existing substation will be avoided. Trees will be retained wherever possible when determining laydown areas. Hunting habitat was found to be present for the species. No roosting habitat in the form of hollow-bearing trees were present. Flaking bark was present on trees within areas of PCT 3437 this would provide marginal habitat for the species.	Some, if not all planted native trees, will be retained wherever possible. This reduces the amount of hunting habitat being removed. Marginal habitat will be disturbed or removed.	During the Design phase	Project designer
Connectivity (habitat fragmentation)	Prescribed	The Project's design avoids impacting/trimming overhanging vegetation located in the north of the site which connects habitat in the east and west that extends to the north.	Avoidance of impacts to habitat connectivity present along the north of the site.	During the Design and construction phase	Project designer Project

Impact	Impact Type	Avoidance and Minimisation Action	Outcome	Timing	Responsibility
					manager
Impact on breeding populations	Indirect	Timing of vegetation clearance will also occur outside of the bird nesting season (late August - December)	Timing works to avoid critical life cycle events such as breeding for avifauna species.	During construction phase	Project manager
Reduced viability of adjacent habitat due to edge effects (noise, and light spill)	Indirect	Very little habitat is present in the remainder of the site, outside the subject land. Most of this adjacent habitat is present along the north boundary of the site and along the narrow strip that extends to the north. The amount of noise emitted by the BESS cannot be reduced or avoided. The Project will increase noise pollution however the area is already subject to high noise pollution from surround industrial buildings. All lighting will be directed downwards and away from retained vegetation in the north.	Increase in noise pollution. Avoidance of light pollution into retained habitat	During the design and operational phase	Project designer
Impact on waterbodies, water quality and hydrological processes	Prescribed	The Project avoids impacts the South Channel of the Hunter River which is located at the end of the narrow strip of the site.	Avoidance of impact to prescribed stream to the north.	During the construction phase	Construction site manager
Increased risk of starvation, exposure and loss of shade or shelter	Indirect	No mature or hollow-bearing trees which would provide shelter were observed within the subject land. Larger specimens of Hills Weeping Fig overhang into the north of the site. This overhanging vegetation would act as shelter for avifauna, reptile and some mammal species. . These trees will be avoided.	Avoidance of impact to mature trees that provide food and shelter resources within the immediate locality.	During the Design phase and construction phase	Project designer
Clearing of native vegetation	Direct	Works will minimise impacts to retained trees as follows: clearing limits will be clearly marked to prevent unnecessary clearing beyond the extent of the	Avoidance of inadvertent impacts to retained vegetation.	Prior to and during vegetation	Construction site manager

Impact	Impact Type	Avoidance and Minimisation Action	Outcome	Timing	Responsibility
		Project. - where a tree must be disturbed the priority should be given to pruning rather than clearing; and - the clearing of any trees should be undertaken in a manner that avoids damaging adjacent vegetation i.e., all trees should be felled into disturbed areas when feasible; - Individual trees that are to be retained are to be protected during construction by temporary fence around the dripline.		clearing in the construction phase	
Inadvertent impact to biodiversity values	Indirect	Measures will be taken during construction to avoid any inadvertent impact to retained vegetation and habitat within the site. Avoidance measures include the following: - all material stockpiles, vehicle parking and machinery storage will be located within open areas proposed for clearing, and not in areas of vegetation that are to be retained; and - implementation of temporary stormwater controls during construction to ensure that discharges outside the Project are consistent with existing conditions.	Avoidance of inadvertent impact to biodiversity values	Prior to and during vegetation clearing	Construction site manager
Clearing of fauna habitat, resulting in arboreal fauna injury and/or mortality	Indirect	Trees within the subject land are to undergo a preclearance survey (thorough inspection of the canopy) for bird nests that are currently being utilised for breeding prior to tree clearance operations by a suitably qualified ecologist. If active nests are found to be present then a suitably qualified and experienced ecologist must be engaged to supervise	Minimise clearing of fauna habitat that results in fauna injury and/or mortality	During vegetation clearing	Construction site manager

Impact	Impact Type	Avoidance and Minimisation Action	Outcome	Timing	Responsibility
		removal of the nest trees. They will maintain a vegetation clearance register which should include the location, type, size of felled habitat trees and any contact with resident fauna. The supervising ecologist will work co-operatively with the plant operator to develop an adaptive clearance methodology to minimise impacts to potential resident fauna. The adaptive clearance methodology will include the following key aspects: • seeking consultation with a suitably qualified ecologist to determine the best time to schedule clearance works to avoid nesting and breeding times for resident fauna • preclearance surveys completed on the morning of any clearance works to determine if any nesting birds or canopy dwelling mammals are within the clearance footprint • clearing utilising a 'soft felling' technique in which trees are 'nudged' by machinery and fauna given time to leave (overnight), before slowly felling the tree the following day • if fauna is identified within the proposed clearing area prior to clearing, or after 'nudging' the tree, operations will cease until the fauna has moved to a safe location or has been relocated. If fauna flee into a habitat tree demarcated for removal this tree should be left to fell until the following day • any captured displaced fauna is to be relocated to the nearest area of appropriate habitat. If			

Impact	Impact Type	Avoidance and Minimisation Action	Outcome	Timing	Responsibility
		arboreal, the fauna to be placed inside an artificial nest box and relocated. If the displaced fauna is nocturnal relocation is to occur during dusk All habitat tree felling activities and results are to be summarised in a tree clearance report by the supervising ecologist, including fauna injuries. Any animals injured during construction should be taken immediately to a vet for treatment. Any animals suspected to require rehabilitation would be administered post-veterinary care by an appropriate animal rehabilitator. All fauna sightings/captures are to be recorded and uploaded to the NSW BioNet Atlas.			
Clearing of ground dwelling fauna habitat, resulting in fauna injury and/or mortality.	Indirect	Vegetation within the subject land is to undergo pre-clearance searches for ground dwelling species (particularly bandicoots that were observed in the site), to relocate captured specimens into neighbouring vegetation outside of the clearance zone.	Minimise clearing of fauna habitat that results in fauna injury and/or mortality	During vegetation clearing	Construction site manager
Transport of weeds and pathogens from the site to adjacent vegetation	Indirect	The following measures are to be implemented to prevent exotic plant material from entering/exiting the subject land: removal and disposal of vegetation containing priority weeds should be done in accordance with Hunter Regional Strategic Weed Management Plan (LLS 2022) and local waste management regulations no imported/exported material to be permitted unless it has been inspected and confirmed to be free of dirt and	Minimise weed infestations within adjoining vegetation	Prior to and during vegetation clearing	Construction site Manager

Impact	Impact Type	Avoidance and Minimisation Action	Outcome	Timing	Responsibility
		mud which may contain weed seeds and vegetative material such as bulbs, root fragments, tubers or rhizomes prior to entering site vehicles and machinery must be inspected for soils, vegetation and seeds. If present this must be washed off in a suitable location prior to entering the site. A clean down register to be maintained at the entry of the site			
Vehicle strike	Prescribed	A low-speed limit will be implemented within the Project. Fencing will be installed around the Project which will limit access to the new road. This will reduce the likelihood of vehicle strikes on the new road.	Reduce the likelihood and occurrence of vehicle strikes with fauna within the locality	Construction and operational phase	Construction site manager and Project manager

8.0 Impact assessment

8.1 Direct impacts

8.1.1 Residual direct impacts

Table 8.1 documents impacts likely to occur after steps are taken to avoid and minimise impacts.

Table 8.1 Summary of residual direct impacts

Direct impact	BC Act status	EPBC Act status	SAll entity	Project phase/timing of impact (e.g. construction, operation, rehabilitation)	Extent (ha, number of individuals)
Removal of PCT 3437 - Hunter Coast Lowland Spotted Gum Dry Forest	N/A	N/A	No	Construction	0.11 ha
Landscaping - Planted Native and Introduced Species	N/A	N/A	No	Construction	0.46 ha
Removal of hunting habitat for <i>Falsistrellus tasmaniensis</i> (Eastern False Pipistrelle)	V	N/A	No	Construction	2.51 ha

8.1.2 Change in vegetation integrity score

Table 8.2 documents change in vegetation integrity score on the subject land associated with the proposed development.

Table 8.2 Impacts to vegetation integrity

Vegetation zone	PCT ID	Management zone	Area (ha)	Scores before development				Scores after development				Change in VI score
				Composition	Structure	Function	VI score	Composition	Structure	Function	VI score	
1 PCT 3437_Disturbed	3437	N/A	0.11	11.8	23.3	45.3	23.2	0	0	0	0	-23.2

8.2 Residual Indirect impacts

Table 8.3 documents residual indirect impacts of the Project likely to occur on native vegetation, threatened entities and their habitat beyond the development footprint.

Table 8.3 Summary of residual indirect impacts

Indirect impact	Impacted entities	Extent	Frequency	Duration (long-term/ short-term/ medium-term)	Project phase/ timing of impact (e.g. construction, operation, rehabilitation)	Likelihood and consequences
Sedimentation and contaminated and/or nutrient rich run-off	South Channel of Hunter River located 300m north of subject land, adjacent to top of narrow strip of the site.	Surrounding vegetation outside the subject land boundary	During heavy rainfall or storm events	Long-term	Construction and operation phase	During the construction and operation phase, potential sediment and contaminated runoff into adjacent and retained vegetation is likely to occur during high rainfall events.
Transport of weeds and pathogens outside the subject land	Vegetation outside the subject land.	Vegetation outside the subject land boundary and anywhere vehicles and machinery travel off-site.	Daily during the construction phase and ongoing during the operation phase	Long-term	Construction and operation phase	During the construction phase, the risk of the spread of weeds within and off the site will increase.
Reduced viability of adjacent habitat due to edge effects	Retained vegetation within the site	Vegetation outside the subject land boundary	During the life of the Project	Long-term	Construction and operation phase	The Project will increase the risk of noise pollution and light pollution that reduce the viability of retained vegetation.

8.3 Prescribed impacts

All prescribed impacts identified in Section 6.0 have been addressed below. Mitigation measures for prescribed impacts are detailed within Table 7.1.

8.3.1 Non-native vegetation

8.3.1.1 Nature

Non-native vegetation is present in the form of maintained grass and unmaintained introduced vegetation. All non-native vegetation provides hunting habitat for highly mobile species that hunt in open areas, namely raptors and microchiropteran bats. Areas of unmaintained introduced vegetation also provide shelter habitat for Northern-Brown Bandicoots that have been observed in the east of the subject land

8.3.1.2 Extent

Removal of 1.94 ha of non-native vegetation.

8.3.1.3 Duration

Throughout the construction and operational phase.

8.3.1.4 Consequences

Reduction in shelter habitat for Northern-Brown Bandicoots. Reduction in hunting habitat for vulnerable species *Falsistrellus tasmaniensis* (Eastern False Pipistrelle). Reduction in hunting habitat for other highly mobile species.

8.3.1.5 Residual prescribed impact

The removal of 1.94 ha of non-native vegetation is unlikely to have a significant impact on these species due to the presence of additional habitat (native and non-native) being retained in the site and in adjacent lands. Therefore, there is no residual prescribed impact.

8.3.2 Habitat Connectivity

8.3.2.1 Nature

Connectivity was present in the form of overhanging vegetation canopy and planted trees in neighbouring properties. This would provide connectivity for mobile arboreal species such as possums, gliders and avifauna.

8.3.2.2 Extent

Overhanging vegetation was present along the northern boundary of the site and connected vegetation in the east and west. Planted trees were present between industrial buildings and lining

roads mostly to the north, east and west. The laydown area overlaps with some areas of overhanging vegetation in the west however no overhanging trees will be directly impacted by the Project.

8.3.2.3 Duration

Throughout the construction phase.

8.3.2.4 Consequences

If the overhanging vegetation is trimmed this would weaken the connectivity between vegetation in the east and west.

8.3.2.5 Residual prescribed impact

Mitigation measures have been detailed within Table 7.1 including clearly marking the limit of clearing to avoid impacting retained vegetation. Therefore, there is no residual prescribed impact.

8.3.3 Waterbodies, water quality and hydrological processes

8.3.3.1 Nature

The South Channel of the Hunter River runs along the top of the narrow strip of the site that extends to the north. Sediment runoff from the Project could be carried into the channel.

8.3.3.2 Extent

The Project is located in the south of the site, 300m away from the channel.

8.3.3.3 Duration

Construction and operational phase of the subsequent subdivision

8.3.3.4 Consequences

Potential long-term impacts to riparian corridors and the Southern Channel of the Hunter River.

8.3.3.5 Maximum predicted offset liability

N/A as minimisation and mitigation measures have been detailed within Table 7.1 including temporary stormwater controls and installing silt fencing and controls on sediment and runoff.

8.3.4 Vehicle strike

8.3.4.1 Nature

Increase in vehicle strikes from increased presence of vehicles on site. Ground dwelling species present on site are at high risk of vehicle strikes such as Northern Brown Bandicoots observed within the site.

8.3.4.2 *Extent*

Increase in vehicle traffic throughout the Project during construction and increase in vehicle traffic within the BESS during its operation. One internal road with a low-speed limit will be constructed within the BESS. Internal roads are proposed to be constructed within the Project.

8.3.4.3 *Duration*

Construction and operational phase.

8.3.4.4 *Consequences*

Potential increase in fauna strikes, resulting in injuries and mortalities.

8.3.4.5 *Residual prescribed impact*

Despite mitigation measures outlined in Table 7.1, the risk of vehicle strikes cannot be eliminated. The management of residual vehicle strike impacts on fauna within the subject land are documented within Table 8.4.

8.4 Mitigating residual impacts – management measures and implementation

Table 8.4: Summary of proposed mitigation and management measures for residual impacts (direct, indirect and prescribed)

Residual Impact	Mitigation measure	Method/technique	Timing	Frequency	Responsibility	Likely efficacy	MNES (when relevant)
Sedimentation and contaminated and/or nutrient rich runoff (Indirect impact)	Installation of physical barriers to stop runoff	Installation of temporary site drainage, sediment barriers and erosion control during construction to prevent runoff into retained and adjacent vegetation.	Prior to ground disturbance	Duration of construction phase	Construction site manager	High. Low risk of failure when installed correctly	No
Transport of weeds and pathogens to and from the site (Indirect impact)	Hygiene protocols to prevent the spread of weeds or pathogens between infected areas and uninfected areas	Vehicles should be washed down before entering and exiting the site to prevent the spread of weeds and pathogens to or from the development site. Any weed outbreaks should be controlled during the Project.	During the removal of vegetation from the subject land	Construction phase	Construction site manager	High. Low risk of failure if adequately implemented	No
Reduced viability of adjacent and retained habitat due to edge effects (Indirect impact)	Aim lighting downwards and away from retained vegetation.	Aim lighting downwards and away from retained vegetation.	The duration of the Project	Construction and operation phase	Project manager	Moderate efficacy with a low risk of failure	No
Vehicle strike (Prescribed impact)	Reduce driving speed to improve ability to avoid strikes.	Enforcement of low-speed limit within the Project.	The duration of the Project	Construction and operational phase	Project designer, Construction site manager and Project manager	Moderate efficacy with a moderate risk of failure.	No

9.0 Serious and irreversible impacts

9.1 Assessment for serious and irreversible impacts on biodiversity values

Candidate species for a SAI are listed in Table 9.1. The candidate species list has been derived from threatened species predicted to have the potential to occur based on the BAM Calculator and state and national database searches. Table 9.1 also contains analysis of whether impacts on candidate species are serious and irreversible.

No candidate SAI ecological communities are present within the site.

Table 9.1 Entities at risk of an SAI

Common name	Scientific name	Further SAI assessment required?	Reason for exclusion from further assessment if no further SAI assessment is required
Regent Honeyeater	<i>Anthochaera phrygia</i>	No	The subject land was not within the Important Areas Map for this species. This species was not observed on site.
Swift Parrot	<i>Lathamus discolor</i>	No	The subject land was not within the Important Areas Map for this species. . This species was not observed on site.
Scrub Turpentine	<i>Rhodamnia rubescens</i>	No	Despite targeted searches this species was not recorded within the site. . This species was not observed on site.
Little Bent-winged Bat (Breeding)	<i>Miniopterus australis</i>	No	Despite targeted searches this species was not recorded within the site. . This species was not recorded on site.
Large Bent-winged Bat (Breeding)	<i>Miniopterus orianae oceanensis</i>	No	Despite targeted searches this species was not recorded within the site. . This species was not recorded on site.

10.0 Impact summary

10.1 Determine offset requirement for impacts

10.1.1 Impacts on native vegetation and TECs or ECs - ecosystem credits

Table 10.1 identifies impacts that require an offset (as per subsection 9.2.1(1.) of the BAM.

Table 10.1 Impacts that require an offset – ecosystem credits

Vegetation zone	PCT name	TEC	Impact area (ha)	Current score	VI	Future score	VI	Change in VI score	Biodiversity risk weighting	Number of ecosystem credits required
PCT 3437_Disturbed	Hunter Coast Lowland Spotted Gum Dry Forest	No	0.11	23.2		0		-23.2	1.75	1
Total										1

10.1.2 Indirect and prescribed impacts

No indirect or prescribed impacts remain after measures to avoid, minimise and mitigate have been applied.

10.1.3 Serious and Irreversible Impacts

No SAI candidate species were identified on site and no significant habitat for SAI candidate species was identified on site.

10.1.4 Areas not requiring assessment

Areas not requiring assessment are shown in Figure 4.1. These areas consist of the existing substation, the paved road and the data centre.

10.1.5 Impact on biodiversity values

No areas of mapped biodiversity values will be directly impacted by the Project.

11.0 Biodiversity credit report

Table 11.1 contains ecosystem credit offset requirements details. Also see Appendix G for the credit reports.

11.1 Ecosystem credits

Table 11.1: Ecosystem credit class and matching credit profile

Ecosystem credit	Attributes shared with matching credits						
	PCT name	PCT vegetation class	PCT vegetation formation	Associated TEC or EC	Offset trading group (BAM Section 10.2, Tables 4 & 5)	Hollow bearing trees present?	IBRA subregion (in which proposal is located)
1	3437 - Hunter Coast Lowland Spotted Gum Dry Forest	Hunter Macleay Dry Sclerophyll Forests	Dry Sclerophyll Forests (Shrubby sub/grass-formation)	N/A	Hunter-Macleay Dry Sclerophyll Forests - $\geq 50\%$ - $< 70\%$ cleared group (including Tier 3 or higher threat status).	No	Hunter

12.0 Considerations under State Environmental Planning Policy (Resilience and Hazards) 2021

12.1 Chapter 2 Coastal Management

A key aim of this Chapter is to promote an integrated and co-ordinated approach to land use planning in the coastal zone in a manner consistent with the objects of the *Coastal Management Act 2016*, including the management objectives for each coastal management area, by:

- managing development in the coastal zone and protecting the environmental assets of the coast;
- establishing a framework for land use planning to guide decision-making in the coastal zone, and
- mapping the 4 coastal management areas that comprise the NSW coastal zone for the purpose of the definitions in the *Coastal Management Act 2016*.

This Chapter identifies four coastal management areas that comprise the coastal zone. These are:

- the coastal wetlands and littoral rainforests area,
- the coastal vulnerability area,
- the coastal environment area, and
- the coastal use area.

Coastal Environmental Areas and Coastal Use Areas were present within the site however proposed works will only occur within Coastal Environment Areas (Figure 12.1).

Chapter 2 imposes targeted development controls for these areas to guide appropriate development. Below are the controls for development on land within coastal environment areas.

2.10 Development on land within the coastal environment area

- (1) *Development consent must not be granted to development on land that is within the coastal environment area unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the following—*
 - (a) *the integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment,*
 - (b) *coastal environmental values and natural coastal processes,*
 - (c) *the water quality of the marine estate (within the meaning of the Marine Estate Management Act 2014), in particular, the cumulative impacts of the proposed development on any of the sensitive coastal lakes identified in Schedule 1,*
 - (d) *marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms,*
 - (e) *existing public open space and safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,*
 - (f) *Aboriginal cultural heritage, practices and places,*
 - (g) *the use of the surf zone.*
- (2) *Development consent must not be granted to development on land to which this section applies unless the consent authority is satisfied that—*
 - (a) *the development is designed, sited and will be managed to avoid an adverse impact referred to in subsection (1), or*
 - (b) *if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or*

(c) if that impact cannot be minimised—the development will be managed to mitigate that impact.

(3) This section does not apply to land within the Foreshores and Waterways Area within the meaning of State Environmental Planning Policy (Biodiversity and Conservation) 2021, Chapter 6.

(c) if that impact cannot be minimised—the development will be managed to mitigate that impact.

The impact to coastal environment areas will be confined to land that has been previously subject to high disturbance. Taking into consideration the recommendations given in Section 7.0, 8.0 and 9.0, no areas under Chapter 2 Coastal Management are likely to be significantly impacted.

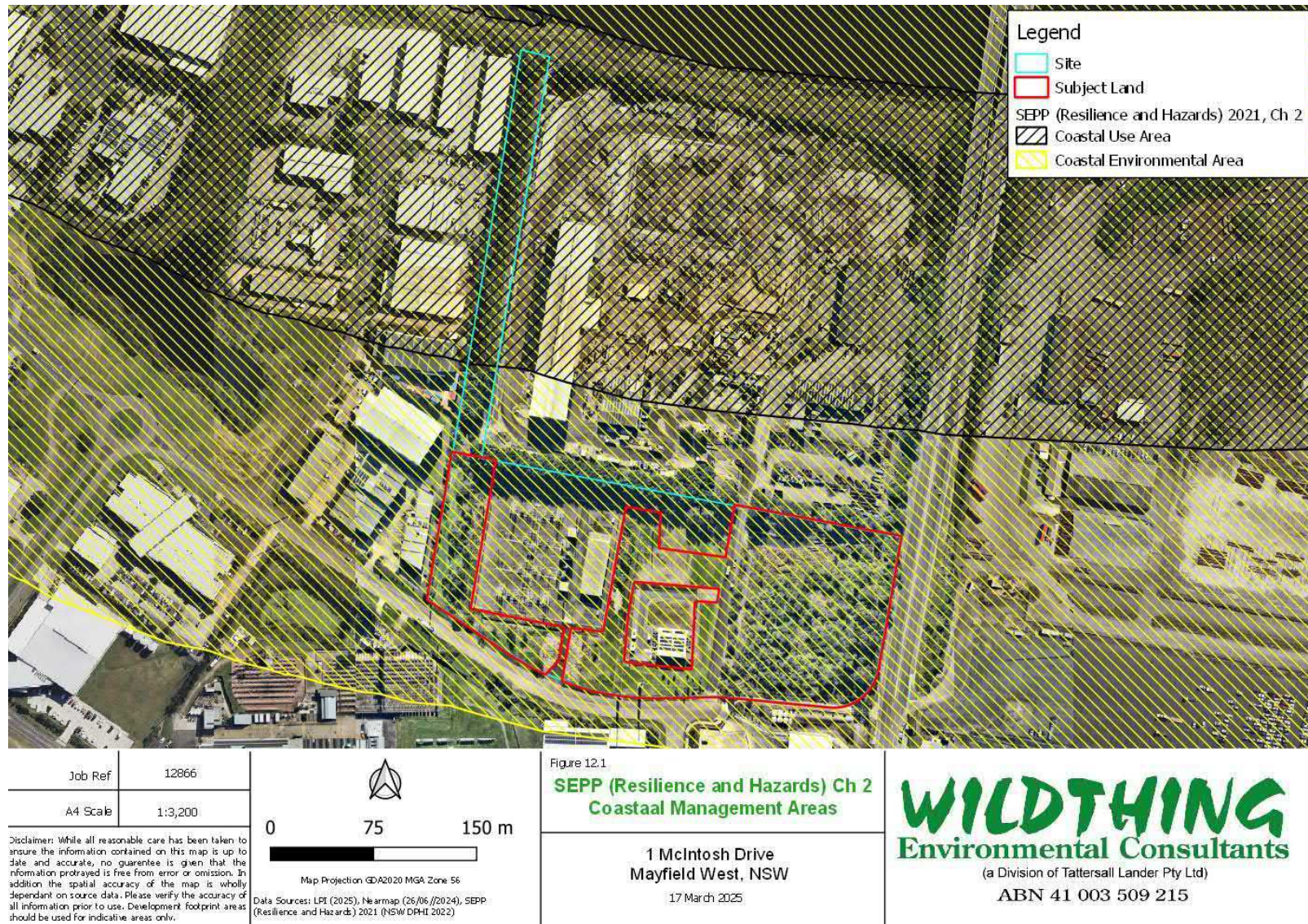


Figure 12.1 SEPP (Resilience and Hazards) 2021 – Coastal Management Areas

13.0 NSW Biosecurity Act 2015

Six priority weed species listed under the *Biosecurity Act 2015* were identified on site and are listed below in Table 13.1. The site lies within the Hunter Local Land Services Region.

Table 13.1 Priority Weed species found within the subject land.

Weed Species	Legal Requirements	Additional Significance
Lantana camara Lantana	General Biosecurity Duty Prohibition on dealings Regional Recommended Measure (Hunter)	N, T
Chrysanthemoides monilifera subsp. rotundata Bitou Bush	General Biosecurity Duty Prohibition on dealings Regional Recommended Measure	N, T
Senecio madagascariensis Fireweed	General Biosecurity Duty Regional Recommended Measure	N
Rubus fruticosus species aggregate Blackberry	General Biosecurity Duty Prohibition on dealings Regional Recommended Measure	
Olea europaea subsp. cuspidata African Olive	General Biosecurity Duty Regional Recommended Measure	T
Cestrum parqui Green Cestrum	General Biosecurity Duty Prohibition on dealings Regional Recommended Measure	

T – Listed as a Threatening Process under the NSW BC Act 2016.

N – Weed of National Significance.

*Priorities under the Biosecurity Act 2015

General Biosecurity Duty - any person dealing with plant matter must take measures to prevent, minimise or eliminate the biosecurity risk (as far as is reasonably practicable).

Prohibition on dealings - Must not be imported into the State or sold

Areas of unmaintained introduced vegetation within the east of the subject land contained most of priority weeds observed on site. This entire area will be removed for the Project. Minimisation of the spread of these weeds has been outlined in Table 7.1.

14.0 Commonwealth Environment Protection and Biodiversity Conservation Act 1999 & Matters of National Environmental Significance

The EPBC Act establishes a process for assessing the environmental impact of activities where MNES may be affected. Under the Act, any action which “has, will have, or is likely to have a significant impact on a matter of MNES” is defined as a “controlled action”, and requires approval from the Commonwealth Minister for the Environment and Water. The Act is administered by the Australia Government Department of Climate Change, Energy, the Environment and Water (Commonwealth DCCEEW).

The process for determining whether a project is a controlled action includes conducting a Significant Impact Criteria self-assessment for MNES that may be affected by the proposed action. Guidelines that outline of the significant impact criteria have been developed by the Commonwealth and help decide whether or not a referral to the Minister is required.

The likelihood of occurrence for EPBC listed threatened species is shown in Appendix E. This includes an Assessment of the planted vegetation.

A total of 69 nationally threatened species were recorded on the PMST as occurring, or having the potential to occur, within 10km of the site. Note that pelagic species which do not complete part of their life cycles on mainland NSW were excluded from the search. The list is located in Appendix E.

No nationally threatened species were recorded on site during the survey. Species likely to utilise the subject site would include woodland birds, *Pteropus poliocephalus* (Grey-headed Flying-fox) and microchiropteran bats. Given the recommendations in Sections 7.0, 8.0 and 9.0 of this report, the Project is not likely to result in the modification or loss of any suitable habitat to the degree that it may significantly affect the life cycle of these species or any of the remaining fauna species, nor would it place any viable local populations of these species at risk of extinction.

15.0 References

Bell SAJ, Rockley C, Llewellyn A. (2019). Flora of the Hunter Region, Endemic Trees and Larger Shrubs. March 2019. CSIRO Publishing.

Cartoscope (2025). Geological sites of NSW. Accessed via <<https://www.cartoscope.com.au/scripts/hinterland.php>>

Churchill, S. (2008). Australian Bats (2nd edn). Allen & Unwin Australia.

Cogger, H.G. (2014). Reptiles and Amphibians of Australia (7th edn.). CSIRO Publishing.

Commonwealth of Australia (2024) Bureau of Meteorology.

Commonwealth DCCEEW (Australia Government Department of Climate Change, Energy, the Environment and Water) (2025a). EPBC Act Protected Matters Report for a 10 Kilometre radius search from the boundary of the subject land. Department of the Environment, Commonwealth of Australia. Accessed via, <https://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl>> (Report created 19 April 2025).

Commonwealth DCCEEW (Australia Government Department of Climate Change, Energy, the Environment and Water) (2025b). Commonwealth species profiles and threats database (SPRAT). Department of the Environment, Commonwealth of Australia.

Commonwealth DCCEEW (Australia Government Department of Climate Change, Energy, the Environment and Water) (2025c). Interim Biogeographic Regionalisation for Australia (IBRA), Version 7 (Regions). Data package accessed via <<https://datasets.seed.nsw.gov.au/dataset/interim-biogeographic-regionalisation-for-australia-ibra-version-7-regions>>

Commonwealth DCCEEW (Australia Government Department of Climate Change, Energy, the Environment and Water) (2025d). Directory of Important Wetlands in Australia. Data package accessed via <https://datasets.seed.nsw.gov.au/dataset/directory-of-important-wetlands-in-australia>]

Cropper, S. (1993). Management of Endangered Plants. CSIRO Publications, East Melbourne.

DoE (Department of the Environment) (2013a). Draft survey guidelines for Australia's threatened orchids

DoE (Department of the Environment) (2013b). Matters of National Significance. Significant Impact Guidelines 1.1 Environment Protection and Biodiversity Conservation Act 1999.

DoE (Department of the Environment) (2015a). Directory of Important Wetlands in Australia (DIWA) Spatial Database (Public). Bioregional Assessment Source Dataset. Accessed via <<https://datasets.seed.nsw.gov.au/dataset/directory-of-important-wetlands-in-australia>>

Department of Environment and Conservation, (2004). Threatened biodiversity survey and assessment Guidelines for developments and activities (2004 working draft).

Department of the Environment, Water, Heritage and the Arts, 2013. Significant Impact Guidelines 1.1 - Matters of National Environmental Significance.

DPE – Water (Department of Planning and Environment - Water) (2025). Atlas of Groundwater Dependent Ecosystems

DPE (Department of Planning and Environment) (2023a). Biodiversity Assessment Method Operational Manual – Stage 2. State of New South Wales and Department of Planning, Industry and Environment

DPE (Department of Planning and Environment) (2022a) Koala (*Phascolarctos cinereus*) Biodiversity Assessment Method Survey Guide

DPE (Department of Planning and Environment) (2022b) Threatened reptiles Biodiversity Assessment Method survey guide

DPIE (Department of Planning, Industry and Environment) (2020a). Biodiversity Assessment Method. State of New South Wales and Department of Planning, Industry and Environment.

DPIE (Department of Planning, Industry and Environment) (2020b). Biodiversity Assessment Method Operational Manual – Stage 1. State of New South Wales and Department of Planning, Industry and Environment

DPIE (Department of Planning, Industry and Environment) (2020c). Biodiversity Assessment Method Operational Manual – Stage 3. State of New South Wales and Department of Planning, Industry and Environment

DPIE (Department of Planning, Industry and Environment) (2020d). NSW Survey Guide for Threatened Frogs. A guide for the survey of threatened frogs and their habitats for the Biodiversity Assessment Method.

DPIE (Department of Planning, Industry and Environment) (2020e). NSW Guide to Surveying threatened plants and their habitats.

DPIE (Department of Planning, Industry and Environment) (2020f), Soil and Land Resources of the Hunter Region, version 1.5, NSW Department of Planning, Industry and Environment, Parramatta.

DPIE (Department of Planning, Industry and Environment) (2011) Fauna Key Habitats for North East NSW. accessed via <https://datasets.seed.nsw.gov.au/dataset/fauna-key-habitats-for-north-east-nsw-e01b8>.

Goldingay, R. L. (2023) Habitat use by the eastern pygmy-possum in a coastal woodland–heathland mosaic. Australian Mammalogy 45, 275-284.

Google Earth Pro (2025a) 1 McIntosh Drive, Mayfield West, NSW. Imagery from September 2009. Accessed 14/02/2025.

Google Earth Pro (2025b) 1 McIntosh Drive, Mayfield West, NSW. Imagery from September 2011. Accessed 14/02/2025.

Google Earth Pro (2025c) 1 McIntosh Drive, Mayfield West, NSW. Imagery from October 2024. Accessed 14/02/2025.

Harden, G (1991-2000). Flora of New South Wales. Vols 1-4. NSW University Press.

Landcom (2004). Managing Urban Stormwater: Soils and Construction. National Library of Australia, Canberra, Australia

Leonard, G. (2007). Eucalypts: A Bushwalker's Guide. Second Edition New South Wales University Press, Sydney.

LLS (Local Land Services) (2022). Hunter Regional Strategic Weed Management Plan 2023-2027

LPI (Land and Property Information NSW), (2025). NSW Imagery Web Services.

Matthei L.E. (1995). Soil Landscapes of the Newcastle 1:100,000 Sheet map and report, NSW Department of Land and Water Conservation, Sydney.

Nearmap (2025) Aerial Imagery.

NPWS (National Parks and Wildlife Service) (2000). Vegetation Survey, Classification and Mapping: Lower Hunter and Central Coast Region. A project undertaken for the Lower Hunter and Central Coast Regional Environment Management Strategy, April 2000.

NSW DCCEEW NSW (Department of Climate Change, Energy, the Environment and Water) (2025a) NSW Biodiversity Values Map v17 accessed via <https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BOSETMap> (Data last extracted 10 February 2025).

NSW DCCEEW (NSW Department of Climate Change, Energy, the Environment and Water) (2025b). BioNet Atlas NSW Wildlife Database selected area [North: -32.785 West: 151.61 East: 151.84 South: -32.98].

NSW DCCEEW (NSW Department of Climate Change, Energy, the Environment and Water) (2025c). BioNet vegetation classification database. Accessed via <http://www.environment.nsw.gov.au/research/Visclassification.htm>

NSW DCCEEW (NSW Department of Climate Change, Energy, the Environment and Water) (2025d). Important Mapped Areas – The Biodiversity Offsets and Agreement Management System.

NSW DCCEEW (NSW Department of Climate Change, Energy, the Environment and Water) (2025e). NSW BioNet Threatened Biodiversity Profile Data Collection. State of New South Wales and Department of Planning, Industry and Environment

NSW DCCEEW (NSW Department of Climate Change, Energy, the Environment and Water) (2025f). NSW list of threatened entities at risk of SAIL. Access from webpage via <https://www2.environment.nsw.gov.au/topics/animals-and-plants/biodiversity-offsets-scheme/clear-and-develop-land/serious-irreversible-impacts>.

NSW DCCEEW (NSW Department of Climate Change, Energy, the Environment and Water) (2016). BioNet NSW (Mitchell) Landscapes – Version 3.1

NSW Government (2025). NSW SEED Mapping. Accessed via <https://www.seed.nsw.gov.au/>

OEH (Office of Environment and Heritage) (2018a). 'Species credit' threatened bats and their habitats. NSW survey guide for the Biodiversity Assessment Method

OEH (Office of Environment and Heritage) (2018b). Threatened Species Test of Significance Guidelines. State of New South Wales and Office of Environment and Heritage 2018.

OEH (Office of Environment and Heritage) (2004). Threatened biodiversity survey and assessment Guidelines for developments and activities (2004 working draft)

Pizzey, G. & Knight, F. (2012). The field guide to the birds of Australia. (9th edn). HarperCollins Publishers, Australia.

PlantNET (The NSW Plant Information Network System) (2025) The Royal Botanic Gardens and Domain Trust, Sydney. Accessed via <http://plantnet.rbgsyd.nsw.gov.au>.

Robinson, L. (2003). Field Guide to the Native Plants of Sydney. 3rd edn. Kangaroo Press Pty. Ltd., New South Wales.

Sainty, G. R., & Jacobs, S. W. (2003). Waterplants of Australia. 4th edition, Sainty & Associates, Sydney.

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW



Triggs, B. (1996). Mammal Tracks and Signs-A Field Guide for South-eastern Australia. Oxford University Press, Melbourne.

Van Dyck, S. & Strahan, R. (Ed) (2008). The Mammals of Australia. 3rd edn. New Holland Publishers, Australia.

Appendix A: BDAR requirements compliance

Table A 1 Assessment of compliance with BDAR minimum information requirements

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
Introduction	Chapters 2 and 3	Information	
		Introduction to the biodiversity assessment including:	–
		☒ brief description of the proposal	1.1.3
		☒ identification of subject land boundary, including:	1.1.4
		☒ operational footprint	
		☒ construction footprint indicating clearing associated with temporary/ancillary construction facilities and infrastructure	
		☒ general description of the subject land	1.1.4
		☒ sources of information used in the assessment, including reports and spatial data	Table 1.2
		☒ identification and justification for entering the BOS	Table 1.1
		Maps and tables	
		☒ Map of the subject land boundary showing the final proposal footprint, including the construction footprint for any clearing associated with temporary/ancillary construction facilities and infrastructure	Figure 1.5
Landscape	Sections 3.1 and 3.2, Appendix E	Information	
		Identification of site context components and landscape features, including:	–
		☒ general description of subject land topographic and hydrological setting, geology and soils	3.2.7
		☒ per cent native vegetation cover in the assessment area (as described in BAM Section 3.2)	3.3
		☒ IBRA bioregions and subregions (as described in BAM Subsection 3.1.3(2.))	3.2.1
		☒ rivers and streams classified according to stream order (as described in BAM Subsection 3.1.3(3.) and Appendix E)	3.2.2

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		☒ wetlands within, adjacent to and downstream of the site (as described in BAM Subsection 3.1.3(3.))	
		☒ connectivity of different areas of habitat (as described in BAM Subsection 3.1.3(5–6.))	3.2.3
		☒ karst, caves, crevices, cliffs, rocks and other geological features of significance and for vegetation clearing proposals, soil hazard features (as described in BAM Subsections 3.1.3(7.) and 3.1.3(12.))	3.2.4
		☒ areas of outstanding biodiversity value occurring on the subject land and assessment area (as described in BAM Subsection 3.1.3(8–9.))	3.2.5
		☒ NSW (Mitchell) landscape on which the subject land occurs	3.2.6
		☒ details of field reconnaissance undertaken to confirm the extent and condition of landscape features and native vegetation cover (as described in Operational Manual Stage 1 Section 2.4)	2.1
		Maps and tables	
		☒ Site Map	Figure 1.2
		☒ Property boundary	
		☒ Boundary of subject land	
		☒ Cadastre of subject land (including labelling of Lot and DP or section plan if relevant)	
		☐ Landscape features identified in BAM Subsection 3.1.3	
		☒ Location Map	
		☒ Digital aerial photography at 1:1,000 scale or finer	
		☒ Boundary of subject land	
		☒ Assessment area (i.e. the subject land and either 1500 m buffer area or 500 m buffer for linear development)	
		☐ Landscape features identified in BAM Subsection 3.1.3	
		☐ Additional detail (e.g. local government area boundaries) relevant at this scale	
		Landscape features identified in BAM Subsection 3.1.3 and to be shown on the Site Map and/or Location Map include:	–
		☐ IBRA bioregions and subregions	Figure 3.1

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		☒ rivers, streams and estuaries ☒ wetlands and important wetlands ☒ connectivity of different areas of habitat ☐ karst, caves, crevices, cliffs, rocks and other geological features of significance and if required, soil hazard features ☐ areas of outstanding biodiversity value occurring on the subject land and assessment area ☐ any additional landscape features identified in any SEARs for the proposal ☒ NSW (Mitchell) landscape on which the subject land occurs	Figure 3.2 Figure 4.4
		Data	
		☐ All report maps as separate jpeg files	–
		Individual digital shape files of:	–
		☐ subject land boundary	–
		☐ assessment area (i.e. subject land and 1500 m buffer area) boundary	–
		☐ cadastral boundary of subject land	–
		☐ areas of native vegetation cover	–
		☐ landscape features	–
Native vegetation	Chapter 4, Appendix A and Appendix H	Information	
		☒ Identify native vegetation extent within the subject land, including cleared areas and evidence to support differences between mapped vegetation extent and aerial imagery (as described in BAM Section 4.1(1–3.) and Subsection 4.1.1)	4.1
		☒ Provide justification for all parts of the subject land that do not contain native vegetation (as described in BAM Subsection 4.1.2)	4.1

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		☒ Review of existing information on native vegetation including references to previous vegetation maps of the subject land and assessment area (described in BAM Section 4.1(3.) and Subsection 4.1.1)	
		☒ Describe the systematic field-based floristic vegetation survey undertaken in accordance with BAM Section 4.2	2.2.3
		☐ Where relevant, describe the use of more appropriate local data, provide reasons that support the use of more appropriate local data and include the written confirmation from the decision-maker that they support the use of more appropriate local data (as described in BAM Subsection 1.4.2 and Appendix A)	
		For each PCT within the subject land, describe:	–
		☒ PCT name and ID	4.2.1
		☒ vegetation class	
		☒ extent (ha) within subject land	
		☒ evidence used to identify a PCT including any analyses undertaken, references/sources, existing vegetation maps (BAM Section 4.2(1–3.))	
		☒ plant species relied upon for identification of the PCT and relative abundance of each species	
		☒ if relevant, TEC status including evidence used to determine vegetation is the TEC (BAM Subsection 4.2.2(1–2.))	
		☒ estimate of per cent cleared value of PCT (BAM Subsection 4.2.1(5.))	Table 3.1
		Describe the vegetation integrity assessment of the subject land, including:	–
		☒ identification and mapping of vegetation zones (as described in BAM Subsection 4.3.1)	
		☒ description of vegetation zones within the subject land (as described in Operational Manual Stage 1 Table 2 and Subsection 3.3.2)	Table 4.3
		☒ area (ha) of each vegetation zone	Table 4.3
		☒ assessment of patch size (as described in BAM Subsection 4.3.2)	Table 4.3
		☒ survey effort (i.e., number of vegetation integrity survey plots) as described in BAM Subsection 4.3.4(1–2.)	Table 4.3
		☐ use of relevant benchmark data from BioNet Vegetation Classification (as described in BAM	

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		Subsection 4.3.3(5.))	
		Where use of more appropriate local benchmark data is proposed (as described in BAM Subsection 1.4.2, BAM Subsection 4.3.3(5.) and BAM Appendix A):	–
		☐ identify the PCT or vegetation class for which local benchmark data will be applied	
		☐ identify published sources of local benchmark data (if benchmarks obtained from published sources)	
		☐ describe methods of local benchmark data collection (if reference plots used to determine local benchmark data)	
		☐ provide justification for use of local data rather than BioNet Vegetation Classification benchmark values	
		☐ provide written confirmation from the decision-maker that they support the use of local benchmark data	
		Maps and tables	
		☒ Map of native vegetation extent within the subject land at scale not greater than 1:10,000 including identification of all areas of native vegetation including areas that are ground cover only, cleared areas (as described in BAM Section 4.1(1–3.)) and all parts of the subject land that do not contain native vegetation (BAM Subsection 4.1.2)	Figure 4.1
		☒ Map of PCTs within the subject land (as described in BAM Section 4.2(1.))	Figure 4.1
		☒ Map of vegetation zones within the subject land (as described in BAM Subsection 4.3.1)	Figure 4.2
		☒ Map the location of floristic vegetation survey plots and vegetation integrity survey plots relative to PCT boundaries	Figure F1
		☒ Map of TEC distribution on the subject land and table of TEC listing, status and area (ha)	
		☒ Map of patch size locations for each native vegetation zone and table of patch size areas (as described in BAM Subsection 4.3.2)	
		Table of current vegetation integrity scores for each vegetation zone within the site and including:	–
		☒ composition condition score	Table 4.4
		☒ structure condition score	

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		☒ function condition score	
		☒ presence of hollow bearing trees	
		Data	
		☐ All report maps as separate jpeg files	–
		☐ Plot field data (MS Excel format)	
		☒ Plot field datasheets	Appendix F
		Digital shape files of:	–
		☐ PCT boundaries within subject land	–
		☐ TEC boundaries within subject land	–
		☐ vegetation zone boundaries within subject land	–
		☐ floristic vegetation survey and vegetation integrity plot locations	–
Threatened species	Chapter 5	Information	
		Identify ecosystem credit species likely to occur on the subject land, including:	–
		☒ list of ecosystem credit species derived from the BAM-C (as described in BAM Subsection 5.1.1 and Section 5.2(1.))	Table 5.1
		☒ justification and supporting evidence for exclusion of any ecosystem credit species based on geographic limitations, habitat constraints or vagrancy (as described in BAM Subsections 5.2.1 and 5.2.2)	Table 5.1
		☒ justification for addition of any ecosystem credit species to the list	Table 5.1
		Identify species credit species likely to occur on the subject land, including:	–
		☒ list of species credit species derived from the BAM-C (as described in BAM Subsection 5.1.1)	Table 5.2 Table 5.3
		☒ justification and supporting evidence for exclusions based on geographic limitations, habitat	Table 5.4

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		constraints or vagrancy (as described in BAM Subsections 5.2.1 and 5.2.2)	
		☐ justification and supporting evidence for exclusions based on degraded habitat constraints and/or microhabitats on which the species depends (as described in BAM Subsection 5.2.2)	
		☐ justification for addition of any species credit species to the list	
		From the list of candidate species credit species, identify:	–
		☒ species assumed present within the subject land (if relevant) (as described in BAM Subsection 5.2.4(2. a.))	Table 5.4
		☒ species present within the subject land on the basis of being identified on an important habitat map for a species (as described in BAM Subsection 5.2.4(2.d.))	
		☒ species for which targeted surveys are to be completed to determine species presence (BAM Subsection 5.2.4(2.b.))	
		☒ species for which an expert report is to be used to determine species presence (BAM Subsection 5.2.4(2.c.))	
		Present the outcomes of species credit species assessments from:	–
		☒ threatened species survey (as described in BAM Section 5.2.4)	Table 5.5
		☐ expert reports (if relevant) including justification for presence of the species and information used to make this determination (as described in BAM Subsection 5.2.4, Section 5.3, Box 3)	
		Where survey has been undertaken include detailed information on:	–
		☒ survey method and effort (as described in BAM Section 5.3)	Table 5.5
		☐ justification of survey method and effort (e.g. citation of peer-reviewed literature) if approach differs from the department's taxa-specific survey guides or where no relevant guideline has been published	
		☒ timing of survey in relation to requirements in the TBDC or the department's taxa-specific survey guides. Where survey was undertaken outside these guides include justification for the timing of surveys	Table 5.5
		☐ survey personnel and relevant experience	Declarations
		☐ describe any limitations to surveys and how these were addressed/overcome	

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		Where an expert report has been used in place of survey (as described in BAM Section 5.3, Box 3), include:	–
		☐ justification of the use of an expert report	
		☐ identify the expert, provide evidence of their expert credentials and departmental approval of expert status	
		☐ all requirements of Box 3 have been addressed in the expert report	
		Where use of local data is proposed (BAM Subsection 1.4.2):	–
		☐ identify relevant species	
		☐ identify data to be amended	
		☐ identify source of information for local data, e.g., published literature, additional survey data, etc.	
		☐ justify use of local data in preference to VIS Classification or TBDC data	
		☐ provide written confirmation from the decision-maker that they support the use of local data	
		Species polygon completed for species credit species present within the subject land (assumed present or determined on the basis of survey, expert report or important habitat map) ensuring that:	–
		☒ the unit of measure for each species is documented	
		for species assessed by area:	–
		☒ the polygon includes the extent of suitable habitat for the target species within the subject land (as described in BAM Subsection 5.2.5)	
		☐ a description of, and evidence-based justification for, the habitat constraints, features or microhabitats used to map the species polygon including reference to information in the TBDC for that species and any buffers applied	
		for species assessed by counts of individuals:	–
		☒ the number of individual plants present on the subject land (as described in BAM Subsection 5.2.5(3.))	
		☐ the method used to derive this number (i.e. threatened species survey or expert report) and evidence-based justification for the approach taken	

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		☐ the polygon includes all individuals located on the subject land with a buffer of 30 m around the individuals or groups of individuals on the subject land	
		☒ Identify the biodiversity risk weighting for each species credit species identified as present within the subject land (as described in BAM Section 5.4)	
		Maps and tables	
		☒ Table showing ecosystem credit species in accordance with BAM Subsection 5.1.1, and identifying:	Table 5.1
		☒ the ecosystem credit species removed from the list	Table 5.1
		☒ the sensitivity to gain class of each species	Table 5.1
		☒ Table detailing species credit species in accordance with BAM Section 5.2 and identifying:	Table 5.2 Table 5.3
		☒ the species credit species removed from the list of species because the species is considered vagrant, out of geographic range or the habitat or microhabitat features are not present	Table 5.4
		☒ the candidate species credit species not recorded on the subject land as determined by targeted survey, expert report or important habitat map	Table 5.5
		☐ Table detailing species credit species recorded or assumed as present within the subject land, habitat constraints or microhabitats associated with the species, counts of individuals (flora)/extent of suitable habitat (flora and fauna) (as described in BAM Subsection 5.2.6) and biodiversity risk weighting (BAM Section 5.4)	-
		☐ Map indicating the GPS coordinates of all individuals of each species recorded within the subject land and the species polygon for each species (as described in BAM Subsection 5.2.5)	
		Data	
		☐ Digital shape files of suitable habitat identified for survey for each candidate species credit species	–
		☐ Survey locations including GPS coordinates of any plots, transects, grids	
		☐ Digital shape files of each species polygon including GPS coordinates of located individuals	–
		☐ Species polygon map in jpeg format	–
		☐ Expert reports and any supporting data used to support conclusions of the expert report	

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		☐ Field datasheets detailing survey information including prevailing conditions, date, time, equipment used, etc.	
Prescribed impacts	Chapter 6	Information	
		Identify potential prescribed biodiversity impacts on threatened entities, including:	–
		☒ karst, caves, crevices, cliffs, rocks and other geological features of significance (as described in BAM Subsection 6.1.1)	Table 6.1
		☒ occurrences of human-made structures and non-native vegetation (as described in BAM Subsection 6.1.2)	
		☒ corridors or other areas of connectivity linking habitat for threatened entities (as described in BAM Subsection 6.1.3)	
		☒ waterbodies or any hydrological processes that sustain threatened entities (as described in BAM Subsection 6.1.4)	
		☒ where the proposed development may result in vehicle strike on threatened fauna or on animals that are part of a threatened ecological community (as described in BAM Subsection 6.1.6)	Table 6.1
		☒ Identify a list of threatened entities that may be dependent upon or may use habitat features associated with any of the prescribed impacts	Table 6.1
		☒ Describe the importance of habitat features to the species including, where relevant, impacts on life cycle or movement patterns (e.g., Subsection 6.1.3)	Table 6.1
		Maps and tables	
		☐ Map showing location of any prescribed impact features (i.e. karst, caves, crevices, cliffs, rocks, human-made structures, etc.)	
		☐ Map showing location of potential vehicle strike locations	
		Data	
		☐ Digital shape files of prescribed impact feature locations	–
		☐ Prescribed impact features map in jpeg format	–

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
Avoid and minimise impacts	Chapter 7	Information	
		Demonstration of efforts to avoid and minimise impacts on biodiversity values (including prescribed impacts) associated with the proposal location in accordance with Chapter 7, including an analysis of alternative:	–
		☒ modes or technologies that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed mode or technology	7.1.1 7.2.1
		☒ routes that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed route	7.1.1 7.2.1
		☒ alternative locations that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed location	7.1.1 7.2.1
		☐ alternative sites within a property on which the proposal is located that would avoid or minimise impacts on biodiversity values and justification for selecting the proposed site	
		☒ Describe efforts to avoid and minimise impacts (including prescribed impacts) to biodiversity values through proposal design (as described in BAM Sections 7.1 and 7.2)	Table 7.1
		☒ Identification of any other site constraints that the proponent has considered in determining the location and design of the proposal (as described in BAM Subsection 7.2.1(3.))	7.1.1 7.2.1
		☐ Detail measures or options considered but not implemented because they are not feasible and/or practical (e.g., due to site constraints)	
		Maps and tables	
		☒ Table of measures to be implemented to avoid and minimise the impacts of the proposal, including action, outcome, timing and responsibility	Table 7.1
		☐ Map of alternative footprints considered to avoid or minimise impacts on biodiversity values; and of the final proposal footprint, including construction and operation	
		☐ Maps demonstrating indirect impact zones where applicable	
		Data	

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		Digital shape files of:	–
		☐ alternative and final proposal footprint	–
		☐ direct and indirect impact zones	–
		☐ Maps in jpeg format	–
Assessment of impacts	Chapter 8, Sections 8.1 and 8.2	Information	
		☒ Determine the impacts on native vegetation and threatened species habitat, including a description of direct impacts of clearing of native vegetation, threatened ecological communities and threatened species habitat (as described in BAM Section 8.1)	Table 8.1
		Assessment of indirect impacts on vegetation and threatened species and their habitat including (as described in BAM Section 8.2):	–
		☒ description of the nature, extent, frequency, duration and timing of indirect impacts of the proposal	Table 8.3
		☒ documenting the consequences to vegetation and threatened species and their habitat including evidence-based justifications	Table 8.1
		☒ reporting any limitations or assumptions, etc. made during the assessment	Section 2.2
		☒ identification of the threatened entities and their habitat likely to be affected	Table 8.1
		Assessment of prescribed biodiversity impacts (as described in BAM Section 8.3) including:	–
		assessment of the nature, extent frequency, duration and timing of impacts on the habitat of threatened species or ecological communities associated with:	–
		☐ karst, caves, crevices, cliffs, rocks and other features of geological significance	
		☐ human-made structures	
		☒ non-native vegetation	8.3.1
		☐ connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range	

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		☐ movement of threatened species that maintains their life cycle	
		☒ water quality, waterbodies and hydrological processes that sustain threatened species and threatened ecological communities	8.3.3
		☒ assessment of the impacts of vehicle strikes on threatened species of animals or on animals that are part of a TEC	8.3.4
		☒ evaluate the consequences of prescribed impacts	Table 8.2
		☐ describe impacts that are uncertain	
		☐ document limitations to data, assumptions and predictions	
		Maps and tables	
		☐ Table showing change in vegetation integrity score for each vegetation zone as a result of identified impacts	
		Data	
		N/A	–
Mitigation and management of impacts	Chapter 8, Sections 8.4 and 8.5	Information	
		Identification of measures to mitigate or manage impacts in accordance with the recommendations in BAM Sections 8.4 and 8.5 including:	–
		☒ techniques, timing, frequency and responsibility	Table 8.4: Table 8.4
		☐ identify measures for which there is risk of failure	
		☒ evaluate the risk and consequence of any residual impacts	
		☐ document any adaptive management strategy proposed	
		Identification of measures for mitigating impacts related to:	–
		☒ displacement of resident fauna (as described in BAM Subsection 8.4.1(2.))	Table 8.4:

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		☒ indirect impacts on native vegetation and habitat (as described in BAM Subsection 8.4.1(3.))	Table 8.4
		☒ mitigating prescribed biodiversity impacts (as described in BAM Subsection 8.4.2)	
		☐ Details of the adaptive management strategy proposed to monitor and respond to impacts on biodiversity values that are uncertain (BAM Section 8.5)	
		Maps and tables	
		☒ Table of measures to be implemented before, during and after construction to mitigate and manage impacts of the proposal, including action, outcome, timing and responsibility	Table 8.4:
		Data	
		N/A	–
Impact summary	Chapter 9	Information	
		Identification and assessment of impacts on TECs and threatened species that are at risk of a serious and irreversible impacts (SAII, in accordance with BAM Section 9.1) including:	–
		☐ addressing all criteria in Subsection 9.1.1 for each TEC listed as at risk of an SAII present on the subject land	
		☐ for each TEC, report the extent of the TEC in NSW	
		☐ addressing all criteria in Subsection 9.1.2 for each threatened species at risk of an SAII present on the subject land	
		☐ for each threatened species, report the population size in NSW	
		☒ documenting assumptions made and/or limitations to information	Table 1.2
		☒ documenting all sources of data, information, references used or consulted	Section 2.2
		☐ clearly justifying why any criteria could not be addressed	
		☒ Identification of impacts requiring offset in accordance with BAM Section 9.2	Table 10.1
		☒ Identification of impacts not requiring offset in accordance with BAM Subsection 9.2.1(3.)	

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		☒ Identification of areas not requiring assessment in accordance with BAM Section 9.3	Section 10.1.4
		Maps and tables	
		☐ Map showing the extent of TECs at risk of an SAI within the subject land	
		☐ Map showing location of threatened species at risk of an SAI within the subject land	
		Map showing location of:	–
		☐ impacts requiring offset	
		☐ impacts not requiring offset	
		☐ areas not requiring assessment	
		Data	
		Digital shape files of:	–
		☐ extent of TECs at risk of an SAI within the subject land	–
		☐ location of threatened species at risk of an SAI within the subject land	–
		☐ boundary of impacts requiring offset	–
		☐ boundary of impacts not requiring offset	–
		☐ boundary of areas not requiring assessment	–
		☐ Maps in jpeg format	–
Impact summary	Chapter 10	Information	
		Ecosystem credits and species credits that measure the impact of the development on biodiversity values, including:	–
		☒ future vegetation integrity score for each vegetation zone within the subject land (Equation 25 and Equation 26 in BAM Appendix H)	Table 10.1

BDAR section	BAM ref.	BAM requirement	Page reference(s) in the BDAR
		☒ change in vegetation integrity score (BAM Subsection 8.1.1) ☒ number of required ecosystem credits for the direct impacts of the proposal on each vegetation zone within the subject land (BAM Subsection 10.1.2)	
		☒ biodiversity risk weighting for each	Table 10.1
		☒ number of required species credits for each candidate threatened species that is directly impacted on by the proposal (BAM Subsection 10.1.3)	
		Maps and tables	
		☒ Table of PCTs requiring offset and the number of ecosystem credits required	Table 10.1
		☒ Table of threatened species requiring offset and the number of species credits required	
		Data	
		☐ Submitted proposal in the BAM Calculator	–
Biodiversity credit report	Chapter 10	Information	
		☒ Description of credit classes for ecosystem credits and species credits at the development or clearing site or land to be biodiversity certified (BAM Section 10.2)	Table 11.1
		☒ BAM credit report in pdf format	<Appendix G>
		Maps and tables	
		☒ Table of credit class and matching credit profile	Table 11.1
		Data	
		☒ BAM credit report in pdf format	<Appendix G>

Appendix B: SEARS



Department of Planning, Housing and Infrastructure

Planning Secretary's Environmental Assessment Requirements

Section 4.12(8) of the *Environmental Planning and Assessment Act 1979*

Part 8 of the *Environmental Planning and Assessment Regulation 2021*

Application Number	SSD-77450458
Project	Steel River East Battery Energy Storage System
Location	McIntosh Drive, Mayfield West, within the City of Newcastle Local Government Area
Proponent	Ausgrid Operator Partnership
Date of Issue	20/11/2024
General Requirements	The Environmental Impact Statement (EIS) for the development must comply with the requirements in Part 8, of the <i>Environmental Planning and Assessment Regulation 2021</i> (the Regulation) and must have regard to the <i>State Significant Development Guidelines</i>, the <i>Renewable Energy Planning Framework</i> and any relevant planning circulars. In particular, the EIS must include: • a stand-alone executive summary; • a full description of the development, including: - details of construction, operation and decommissioning, including any staging of the development; - a high quality site plan at an adequate scale showing all infrastructure and facilities (including any infrastructure that would be required for the development, but the subject of a separate approvals process); - the Project Area (as per Table 1 of the <i>SSD guidelines – preparing an environmental impact statement</i>) and Development Footprint (disturbance area including but not limited to areas for infrastructure, road works, access tracks, defensible space, fencing and temporary laydown); - a high quality detailed constraints map identifying the key environmental and other land use constraints that have informed the final design of the development; and - confirmation if the project is designated development in accordance with the <i>Environmental Planning and Assessment Act 1979</i> (EP&A Act) and the Regulation; • consistency in information presented in the EIS and all technical reports,

4 Parramatta Square, 12 Darcy Street, Parramatta NSW 2150 | Locked Bag 5022, Parramatta NSW 2124 | dpfi.nsw.gov.au | 1

	including distances, development footprint, project design and infrastructure proposed, construction timeframes and receiver numbers; • a strategic justification of the development focusing on site selection and the suitability of the proposed site with respect to potential land use conflicts with existing and future surrounding land uses (including existing land use, other proposed or approved energy facilities, major projects, rural/residential development, Crown lands within and adjacent to the project site and subdivision potential); • a risk assessment of the potential impacts of the development, identifying the key issues for further assessment; • an assessment of the likely impacts of the development on the environment, and any other significant issues identified in the above risk assessment, focusing on the specific issues identified below, including: - a description of the existing environment likely to be affected by the development using sufficient baseline data; - an assessment of the likely impacts of all stages of the development (which is commensurate with the level of impact), including any cumulative impacts of the site and existing, approved or proposed developments in the region and impacts on the site and any road upgrades, taking into consideration any relevant legislation, environmental planning instruments, guidelines, policies, plans and industry codes of practice including the <i>Cumulative Impact Assessment Guideline</i> (DPE, 2022); - a description and assessment if staging of the project is proposed including any site mobilisation or pre-construction works; - a description of the measures that would be implemented to avoid, mitigate and/or offset the impacts of the development (including draft management plans for specific issues as identified below); and - a description of the measures that would be implemented to monitor and report on the environmental performance of the development; • a consolidated summary table of all the proposed environmental mitigation, management and monitoring measures, identifying all the commitments in the EIS; • a detailed evaluation of the merits of the project as a whole, having regard to: - the requirements in Section 4.15 of the <i>Environmental Planning and Assessment Act 1979</i>, including the objects of the Act and how the principles of ecologically sustainable development have been incorporated in the design, construction and ongoing operations of the development; - the suitability of the site with respect to potential land use conflicts with existing and future surrounding land uses; - feasible alternatives to the development and its key components, including siting and project design alternatives to avoid areas of
--	---

4 Parramatta Square, 12 Darcy Street, Parramatta NSW 2150 | Locked Bag 5022, Parramatta NSW 2124 | dpfi.nsw.gov.au | 2

	biodiversity value, opportunities for shared infrastructure with proposed developments in the region, and the consequences of not carrying out the development; and - a detailed consideration of the capability of the project to contribute to the security and reliability of the electricity system in the National Electricity Market, having regard to local system conditions and the Department's guidance on the matter. Estimated Development Cost and Employment • Provide the estimated development cost (EDC) of the development prepared in accordance with the relevant planning circular using the Standard Form of EDC Report; • Provide an estimate of the retained and new jobs that would be created during the construction and operational phases of the development, including details of the methodology to determine the figures provided; • The development application must also be accompanied by: - the consent of the owner/s of the land (as required in Section 23(1) of the EP&A Regulation); and - a declaration from a Registered Environmental Assessment Practitioner that the EIS includes the information specified in the <i>Department's Registered Environmental Assessment Practitioner Guidelines</i>.
Key issues	The EIS must address the following specific matters: Biodiversity – including: • an assessment of the biodiversity values and the likely biodiversity impacts of the project in accordance with Section 7.9 of the <i>Biodiversity Conservation Act 2016</i> (NSW) (BC Act) having regard to the <i>Biodiversity Assessment Method (BAM) 2020</i> and documented in a Biodiversity Development Assessment Report (BDAR). The BDAR must: - be prepared using the approved BDAR template; - document the application of the avoid, minimise and offset framework including assessing all direct, indirect and prescribed impacts in accordance with the BAM; - assess the impacts associated with all ancillary infrastructure, including the transport route road upgrades; - include an assessment for serious and irreversible impacts (SAII) in accordance with Section 9.1 of the BAM; - include a strategy to offset any residual impacts of the development in accordance with the BC Act; and - be finalised by an accredited assessor as BAM-compliant within 14 days of submission; unless BCS and DPHI determine the proposed development is not likely to have any significant impacts on biodiversity values;

- an assessment of the likely impacts on listed aquatic threatened species, populations or ecological communities, scheduled under the *Fisheries Management Act 1994*, and a description of the measures to avoid, minimise and rehabilitate impacts;
- a cumulative impact assessment of biodiversity values in the region from nearby developments; and
- if an offset is required, details of the measures proposed to address the offset obligations.

Heritage – including:

- An Aboriginal Cultural Heritage Assessment Report (ACHAR) prepared in accordance with the Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW (OEH, 2011) and the Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (DECCW, 2010), identifying, describing, and assessing any impacts to any Aboriginal cultural heritage sites or values associated with the site (including impacts from any proposed earth works, construction works and road upgrades), including results of archaeological test excavations (where required), undertaken in accordance with the relevant standards and requirements;
- evidence of adequate consultation with Aboriginal communities in determining and assessing impacts, identifying and selecting options for avoidance of Aboriginal cultural heritage and identifying appropriate mitigation measures (including the final proposed measures), having regard to the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW, 2010); and
- assess the impact to historic heritage having regard to the *Guidelines for Preparing a Statement of Heritage Impact*.

Land – including:

- a detailed justification of the suitability of the site and that the site can accommodate the proposed development having regard to its potential environmental impacts, land contamination, permissibility, strategic context and existing site constraints;
- an assessment of the potential impacts of the development on existing land uses on the site and adjacent land, including:
 - agricultural land, flood prone land, nearby drinking water catchments, Crown lands, mining, quarries, mineral or petroleum rights (if relevant);
 - a soil survey to determine the soil characteristics and consider the potential for salinity, acid sulfate soils, and erosion to occur; and
 - a cumulative impact assessment of nearby developments;
- an assessment of the compatibility of the development with existing land uses, during construction, operation and after decommissioning, including:
 - consideration of the zoning provisions applying to the land, including subdivision (if required); and
 - completion of a Land Use Conflict Risk Assessment in accordance with the Department of Industries *Land Use Conflict Risk*

	<i>Assessment Guide (if required).</i> Visual – including: • a detailed assessment of the likely visual impacts of all components of the project on surrounding residences (including approved developments, lodged development applications and dwelling entitlements), and key locations, scenic of significant vistas and road corridors in the public domain; and • details of measures to mitigate and/or manage potential impacts (including a draft landscaping plan for on-site perimeter planting, with evidence it has been developed in consultation with affected landowners). Noise – including: • an assessment of the construction noise impacts (including impacts from proposed road upgrades) of the development in accordance with the <i>Interim Construction Noise Guideline</i> (ICNG), operational noise impacts in accordance with the <i>NSW Noise Policy for Industry</i> (2017), traffic noise in accordance with the <i>NSW Road Noise Policy</i> (DECCW, 2011) and cumulative noise impacts (considering other developments in the area), including (where appropriate): - identification of impacts associated with construction, site emission and traffic generation at noise affected sensitive receivers, including the provision of operational noise contours; - details of noise monitoring survey, background noise levels and amenity noise levels at the most-affected residential receivers; - details of the likely daily charging/discharging load profile, manufacturer specifications for plant and equipment and a noise source inventory (including intensity, quantity, location, directivity and frequency information); - an assessment of 'worst case' noise emission scenarios during periods of discharging and charging; - consideration of annoying characteristics of noise and prevailing meteorological conditions in the study area; and - details and analysis of the effectiveness of proposed management and mitigation measures to adequately manage identified impacts, including a clear identification of residual noise and vibration impacts following application of these mitigation measures and details of any proposed compliance monitoring programs. Transport – including: • an assessment of the peak and average traffic generation, including light vehicles, shuttle buses, heavy vehicles and high risk heavy vehicles requiring escort and construction worker transportation; • an assessment of the likely transport impacts to the site access route(s), including the above listed vehicles, site access point(s), any Crown land,
--	---

	particularly in relation to the capacity and condition of the roads, road safety and intersection performance; • a cumulative impact assessment of traffic from nearby developments (including mining operations); and • provide details of measures to mitigate and / or manage potential impacts (developed in consultation with the relevant road authorities) including: - a schedule of all required road upgrades (including resulting from heavy vehicle and heavy vehicle requiring escort traffic haulage routes), - clear figures of proposed road upgrades (including the site access point); and - road maintenance contributions, and any other traffic control measures. Water – including: • an assessment of the likely impacts of the development (including flooding and flood modelling) on surrounding watercourses (including their Strahler Stream Order), groundwater resources and surface water movements, and measures proposed to monitor, reduce and mitigate these impacts including water management; • a site water balance for the development; • details of water requirements and supply arrangements for construction and operation (including consultation with suppliers); • a description of the erosion and sediment control measures that would be implemented to mitigate any impacts in accordance with <i>Managing Urban Stormwater: Soils & Construction</i> (Landcom, 2004) and <i>Managing Urban Stormwater: Soils and construction – Volume 2A manual</i> (Landcom, 2008); • assessing the impacts of the development, including any changes to flood risk and overland flows on-site or off-site, and detail design solutions and operational procedures to mitigate flood risk where required; • where the project involves works within 40 metres of any river, lake or wetlands (collectively waterfront land), identify likely impacts to the waterfront land, and how the activities are to be designed and implemented in accordance with the <i>DPI Guidelines for Controlled Activities on Waterfront Land</i> (2018) and (if necessary) <i>Why Do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings</i> (DPI 2003), and <i>Policy & Guidelines for Fish Habitat Conservation & Management</i> (DPE, 2013); and • Flood Risk: identification of any flood risk on site having regard to adopted flood studies, the potential effects of climate change and any relevant provisions of the NSW Flood Risk Management Manual; - where the development could alter flood behaviour, affect flood risk to
--	---

	the existing community or expose its users to flood risk, provide a flood impact and risk assessment (FIRA) prepared in accordance with the <i>Flood Impact and Risk Assessment – Flood Risk Management Guide LU01</i>; - detailed design solutions and operational procedures to mitigate flood risk where required. Hazards – including: • <i>Health</i> - an assessment of potential hazards and risks including but not limited to fires, spontaneous ignition, electromagnetic fields or the proposed grid connection infrastructure against the <i>International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines for limiting exposure to Time-varying Electric, Magnetic and Electromagnetic Fields</i>; • <i>Bushfire</i> – identify potential hazards and risks associated with bushfires including the risks that a BESS would cause a bush fire and demonstrate compliance with <i>Planning for Bush Fire Protection 2019</i>; • <i>Dangerous Goods</i> - a preliminary risk screening completed in accordance with the State Environmental Planning Policy (Resilience and Hazards) 2021; and • <i>Battery Energy Storage System</i> - a Preliminary Hazard Analysis (PHA) prepared in accordance with <i>Hazardous Industry Planning Advisory Paper No. 6 – Guideline for Hazard Analysis (DoP, 2011) and Multi-Level Risk Assessment</i>. The PHA must consider all recent standards and codes and verify separation distances to on-site and off-site receptors to prevent fire propagation and compliance with <i>Hazardous Industry Advisory Paper No. 4, Risk Criteria for Land Use Safety Planning</i>. • <i>Aviation</i> – assess potential impacts on aviation safety Social – including an assessment of the social impacts or benefits of the project for the region and the State as a whole in accordance with the <i>Social Impact Assessment Guideline</i> (DPE, 2023), including consideration of any increase in demand for community infrastructure services, and consideration of construction workforce accommodation. Economic – including an assessment of the economic impacts or benefits of the project for the region and the State as a whole and provide details of any proposed voluntary benefit sharing, having regard to the <i>Benefit Sharing Guideline 2024</i> and <i>Private Agreement Guideline 2024</i>. Waste – including: • identify, quantify and classify the likely waste stream to be generated during construction, operation, and decommissioning, and describe the measures to be implemented to manage, reuse, recycle and safely
--	---

	dispose of this waste (in consultation with waste facilities, including Council); and • provide a waste management plan (as appropriate).
Plans and Documents	The EIS must include all relevant plans, diagrams and relevant documentation required under Part 3 of the EP&A Regulation. Provide these as part of the EIS rather than as separate documents. In addition, the EIS must include high quality files of maps and figures of the subject site and proposal.
Legislation, Policies & Guidelines	The assessment of the key issues listed above must take into account relevant guidelines, policies, and plans as identified. A list of some of the legislation, policies and guidelines that may be relevant to the assessment of the project can be found at: • https://www.planning.nsw.gov.au/Policy-and-Legislation/Planning-reforms/Rapid-Assessment-Framework/Improving-assessment-guidance; • https://www.planningportal.nsw.gov.au/major-projects/assessment/policies-and-guidelines; and • http://www.environment.gov.au/epbc/publications#assessments.
Consultation	During the preparation of the EIS, you should consult with the relevant local, State or Commonwealth Government authorities, infrastructure and service providers, community groups, affected landowners and any exploration licence and/or mineral title holders. In particular, you must undertake detailed consultation with affected landowners surrounding the development, the owners of all exploration licences across the proposed development site, the operator of any pipelines on or adjacent to the site, and all relevant government agencies, including the relevant local Council. The EIS must: • detail how engagement undertaken was consistent with the <i>Undertaking Engagement Guidelines for State Significant Projects</i> (DPHI, 2024); and describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, an explanation should be provided.
Expiry Date	If you do not lodge a Development Application and EIS for the development within 2 years of the issue date of these SEARs, your SEARs will expire. If an extension to these SEARs will be required, please consult with the Planning Secretary 3 months prior to the expiry date.

Appendix C Biodiversity Values Map and Threshold tool report



Department of Planning and Environment

Biodiversity Values Map and Threshold Report

This report is generated using the Biodiversity Values Map and Threshold (BMAT) tool. The BMAT tool is used by proponents to supply evidence to your local council to determine whether or not a Biodiversity Development Assessment Report (BDAR) is required under [the Biodiversity Conservation Regulation 2017 \(Cl. 7.2 & 7.3\)](#).

The report provides results for the proposed development footprint area identified by the user and displayed within the blue boundary on the map.

There are two pathways for determining whether a BDAR is required for the proposed development:

1. Is there Biodiversity Values Mapping?
2. Is the 'clearing of native vegetation area threshold' exceeded?

Biodiversity Values Map and Threshold Report		
Date of Report Generation		10/02/2025 8:50 AM
1. Biodiversity Values (BV) Map - Results Summary (Biodiversity Conservation Regulation Section 7.3)		
1.1	Does the development Footprint intersect with BV mapping?	no
1.2	Was ALL BV Mapping within the development footprint added in the last 90 days? (dark purple mapping only; no light purple mapping present)	no
1.3	Date of expiry of dark purple 90 day mapping	N/A
1.4	Is the Biodiversity Values Map threshold exceeded?	no
2. Area Clearing Threshold - Results Summary (Biodiversity Conservation Regulation Section 7.2)		
2.1	Size of the development or clearing footprint	4,512.3 sqm
2.2	Native Vegetation Area Clearing Estimate (NVACE) (within development/clearing footprint)	1,314.6 sqm
2.3	Method for determining Minimum Lot Size	LEP
2.4	Minimum Lot Size (10,000sqm = 1ha)	4,000 sqm
2.5	Area Clearing Threshold (10,000sqm = 1ha)	2,500 sqm
2.6	Does the estimate exceed the Area Clearing Threshold? (NVACE results are an estimate and can be reviewed using the Guidance)	no
REPORT RESULT: Is the Biodiversity Offset Scheme (BOS) Threshold exceeded for the proposed development footprint area? (Your local council will determine if a BDAR is required)		no

Page 1 of 4



Department of Planning and Environment

What do I do with this report?

- If the result above indicates the BOS Threshold has been exceeded, your local council **may require** a Biodiversity Development Assessment Report with your development application. Seek further advice from Council. An accredited assessor can apply the Biodiversity Assessment Method and prepare a BDAR for you. For a list of accredited assessors go to: <https://customer.lmbc.nsw.gov.au/assessment/AccreditedAssessor>.
- If the result above indicates the BOS Threshold has not been exceeded, you may not require a Biodiversity Development Assessment Report. This BMAT report can be provided to Council to support your development application. Council can advise how the area clearing threshold results should be considered. Council will review these results and make a determination if a BDAR is required. Council may ask you to review the area clearing threshold results. You may also be required to assess whether the development is "likely to significantly affect threatened species" as determined under the test in Section 7.3 of the *Biodiversity Conservation Act 2016*.
- If a BDAR is not required by Council, you may still require a permit to clear vegetation from your local council.
- If **all** Biodiversity Values mapping within your development footprint was less than 90 days old, i.e. areas are displayed as dark purple on the BV map, a BDAR may not be required if your Development Application is submitted within that 90 day period. Any BV mapping less than 90 days old on this report will expire on the date provided in Line item 1.3 above.

For more detailed advice about actions required, refer to the **Interpreting the evaluation report** section of the [Biodiversity Values Map Threshold Tool User Guide](#).

Review Options:

- If you believe the Biodiversity Values mapping is incorrect please refer to our [BV Map Review webpage](#) for further information.
- If you or Council disagree with the area clearing threshold estimate results from the NVACE in Line Item 2.6 above (i.e. area of Native Vegetation within the Development footprint proposed to be cleared), review the results using the [Guide for reviewing area clearing threshold results from the BMAT Tool](#).

Acknowledgement

I, as the applicant for this development, submit that I have correctly depicted the area that will be impacted or likely to be impacted as a result of the proposed development.

Signature: _____

(Typing your name in the signature field will be considered as your signature for the purposes of this form)

Date: _____

10/02/2025 08:50 AM



Department of Planning and Environment

Biodiversity Values Map and Threshold Tool

The Biodiversity Values (BV) Map and Threshold Tool identifies land with high biodiversity value, particularly sensitive to impacts from development and clearing.

The BV map forms part of the Biodiversity Offsets Scheme threshold, which is one of the factors for determining whether the Scheme applies to a clearing or development proposal. You have used the Threshold Tool in the map viewer to generate this BV Threshold Report for your nominated area. This report calculates results for your proposed development footprint and indicates whether Council may require you to engage an accredited assessor to prepare a Biodiversity Development Assessment Report (BDAR) for your development.

This report may be used as evidence for development applications submitted to councils. You may also use this report when considering native vegetation clearing under the State Environmental Planning Policy (Biodiversity and Conservation) 2021 - Chapter 2 vegetation in non-rural areas.

What's new? For more information about the latest updates to the Biodiversity Values Map and Threshold Tool go to the updates section on the [Biodiversity Values Map webpage](#).

Map Review: Landholders can request a review of the BV Map where they consider there is an error in the mapping on their property. For more information about the map review process and an application form for a review go to the [Biodiversity Values Map Review webpage](#).

If you need help using this map tool see our [Biodiversity Values Map and Threshold Tool User Guide](#) or contact the Map Review Team at map.review@environment.nsw.gov.au or on 1800 001 490.

Biodiversity Values Map



2,972.3 0 1,486.13 2,972.3 Metres

WGS_1984_Web_Mercator_Auxiliary_Sphere

Legend

- Biodiversity Values that have been mapped for more than 90 days
- Biodiversity Values added within last 90 days
- Native Vegetation Area Clearing Estimate (NVACE)
- Development area selected by proponent

10/02/2025 08:50 AM

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

Imagery © Airbus DS/Spot Image 2016

© NSW Department of Customer Service, Basemaps 2019

© NSW Department of Planning and Environment

The results provided in this tool are generated using the best available mapping and knowledge of species habitat requirements.

This map is valid as at the date the report was generated. Checking the [Biodiversity Values Map viewer](#) for mapping updates is recommended.

Appendix D: Decision-Making Key for Planted Native Vegetation (Appendix D BAM 2020)

D.1 DECISION-MAKING KEY FOR PLANTED NATIVE VEGETATION (APPENDIX D BAM 2020)

Text in *italics* is copied directly from Appendix D (BAM 2020) and the most correct response to each criterion is underlined.

1: *Does the planted native vegetation occur within an area that contains a mosaic of planted and remnant native vegetation and which can be reasonably assigned to a PCT known to occur in the same IBRA subregion as the proposal?*

i. Yes *The planted native vegetation must be allocated to the best-fit PCT and the BAM must be applied.*

ii. No..... Go to 2.

Justification:

All native vegetation present in the planted areas had been planted after construction of the substation or after Platt's Channel was filled.

2: *Is the planted native vegetation:*

a. *planted for the purpose of environmental rehabilitation or restoration under an existing conservation obligation listed in BAM Section 11.9(2.), and*

b. *the primary objective was to replace or regenerate a plant community type or a threatened plant species population or its habitat?*

i. Yes *The planted native vegetation must be assessed in accordance with Chapters 4 and 5 of the BAM.*

ii. No..... Go to 3.

Justification:

All native vegetation in this area has been planted since the substation was constructed. No native vegetation was present in this area prior to construction of the substation (Google Earth Pro 2025) therefore no PCT or plant species could be replaced or regenerated. The planting was carried out for screening purposes, not for environmental rehabilitation or conservation purposes.

3. *Is the planted/translocated native vegetation individuals of a threatened species or other native species planted/translocated for the purpose of providing threatened species habitat under one of the following:*

a. *a species recovery project*

b. *Saving our Species project*

- c. other types of government funded restoration project***
- d. condition of consent for a development approval that required those species to be planted or translocated for the purpose of providing threatened species habitat***
- e. legal obligation as part of a condition or ruling of court. This includes regulatory directed or ordered remedial plantings (e.g. Remediation Order for clearing without consent issued under the BC Act or the Native Vegetation Act)***
- f. ecological rehabilitation to re-establish a PCT or TEC that was, or is carried out under a mine operations plan, or***
- g. approved vegetation management plan (e.g. as required as part of a Controlled Activity Approval for works on waterfront land under the NSW Water Management Act 2000)?***
- i. Yes The planted native vegetation must be assessed in accordance with Chapters 4 and 5 of the BAM.***
- ii. No..... Go to 4.***

Justification:

Planted native vegetation within the development site does not include any individuals of threatened species nor are the plantings associated with any of the above conservation projects.

- 4. Was the planted native vegetation (including individuals of a threatened flora species) undertaken voluntarily for revegetation, environmental rehabilitation or restoration without a legal obligation to secure or provide for management of the native vegetation?***
- i. Yes..... Go to D.2 Assessment of planted native vegetation for threatened species habitat (the use of Chapters 4 and 5 of the BAM are not required to be applied).***
- ii. No..... Go to 5.***

Justification:

No, the vegetation was planted for screening purposes.

- 5. Is the native vegetation (including individuals of a threatened flora species) planted for functional, aesthetic, horticultural or plantation forestry purposes? This includes examples such as: windbreaks in agricultural landscapes, roadside plantings (including street trees, median strips, roadside batters), landscaping in parks, gardens and sport fields/complexes, macadamia plantations or Teatree farms?***
- i. Yes Go to D.2 Assessment of planted native vegetation for threatened species habitat (the use of Chapters 4 and 5 of the BAM are not required to be applied).***
- ii. No..... Go to 6.***

Justification:

Yes, the vegetation was planted for screening/aesthetic purposes

B2 ASSESSMENT OF PLANTED NATIVE VEGETATION FOR THREATENED SPECIES HABITAT

If the application of D.1 justifies the application of the streamlined assessment under D.2 of the Module, the planted native vegetation is not required to be assessed under the standard BAM. However, the vegetation may still provide habitat for threatened flora and fauna species. If the answer to any one of Questions 4–6 is 'yes', assess the suitability of the planted native vegetation for use by threatened species (both ecosystem and species-credit species).

While it is not required to survey these areas strictly in accordance with the BAM, it is expected that a reasonable understanding of habitat suitability for threatened species is provided...

This may require rapid vegetation and habitat assessments and transects to identify any notable habitat features or evidence of threatened species occupation. Record any incidental sightings or evidence of threatened fauna species using, inhabiting or being part of the planted native vegetation.

The Assessment must include the following:

- *a summary of the survey effort undertaken in planted native vegetation (site inspection, habitat searches, walking transects, survey dates)*

Section 2.3 and 2.4 of this report details survey effort and dates. Survey effort is also shown in Figure 2.2.

- *a description of any habitat features in the planted native vegetation (e.g. hollows/nest boxes, fissures, stags, hollow logs, feeding resources, leaf litter)*

Habitat features present were leaf litter, some fallen logs and feeding resources in the form of flowering myrtaceous species. No habitat features in the form of hollow-bearing trees, nest boxes and hollow logs were present.

- *a description of any evidence of potential threatened species occupation (e.g. scats, stick nests, scratchings, tracks, pellets)*

No evidence of threatened species occupation was observed within the planted native vegetation. While *Falsistrellus tasmaniensis* (Eastern False Pipistrelle) was recorded during surveys, no habitat in the form of hollow/habitat trees were present within the subject land. Only foraging habitat was present for the species.

- *a summary of the threatened species (ecosystem and species credit) recorded in the locality and the likelihood of their occupation in the planted native vegetation.*

A summary of threatened species (ecosystem and species credit) recorded in the locality and the likelihood of their occupation in the planted native vegetation was completed within Table D1 of this report.

Appendix E: Commonwealth Environment Protection and Biodiversity Conservation Act 1999 & Matters of National Environmental Significance

Considerations have been made to the Commonwealth Environment Protection and Biodiversity Conservation (EPBC) Act 1999. Assessments have been made to determine whether or not the proposal or activity has, will have, or is likely to have a significant impact on a matter of National Environmental Significance. The matters of National Environmental Significance and the appropriate responses are listed below:

- World Heritage properties;

The Project is not likely to affect any World Heritage properties.

- Wetlands recognised under the Ramsar convention as having international significance;

The site is located approximately 650m south of the Hunter Estuary Ramsar Wetland. The Project is not likely to affect any Ramsar wetlands.

- Listed threatened species and communities;

Threatened Ecological Communities

Eight nationally threatened ecological communities were returned by the Protected Matters Search Tool as having potential to occur within 10km of the site, these being:

- Coastal Swamp Oak (*Casuarina glauca*) Forest of New South Wales and South East Queensland ecological community
- Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions
- Central Hunter Valley eucalypt forest and woodland
- Kurri sand swamp woodland of the Sydney Basin bioregion
- River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria
- Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland
- Subtropical and Temperate Coastal Saltmarsh
- Lowland Rainforest of Subtropical Australia

The vegetation within the site is not likely to be consistent with any nationally listed threatened ecological community.

Threatened Species

Sixty-nine nationally threatened species were returned by the Protected Matters Search Tool as occurring or having potential habitat available within 10km of the site, these being:

Anthochaera phrygia
Lathamus discolor
Numenius madagascariensis
Calidris ferruginea
Limosa lapponica baueri
Melanodryas cucullata cucullata
Callocephalon fimbriatum
Limosa limosa
Botaurus poiciloptilus
Erythrorhynchus radiatus
Rostratula australis
Charadrius mongolus
Tringa nebularia
Falco hypoleucos
Arenaria interpres
Stagonopleura guttata
Pachyptila turtur subantarctica
Grantiella picta
Hirundapus caudacutus
Gallinago hardwickii
Calidris tenuirostris
Pluvialis squatarola
Ardenna grisea
Calyptorhynchus lathami lathami
Pterodroma neglecta neglecta
Neophema chrysostoma
Climacteris picumnus victoriae
Charadrius leschenaultii
Calidris acuminata
Xenus cinereus
Pycnoptilus floccosus
Calidris canutus
Sternula nereis nereis
Uperoleia mahonyi
Mixophyes balbus
Litoria aurea
Phascolarctos cinereus
Dasyurus maculatus maculatus
Chalinolobus dwyeri
Petauroides volans
Potorous tridactylus tridactylus
Notamacropus parma
Petaurus australis australis
Pseudomys novaehollandiae
Pteropus poliocephalus
Euphrasia arguta
Rhodamnia rubescens
Prasophyllum sp. Wybong (C.Phelps ORG 5269)
Rhodomyrtus psidioides
Thelymitra adorata
Pterostylis gibbosa
Cynanchum elegans
Commersonia prostrata
Rhizanthella slateri
Diuris praecox
Pomaderris brunnea
Eucalyptus camfieldii
Angophora inopina

Regent Honeyeater
Swift Parrot
Eastern Curlew
Curlew Sandpiper
Nunivak Bar-tailed Godwit
South-eastern Hooded Robin
Gang-gang Cockatoo
Black-tailed Godwit
Australasian Bittern
Red Goshawk
Australian Painted Snipe
Lesser Sand Plover
Common Greenshank
Grey Falcon
Ruddy Turnstone
Diamond Firetail
Fairy Prion (southern)
Painted Honeyeater
White-throated Needletail
Latham's Snipe
Great Knot
Grey Plover
Sooty Shearwater
South-eastern Glossy Black-Cockatoo
Kermadec Petrel (western)
Blue-winged Parrot
Brown Treecreeper (south-eastern)
Greater Sand Plover
Sharp-tailed Sandpiper
Terek Sandpiper
Pilotbird
Red Knot
Australian Fairy Tern
Mahony's Toadlet
Stuttering Frog
Green and Golden Bell Frog
Koala
Spot-tailed Quoll
Large-eared Pied Bat
Greater Glider (southern and central)
Long-nosed Potoroo (northern)
Parma Wallaby
Yellow-bellied Glider (south-eastern)
New Holland Mouse, Pookila
Grey-headed Flying-fox

Scrub Turpentine
a leek-orchid
Native Guava
Wyong Sun Orchid
Illawarra Greenhood
White-flowered Wax Plant
Dwarf Kerrawang
Eastern Underground Orchid
Newcastle Doubletail
Rufous Pomaderris
Camfield's Stringybark
Charmhaven Apple

Syzygium paniculatum
Tetratheca juncea
Thesium australe
Cryptostylis hunteriana
Rutidosia heterogama
Grevillea parviflora subsp. parviflora
Eucalyptus parramattensis subsp. decadens
Melaleuca biconvexa
Caladenia tessellata
Persicaria elatior
Grevillea shiressii

Magenta Lilly Pilly
Black-eyed Susan
Austral Toadflax
Leafless Tongue-orchid
Heath Wrinklewort
Small-flower Grevillea
Earp's Gum
Biconvex Paperbark
Thick-lipped Spider-orchid
Knotweed

No nationally threatened species were recorded on site during the survey. Species likely to utilise the subject site would include woodland birds, *Pteropus poliocephalus* (Grey-headed Flying-fox) and microchiropteran bats. Given the recommendations in Sections 7.0, 8.0 and 9.0 of this report, the Project is not likely to result in the modification or loss of any suitable habitat to the degree that it may significantly affect the life cycle of these species or any of the remaining fauna species, nor would it place any viable local populations of these species at risk of extinction.

Table E1: Assessment of likelihood of occurrence of threatened species recorded on the PMST and BioNet database (Oceanic Birds have been removed from assessment)

Species	Status			Habitat Description and Locally Known Populations	Likelihood Of Occurrence Within the Subject Land	Test of Significance Requires?
	BC Act 2016	EPB C Act 1999	SAII			
FLORA						
<i>Caladenia tessellata</i> Thick-lipped Spider-orchid	E1	V	Yes	Generally found in grassy sclerophyll woodland on clay loam or sandy soils, though the population near Braidwood is in low woodland with stony soil. Is known from the Sydney area (old records), Wyong, Ulladulla and Braidwood in NSW.	Unlikely No suitable habitat was present.	No
<i>Cryptostylis hunteriana</i> Leafless Tongue Orchid	V	V	No	Grows in swamp-heath on sandy soils, chiefly in coastal districts, south from the Gibraltar Range. It is known historically from several localities on the NSW south coast and has been observed in recent years at many sites between Batemans Bay and Nowra (although it is uncommon at all sites). Also recorded at Munmorah State Conservation Area, Nelson Bay, Wyee, Washpool National Park, Nowendoc State Forest, Ku-Ring-Gai Chase National Park and Ben Boyd National Park.	Unlikely No suitable habitat was present. Outside known distribution	No
<i>Diuris arenaria</i> Tomaree Doubletail	E1		Yes	Depicted to exist in a great variety of environments including coastal heath woodlands (Jones 1999), dry sclerophyll forests (Bishop 2000) and open grasslands. Endemic to the Tomaree Peninsula Port Stephens (Jones, 1999, Bishop 2000) where it has a wide distribution. Colonies known to occur in Nelson Bay, Shoal Bay, Anna Bay, Tomaree National Park, Worimi Conservation Lands and Bobs Farm.	Unlikely No suitable habitat was present. Outside known distribution.	N/A
<i>Diuris praecox</i> Newcastle Doubletail	V	V	No	Known from between Bateau Bay and Smiths Lake. Large populations have been recorded within power line easements at Anna Bay, Bobs Farm and Adamstown Heights. Grows on hills and slopes of near-coastal districts in open forests which have a grassy to fairly dense understorey.	Unlikely No suitable habitat was present as a result of past disturbance and lack of nearby records.	No
<i>Prasophyllum</i> sp. Wybong A Leek Orchid		CE	Yes	Leek orchids are generally found in shrubby and grassy habitats in dry to wet soil (Jones 2006). Known to occur in open eucalypt woodland and grassland.	Unlikely No suitable habitat was present. No nearby records.	No
<i>Pterostylis gibbosa</i> Illawarra Greenhood	E1	E	No	All known sub-populations occur in open forest and woodland on flat or gently sloping land with poorly drained soils. Within the Hunter Valley this orchid species is confined to the Milbrodale area.	Unlikely No suitable habitat was present. No nearby records.	No
<i>Rhizanthella slateri</i> Eastern Underground	V	E1	Yes	Occurs from south-east Queensland to south-east NSW. In NSW, currently known from fewer than 10 locations, including near Bulahdelah, the	Unlikely No suitable habitat was	No

Species	Status			Habitat Description and Locally Known Populations	Likelihood Of Occurrence Within the Subject Land	Test of Significance
Orchid				Watagan Mountains, the Blue Mountains, Wiseman's Ferry area, Agnes Banks and near Nowra. Grows in sclerophyll forest in shallow to deep loams.	present. No nearby records.	
<i>Thelymitra adorata</i> Wyong Sun Orchid	CE	CE		Currently known from several local government areas (LGA) within the Central Coast Council region of New South Wales. These include but are not limited to the LGAs of Wyong, Warnervale and Wyongah. Also recorded in the southern portion of Lake Macquarie City Council area. Occurs in grassy woodland or occasionally derived grassland in well-drained clay loam or shale derived soils. The vegetation type in which the majority of populations occur (including the largest colony) is a Spotted Gum - Ironbark Forest with a diverse grassy understorey and occasional scattered shrubs.	Unlikely No suitable habitat was present. No nearby records.	No
<i>Cynanchum elegans</i> White-flowered Wax Plant	E1	E	No	This species occurs in scattered coastal localities from the QLD-NSW border south to Wollongong. Found in dry, littoral or subtropical rainforest, and occasionally in scrub and woodland from sea level to about 600m ASL.	Unlikely No suitable habitat was present.	No
<i>Rutidosia heterogama</i> Heath Wrinklewort	V	V	No	Grows in heath on sandy soils and moist areas in open forest and has been recorded along disturbed roadsides. Recorded from near Cessnock to Kurri Kurri with an outlying occurrence at Howes Valley. On the Central Coast it is located north from Wyong to Newcastle.	Unlikely No suitable habitat was present.	No
<i>Tetratheca glandulosa</i>	V		No	Restricted to the following Local Government Areas: Baulkham Hills, Gosford, Hawkesbury, Hornsby, Ku-ring-gai, Pittwater, Ryde, Warringah, and Wyong. Associated with shale-sandstone transition habitat where shale-capping's occur over sandstone. Topographically, the plant occupies ridgetops, upper-slopes and to a lesser extent mid-slope sandstone benches.	Unlikely No suitable habitat was present.	N/A
<i>Tetratheca juncea</i> Black-eyed Susan	V	V	No	Confined to the northern portion of the Sydney Basin bioregion and the southern portion of the North Coast bioregion in the local government areas of Wyong, Lake Macquarie, Newcastle, Port Stephens, Great Lakes and Cessnock. Found in low open forest/woodland with a mixed shrub understorey and grassy groundcover. However, it has also been recorded in heathland and moist forest.	Unlikely No suitable habitat was present due to past disturbance.	No
<i>Dillwynia tenuifolia</i>	V		No	Core distribution is the Cumberland Plain from Windsor and Penrith east to Dean Park near Colebee. Other populations in western Sydney recorded from Voyager Point and Kemps Creek in the Liverpool LGA, Luddenham in the Penrith LGA and South Maroota in the Baulkham Hills Shire. Disjunct localities outside the Cumberland Plain include the Bulga Mountains at Yengo in the north, Kurrajong Heights, and Woodford in the Lower Blue Mountains. Occurs in dry sclerophyll woodland on sandstone, shale or	Unlikely No suitable habitat was present.	N/A

Species	Status			Habitat Description and Locally Known Populations	Likelihood Of Occurrence Within the Subject Land	Test of Significance
				laterite		
<i>Pultenaea maritima</i> Coast Headland Pea	V		No	Within NSW, the species has been recorded from Newcastle north to Byron Bay on 16 headlands. Populations vary from a few plants to larger populations of many hundreds of individuals where the species is a major component of the Kangaroo Grass Headland community. Growing in grasslands on exposed coastal headlands. Clay or sandy loam or clay loam over sandstone at altitude 5–30 m. Associated with <i>Banksia integrifolia</i> and <i>Themeda australis</i> .	Unlikely No suitable habitat was present.	N/A
<i>Lindernia alsinoides</i> Noah's False Chickweed	E1		Yes	Recorded in coastal areas from Bulahdelah to Copernook and with occurrences further north at Shannon Creek west of Coutts Crossing and also at Bungawalbyn. Grows in swamp forests and wetlands along coastal and hinterland creeks.	Unlikely No suitable habitat was present.	N/A
<i>Commersonia prostrata</i> Dwarf Kerrawang	E1	E	No	Occurs on the Southern Highlands and Southern Tablelands and on the North Coast (Tomago). Occurs on sandy, sometimes peaty soils in a wide variety of habitats:	Unlikely No suitable habitat was present.	No
<i>Angophora inopina</i> Charmhaven Apple	V	V	No	Endemic to the Central Coast region of NSW. The known northern limit is near Karuah where a disjunct population occurs; to the south populations extend from Toronto to Charmhaven with the main population occurring between Charmhaven and Morisset. There is an unconfirmed record of the species near Bulahdelah. Approximately 1250 ha of occupied habitat has been mapped in the Wyong–southern Lake Macquarie area. Grows in open woodland with a dense shrub understorey on deep white sandy soils over sandstone.	Unlikely No suitable habitat was present.	No
<i>Callistemon linearifolius</i> Netted Bottle Brush	V		No	Grows in dry sclerophyll forest on the coast and adjacent ranges. From the Georges River to the Hawkesbury River in the Sydney area, and north to Nelson Bay. Known to occur within Stony Ridge Reserve on Soldiers Point.	Unlikely No suitable habitat was present.	N/A
<i>Eucalyptus camfieldii</i> Camfield's Stringybark	V	V	No	Restricted distribution in a narrow band with the most northerly records in the Raymond Terrace area south to Waterfall. Localised and scattered distribution includes sites at Norah Head (Tuggerah Lakes), Peats Ridge, Mt Colah, Elvina Bay Trail (West Head), Terrey Hills, Killara, North Head, Menai, Wattamolla and a few other sites in Royal National Park. Grows in coastal shrub heath on sandy soils on sandstone, often of restricted drainage.	Unlikely No suitable habitat was present.	No
<i>Eucalyptus glaucina</i> Slaty Red Gum	V	V	No	Grows in grassy woodland and dry eucalypt forest, usually on deep, moderately fertile and well-watered soils. This species has only been recorded on the north coast of NSW and in small populations from Taree to Broke and west of Maitland.	Unlikely No suitable habitat was present. No nearby records.	No

Species	Status			Habitat Description and Locally Known Populations	Likelihood Of Occurrence Within the Subject Land	Test of Significance
<i>Eucalyptus parramattensis</i> subsp. <i>decadens</i> Drooping Red Gum	V	V	No	Generally, occupies deep, low-nutrient sands, often those subject to periodic inundation or where water tables are relatively high. It occurs in dry sclerophyll woodland with dry heath understorey. It also occurs as an emergent in dry or wet heathland. Often where this species occurs, it is a community dominant. In the Kurri Kurri area, <i>E. parramattensis</i> subsp. <i>decadens</i> is a characteristic species of 'Kurri Sand Swamp Woodland' and in the Tomago Sandbeds area, the species is usually associated with the 'Tomago Swamp Woodland'.	Unlikely No suitable habitat was present.	No
<i>Melaleuca biconvexa</i> Biconvex Paperbark	V	V	No	Only found in NSW, with scattered and dispersed populations found in the Jervis Bay area in the south and the Gosford-Wyong area in the north. Grows in damp places, often near streams; coastal districts and adjacent tablelands from Jervis Bay north to the Port Macquarie district.	Unlikely No suitable habitat was present.	No
<i>Rhodamnia rubescens</i> Scrub Turpentine	E4A		Yes	Occurs in coastal districts north from Batemans Bay in New South Wales, approximately 280 km south of Sydney, to areas inland of Bundaberg in Queensland. Found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest usually on volcanic and sedimentary soils.	Unlikely No suitable habitat was present.	N/A
<i>Rhodomyrtus psidioides</i> Native Guava	E4A		Yes	Occurs from Broken Bay New South Wales to Maryborough in Queensland. Pioneer species found in littoral, warm temperate and subtropical rainforest and wet sclerophyll forest often near creeks and drainage lines.	Unlikely No suitable habitat was present.	N/A
<i>Syzygium paniculatum</i> Magenta Lilly Pilly	E1	V	No	Occurs in a narrow coastal distribution in rainforests on sandy soils or stabilised coastal dunes from Jervis Bay to Bulahdelah in NSW.	Unlikely No suitable habitat was present.	No
<i>Euphrasia arguta</i> Eyebright	E4A	CE	Yes	Found within the Nundle area reported from eucalypt forest with a mixed grass and shrub understorey; here, plants were most dense in an open disturbed area and along the roadside, indicating the species had regenerated following disturbance.	Unlikely No suitable habitat was present.	No
<i>Persicaria elatior</i> Tall Knotweed	V	V	No	Recorded in south-eastern NSW (Mt Dromedary (an old record), Moruya State Forest near Turlinjah, the Upper Avon River catchment north of Robertsocaleyin, Bermagui, and Picton Lakes. In northern NSW it is known from Raymond Terrace (near Newcastle) and the Grafton area (Cherry Tree and Gibberagee State Forests). Grows in damp places, especially beside streams and lakes. Occasionally in swamp forest or associated with disturbance.	Unlikely No suitable habitat was present.	No
<i>Grevillea parviflora</i> subsp. <i>parviflora</i> Small-flower Grevillea	V	V	No	Grows in sandy or light clay soils usually over thin shales. Occurs in a range of vegetation types from heath and shrubby woodland to open forest and is found over a range of altitudes from flat, low-lying areas to upper slopes and ridge crests. Common canopy species vary greatly with community type but	Unlikely No suitable habitat was present.	No

Species	Status			Habitat Description and Locally Known Populations	Likelihood Of Occurrence Within the Subject Land	Test of Significance
				generally are species that favour soils with a strong lateritic influence including <i>Eucalyptus fibrosa</i> , <i>E. parramattensis</i> , <i>Angophora bakeri</i> and <i>Eucalyptus sclerophylla</i> .		
<i>Grevillea shiressii</i>	V	V	Yes	Known from two populations near Gosford, on tributaries of the lower Hawkesbury River north of Sydney (Mooney Mooney Creek and Mullet Creek). Both populations occur within the Gosford Local Government Area. There is also a naturalised population at Newcastle. Grows along creek banks in wet sclerophyll forest; sandy soil on Hawkesbury sandstone.	Unlikely No suitable habitat was present.	No
<i>Pomaderris brunnea</i> Brown Pomaderris	E1	V	No	Found in a very limited area around the Colo, Nepean and Hawkesbury Rivers, including the Bargo area and near Camden. It also occurs near Walcha on the New England tablelands and in far eastern Gippsland in Victoria. Grows in moist woodland or forest on clay and alluvial soils of flood plains and creek lines.	Unlikely No suitable habitat was present.	No
<i>Thesium australe</i> Austral Toadflax	V	V	No	Grows in grassland or woodland, often in damp sites.	Unlikely No suitable habitat was present.	No
<i>Maundia triglochoides</i>	V		No	Restricted to coastal NSW and extending into southern Queensland. The current southern limit is Wyong. Grows in swamps or shallow freshwater in heavy clay.	Unlikely No suitable habitat was present.	N/A
<i>Muehlenbeckia</i> sp. Mt Norman Scrambling Lignum	V		No	Grows in coarse sandy soils and peat in heath, mallee and open eucalypt woodland on granite or acid volcanic outcrops at higher altitudes.	Unlikely No suitable habitat was present.	N/A
<i>Zannichellia palustris</i>	E1		No	In NSW, known from the lower Hunter and in Sydney Olympic Park. Grows in fresh or slightly saline stationary or slowly flowing water.	Unlikely No suitable habitat was present.	N/A
FAUNA - AMPHIBIANS						
<i>Crinia tinnula</i> Wallum Froglet	V		No	Occurs along the coastal margin from Litabella National Park in south-east Queensland to Kurnell in Sydney. Found in a wide range of habitats, usually associated with acidic swamps on coastal sand plains. They typically occur in sedgeland and wet heathlands. They can also be found along drainage lines within other vegetation communities and disturbed areas, and occasionally in swamp sclerophyll forests.	Unlikely No suitable habitat was present.	N/A
<i>Litoria aurea</i> Green and Golden Bell Frog	E1	V	No	Inhabits swamps, lagoons, streams and ponds as well as dams, drains and storm water basins.	Unlikely No suitable habitat was present.	No
<i>Mixophyes balbus</i>			Yes	Occurs in wet forest regions of south-eastern Queensland, Eastern NSW	Unlikely	No

Species	Status			Habitat Description and Locally Known Populations	Likelihood Of Occurrence Within the Subject Land	Test of Significance
Stuttering Frog	E1	V		and Victoria. In late spring, eggs are deposited among leaf litter on the banks of streams and subsequently are washed into the water during heavy rain.	No suitable habitat was present.	
<i>Uperoleia mahonyi</i> Mahony's Toadlet	E1		No	Endemic to the mid-north coast of New South Wales (NSW) and to date has been found between Kangy Angy and Seal Rocks. Inhabits ephemeral and semi-permanent swamps and swales on the coastal fringe of its range. Known records occur in heath or wallum habitats almost exclusively associated with leached (highly nutrient impoverished) white sand. Commonly associated with acid paperbark swamps, also occurs in wallum heath, swamp, mahogany-paperbark swamp forest, heath shrubland and Sydney red gum woodland. Recent studies suggest intact vegetation adjacent to and within water bodies is an important habitat feature for this species.	Unlikely No suitable habitat was present.	N/A
FAUNA - BIRDS						
<i>Thinornis cucullatus</i> Eastern Hooded Plover	CE	V	No	Presently the Hooded Plover occurs in NSW north to Sussex Inlet. Occasionally, individual birds are sighted slightly further north to the Shoalhaven River and Comerong Beach and one bird was sighted at Lake Illawarra in March 2001.	Unlikely No suitable habitat was present.	No
<i>Limosa lapponica baueri</i> Bar-tailed Godwit		V & M	No	Most frequently recorded along major coastal river estuaries and sheltered embayments, particularly the Tweed, Richmond, Clarence, Macleay, Hastings, Hunter and Shoalhaven River estuaries, Port Stephens and Botany Bay. Found mainly in coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. Less frequently it occurs in salt lakes and brackish wetlands, sandy ocean beaches and rock platforms.	Unlikely No suitable habitat was present.	No
<i>Limosa limosa</i> Black-tailed Godwit	V	M	No	Most frequently recorded at Kooragang Island (Hunter River estuary), with occasional records elsewhere along the coast, and inland. Usually found in sheltered bays, estuaries, and lagoons with large intertidal mudflats and/or sandflats. Further inland, it can also be found on mudflats and in water less than 10 cm deep, around muddy lakes and swamps.	Unlikely No suitable habitat was present.	No
<i>Xenus cinereus</i> Terek Sandpiper	V	M	No	The two main sites for the species in NSW are the Richmond River estuary and the Hunter River estuary. In Australia, has been recorded on coastal mudflats, lagoons, creeks and estuaries.	Unlikely No suitable habitat was present.	No
<i>Calidris canutus</i> Red Knot		E & M	No	In NSW it is recorded in small numbers along some of the major river estuaries and sheltered embayments of the coastline, in particular the Hunter River estuary. Mainly occurs in small numbers on intertidal mudflats, estuaries, bays, inlets, lagoons, harbours and sandflats and sandy beaches	Unlikely No suitable habitat was present.	No

Species	Status			Habitat Description and Locally Known Populations	Likelihood Of Occurrence Within the Subject Land	Test of Significance
				of sheltered coasts. It is occasionally found on sandy ocean beaches or shallow pools on exposed wave-cut rock platforms and is a rare visitor to terrestrial saline wetlands and freshwater swamps.		
<i>Calidris ferruginea</i> Curlew Sandpiper	E	CE	Yes	Tidal mudflats; saltmarsh; fresh, brackish or saline wetlands; sewage ponds.	Unlikely No suitable habitat was present.	No
<i>Calidris tenuirostris</i> Great Knot	V	M	Yes	In NSW, the species has been recorded at scattered sites along the coast down to about Narooma. It has also been observed inland at Tullakool, Armidale, Gilgandra and Griffith. Occurs within sheltered, coastal habitats containing large. Often recorded on sandy beaches with mudflats nearby, sandy spits and islets and sometimes on exposed reefs or rock platforms.	Unlikely No suitable habitat was present.	No
<i>Limicola falcinellus</i> Broad-billed Sandpiper		M	No	In NSW, the main site for the species is the Hunter River estuary, with birds occasionally reaching the Shoalhaven estuary. Favour sheltered parts of the coast such as estuarine sandflats and mudflats, harbours, embayments, lagoons, saltmarshes and reefs as feeding and roosting habitat.	Unlikely No suitable habitat was present.	No
<i>Tringa nebularia</i> Common Greenshank		E & M	No	Inhabits a wide variety of inland permanent and temporary wetlands and sheltered coastal habitats of varying salinity.	Unlikely No suitable habitat was present.	No
<i>Numenius madagascariensis</i> Eastern Curlew		CE M	Yes	Estuaries, tidal mudflats, sandspits, saltmarshes, mangroves; occasionally fresh or brackish lakes.	Unlikely No suitable habitat was present.	No
<i>Charadrius leschenaultii</i> Greater Sand-plover	V		No	In NSW, the species has been recorded between the northern rivers and the Illawarra, with most records coming from the Clarence and Richmond estuaries. Almost entirely restricted to coastal areas in NSW, occurring mainly on sheltered sandy, shelly or muddy beaches or estuaries with large intertidal mudflats or sandbanks.	Unlikely No suitable habitat was present.	N/A
<i>Charadrius mongolus</i> Lesser Sand-plover	V	M	No	In Australia the species is found around the entire coast but is most common in the Gulf of Carpentaria, and along the east coast of Queensland and northern NSW. Individuals are rarely recorded south of the Shoalhaven estuary, and there are few inland records. Almost entirely coastal in NSW, favouring the beaches of sheltered bays, harbours and estuaries with large intertidal sandflats or mudflats; occasionally occurs on sandy beaches, coral reefs and rock platforms.	Unlikely No suitable habitat was present.	No
<i>Gallinago hardwickii</i> Latham's Snipe	V	V	No	Utilises a variety of habitat, such as soft wet ground or shallow water with tussock and other green and dead vegetation, and scrub or open wetland from sea-level to alpine bogs.	Unlikely No suitable habitat was present.	No

Species	Status			Habitat Description and Locally Known Populations	Likelihood Of Occurrence Within the Subject Land	Test of Significance
<i>Rostratula australis</i> Australian Painted snipe	E1	E	No	Margins of swamps and streams, chiefly those covered with low and stunted vegetation.	Unlikely No suitable habitat was present.	No
<i>Botaurus poiciloptilus</i> Australasian Bittern	E1	E	No	The Australasian Bittern lives alone or in loose groups and favours permanent fresh waters dominated by sedges, rushes, reeds or cutting grasses (e.g. Phragmites, Scirpus, Eleocharis, Juncus, Typha, Baumea and Gahnia) and feeds on insects, small fish, eels, frogs and other aquatic life, sometimes in rice fields.	Unlikely No suitable habitat was present.	No
<i>Ixobrychus flavicollis</i> Black Bittern	V		No	Inhabits both terrestrial and estuarine wetlands, generally in areas of permanent water and dense vegetation. Where permanent water is present, the species may occur in flooded grassland, forest, woodland, rainforest and mangroves.	Unlikely No suitable habitat was present.	N/A
<i>Ephippiorhynchus asiaticus</i> Black-necked Stork	E1		No	Widespread in coastal and subcoastal northern and eastern Australia, as far south as central NSW. Breeding has been recorded as far south as Tomago NSW.	Unlikely No suitable habitat was present.	N/A
<i>Anseranas semipalmata</i> Magpie Goose	V		No	Relatively common in the Australian northern tropics. Records in central and northern NSW. Vagrants can follow food sources to south-eastern NSW. Mainly found in shallow wetlands (less than 1 m deep) with dense growth of rushes or sedges.	Unlikely No suitable habitat was present.	N/A
<i>Oxyura australis</i> Blue-billed Duck	V		No	Endemic to south-eastern and south-western Australia. It is widespread in NSW. Most common in the southern Murray-Darling Basin area. Prefers deep water in large permanent wetlands and swamps with dense aquatic vegetation.	Unlikely No suitable habitat was present.	N/A
<i>Stictonetta naevosa</i> Freckled Duck	V		No	Found primarily in south-eastern and south-western Australia, occurring as a vagrant elsewhere. It breeds in large temporary swamps created by floods in the Bulloo and Lake Eyre basins and the Murray-Darling system. The species may also occur as far as coastal NSW and Victoria during extensive inland droughts.	Unlikely No suitable habitat was present.	N/A
<i>Irediparra gallinacea</i> Comb-crested Jacana	V		No	Occurs in northern and eastern Australia, mainly in coastal and subcoastal regions, from the north-eastern Kimberley Division of Western Australia to Cape York Peninsula then south along the east coast to the Hunter region of NSW. Inhabits permanent freshwater wetlands, either still or slow-flowing, with a good surface cover of floating vegetation, especially waterlilies, or fringing and aquatic vegetation.	Unlikely No suitable habitat was present.	N/A
<i>Haematopus fuliginosus</i> Sooty Oystercatcher	V		No	Occurs around the entire Australian coast. Favours rocky headlands, rocky shelves, exposed reefs with rock pools, beaches and muddy estuaries.	Unlikely No suitable habitat was present.	N/A

Species	Status			Habitat Description and Locally Known Populations	Likelihood Of Occurrence Within the Subject Land	Test of Significance
<i>Haematopus longirostris</i> Pied Oystercatcher	E1		No	Distributed around the entire Australian coastline. Favours intertidal flats of inlets and bays, open beaches and sandbanks.	Unlikely No suitable habitat was present.	N/A
<i>Burhinus grallarius</i> Bush Stone Curlew	E1		No	Found throughout Australia except for the central southern coast and inland, the far south-east corner, and Tasmania. Inhabits open forests and woodlands with a sparse grassy ground layer and fallen timber.	Unlikely No suitable habitat was present.	N/A
<i>Onychoprion fuscata</i> Sooty Tern	V		No	Known to breed at Lord Howe Island. Occasionally seen along coastal NSW, especially after cyclones.	Unlikely No suitable habitat was present.	N/A
<i>Sternula albifrons</i> Little Tern	E1		No	Migrating from eastern Asia, the Little Tern is found on the north, east and south-east Australian coasts. Exclusively coastal, nests in small, scattered colonies in low dunes or on sandy beaches just above high tide mark near estuary mouths or adjacent to coastal lakes and islands.	Unlikely No suitable habitat was present.	N/A
<i>Sternula nereis nereis</i> Australian Fairy Tern		V	No	The subspecies has been known from New South Wales (NSW) in the past, but it is unknown if it persists there. The subspecies has been found in embayments of a variety of habitats including offshore, estuarine or lacustrine (lake) islands, wetlands and mainland coastline.	Unlikely No suitable habitat was present.	No
<i>Ptilinopus magnificus</i> Wompoo Fruit-Dove	V		No	Occurs along the coast and coastal ranges from the Hunter River in NSW to Cape York Peninsula. It is rare south of Coffs Harbour. Found in, or near rainforest, low elevation moist eucalypt forest and brush box forests.	Unlikely No suitable habitat was present.	N/A
<i>Ptilinopus regina</i> Rose-crowned Fruit-Dove	V		No	Coast and ranges of eastern NSW and Queensland, from Newcastle to Cape York. Occur mainly in sub-tropical and dry rainforest and occasionally in moist eucalypt forest and swamp forest, where fruit is plentiful.	Low Marginal transitory habitat was present.	N/A
<i>Ptilinopus superbus</i> Superb Fruit-Dove	V		No	Occurs principally from north-eastern in Queensland to north-eastern NSW. It is much less common further south, where it is largely confined to pockets of suitable habitat as far south as Moruya. Inhabits rainforest and similar closed forests where it forages high in the canopy, eating the fruits of many tree species such as figs and palms. It may also forage in eucalypt or acacia woodland where there are fruit-bearing trees.	Unlikely No suitable habitat was present.	N/A
<i>Calyptorhynchus lathami</i> Glossy Black-Cockatoo	V		No	Lowland coastal forests, dense mountain forests, semi-arid woodland and trees bordering watercourses, with (Allo)Casuarina trees for foraging.	Low Marginal transitory habitat was present.	N/A
<i>Callocephalon fimbriatum</i> Gang Gang Cockatoo	V		No	Tall montane forests and woodlands in mature wet sclerophyll forests. Requires hollows in which to breed between October and January.	Low Marginal transitory habitat was present.	N/A
<i>Lathamus discolor</i>			Yes	Open Forest to Woodland, also street trees and in parks and gardens,	Low - Moderate	No

Species	Status			Habitat Description and Locally Known Populations	Likelihood Of Occurrence Within the Subject Land	Test of Significance
Swift Parrot	E1	CE M		winter flowering eucalypts for feeding. This species nests in Tasmania during the summer months.	Seasonal foraging habitat was present.	
<i>Neophema chrysostoma</i> Blue-winged Parrot		V	No	Found in western NSW. They favour grasslands and grassy woodlands. They are often found near wetlands both near the coast and in semi-arid zones. Blue-winged Parrots can also be seen in altered environments such as airfields, golf-courses and paddocks.	Low Marginal habitat was present.	No
<i>Neophema pulchella</i> Turquoise Parrot	V		No	Lives on the edges of Eucalypt woodland adjoining clearings and on timbered ridges and creeks in farmland. It has also been recorded utilising roadside verges and orchards. Nests in small hollow branches of Eucalypts.	Unlikely No suitable habitat was present.	N/A
<i>Glossopsitta pusilla</i> Little Lorikeet	V		No	Tall Open Forests, woodlands, orchards, parks and street trees.	Moderate Foraging habitat was present.	N/A
<i>Hirundapus caudacutus</i> White-throated Needle-tail		V & M	No	Inhabits the airspace above forests, woodlands, farmlands, plains, lakes, coasts and towns.	Moderate Due to the non-specific habitat requirements of this species habitat was considered to be present.	No
<i>Artamus cyanopterus</i> Dusky Woodswallow	V		No	The Dusky Woodswallow is found in open forests and woodlands and may be seen along roadsides and on golf courses.	Low Foraging habitat was present.	N/A
<i>Pycnoptilus floccosus</i> Pilotbird		V		Found in wet forested areas and heathland in eastern Victoria and south-eastern New South Wales	Unlikely No suitable habitat was present.	No
<i>Epthianura albifrons</i> White-fronted Chat	V		No	In NSW, it occurs mostly in the southern half of the state, in damp open habitats along the coast, and near waterways in the western part of the state. Along the coastline, it is found predominantly in saltmarsh vegetation but also in open grasslands and sometimes in low shrubs bordering wetland areas. Gregarious species usually found foraging on bare or grassy ground in wetland areas, singly or in pairs. They are insectivorous, feeding mainly on flies and beetles caught from or close to the ground.	Low Marginal habitat was present.	N/A
<i>Melanodryas cucullata</i> Hooded Robin (south-eastern form)	V		No	Eucalypt woodlands, Acacia scrublands, Banksia dominated coastal scrubs and open forests.	Low Marginal transitory habitat was present.	N/A
<i>Petroica boodang</i> Scarlet Robin	V		No	Primarily a resident in forests and woodlands, but some adults and young birds disperse to more open habitats after breeding. This species lives in	Low Marginal transitory habitat	N/A

Species	Status			Habitat Description and Locally Known Populations	Likelihood Of Occurrence Within the Subject Land	Test of Significance
				dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs. Habitat usually contains abundant logs and fallen timber and these are important components of its habitat.	was present.	
<i>Climacteris picumnus victoriae</i> Brown Treecreeper	V		No	This species is a medium sized insectivorous bird that occupies Eucalypt woodlands, particularly open woodlands lacking a dense understorey, River Red Gums on watercourses and around lakeshores. It is sedentary and nests in tree hollows within permanent territories.	Low Marginal transitory habitat was present. This species is usually found inland from the coast.	N/A
<i>Stagonopleura guttata</i> Diamond Firetail	V		No	Inhabits areas with a grassy, shrubby understorey including Eucalypt woodlands, forests, Acacia scrubs and mallee.	Low Marginal transitory habitat was present.	N/A
<i>Pomatostomus temporalis</i> subsp. <i>temporalis</i> Grey-crowned Babbler	V		No	Open forest, woodland, scrubland, farmland and outer suburbs. Prefers woodlands with regenerating trees, tall shrubs, and an intact ground cover of grass and forbs.	Low Marginal transitory habitat was present.	N/A
<i>Anthochaera phrygia</i> Regent Honeyeater	E4A	CE M	Yes	Temperate woodlands and open forest, including forest edges, preferring to forage on large-flowered Eucalypts.	Low Seasonal foraging habitat was present.	No
<i>Grantiella picta</i> Painted Honeyeater	V		No	Nomadic, within a range of generally drier forested areas with mistletoes.	Unlikely No suitable habitat was present.	N/A
<i>Meliphaga gularis gularis</i> Black-chinned Honeyeater (eastern subspecies)	V		No	Usually found on the western side of the Great Dividing Range in dry sclerophyll forests and woodlands containing box-ironbark associations and River Red Gum. In the Hunter Valley this species is known to utilise drier coastal woodlands. Usually found in open woodlands.	Low Marginal transitory habitat was present.	N/A
<i>Daphoenositta chrysoptera</i> Varied Sittella	V		No	Open eucalypt woodland/forest, mallee, inland acacia, coastal tea-tree scrubs, golf courses, orchards and parks.	Low Marginal transitory habitat was present.	N/A
<i>Circus assimilis</i> Spotted Harrier	V		No	Occurs throughout the Australian mainland, except in densely forested or wooded habitats of the coast, escarpment and ranges, and rarely in Tasmania. Found in grassy open woodland including Acacia and mallee remnants, inland riparian woodland, grassland and shrub steppe. It is found most commonly in native grassland, but also occurs in agricultural land.	Low Marginal nesting habitat is available for this species.	N/A
<i>Pandion cristatus</i> Eastern Osprey	V		No	Found right around the Australian coastline. Favour coastal areas, especially the mouths of large rivers, lagoons and lakes. Feeds on fish over open waters.	Low Marginal nesting habitat is available for this species.	N/A
<i>Lophoictinia isura</i>			No	Inhabits open forests and woodlands, particularly those on fertile soils with	Low	N/A

Species	Status			Habitat Description and Locally Known Populations	Likelihood Of Occurrence Within the Subject Land	Test of Significance
Square-tailed Kite	V			abundant passerines.	Marginal nesting and foraging habitat are available for this species.	
<i>Erythrorchis radiatus</i> Red Goshawk	E4A	E	Yes	The species is very rare in NSW, extending south to about 30°S, with most records north of this, in the Clarence River Catchment, and a few around the lower Richmond and Tweed Rivers. Formerly, it was at least occasionally reported as far south as Port Stephens. In NSW, preferred habitats include mixed subtropical rainforest, Melaleuca swamp forest and riparian Eucalyptus forest of coastal rivers.	Unlikely This species is unlikely to utilise the site.	No
<i>Hieraaetus morphnoides</i> Little Eagle	V		No	Is found throughout the Australian mainland excepting the most densely forested parts of the Dividing Range escarpment. It occurs as a single population throughout NSW. Occupies open eucalypt forest, woodland or open woodland. Sheoak or acacia woodlands and riparian woodlands of interior NSW are also used.	Low Marginal nesting and foraging habitat are available for this species.	N/A
<i>Haliaeetus leucogaster</i> White-bellied Sea-Eagle	V	M	No	Occupies habitat characterised by the presence of large areas of open water and feeds opportunistically on a variety of fish, birds, reptiles, mammals and crustaceans. The nests are built in a variety of sites including tall trees, bushes, mangroves, cliffs, rocky outcrops, caves, crevices, on the ground or even in artificial structures.	Low Marginal nesting habitat is available for this species.	No
<i>Hamirostra melanosternon</i> Black-breasted Buzzard	V		No	Found sparsely in areas of less than 500mm rainfall, from north-western NSW and north-eastern South Australia to the east coast at about Rockhampton. Lives in a range of inland habitats, especially along timbered watercourses which is the preferred breeding habitat. Hunts over grasslands and sparsely timbered woodlands.	Unlikely This species is unlikely to utilise the site.	N/A
<i>Falco hypoleucos</i> Grey Falcon	E1		No	Sparsely distributed in NSW, chiefly throughout the Murray-Darling Basin, with the occasional vagrant east of the Great Dividing Range. Generally restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast.	Unlikely This species is unlikely to utilise the site.	N/A
<i>Falco subniger</i> Black Falcon	V		No	Widely, but sparsely, distributed in New South Wales, mostly occurring in inland regions.	Low Marginal habitat is available for this species.	N/A
<i>Ninox connivens</i> Barking Owl	V		No	Is found in forest and woodland, encountered most commonly in savanna and paperbark woodlands. It sometimes roosts in rainforests, but it requires the more open country for hunting and hollow Eucalypts for breeding.	Low Hunting habitat was present.	N/A
<i>Ninox strenua</i> Powerful Owl	V		No	Inhabits a wide range of vegetation types from wet Eucalypt forests with a Rainforest understorey to Dry Open Forests and Woodlands. The species	Low - Moderate Hunting habitat was present.	N/A

Species	Status			Habitat Description and Locally Known Populations	Likelihood Of Occurrence Within the Subject Land	Test of Significance
				has been recorded utilising disturbed habitats such as exotic pine plantations and large trees in parks and gardens. Powerful Owls nest in a slight depression in the wood-mould on the base of a cavity in a large old tree, sometimes in excess of 25 metres above the ground.		
<i>Tyto longimembris</i> Eastern Grass Owl	V		No	Recorded occasionally in all mainland states of Australia but are most common in northern and north-eastern Australia. Found in areas of tall grass, including grass tussocks, in swampy areas, grassy plains, swampy heath, and in cane grass or sedges on flood plains.	Unlikely No suitable habitat was present.	N/A
<i>Tyto novaehollandiae</i> Masked Owl	V		No	A range of wooded habitats that contain mature trees with large hollows for roosting and nesting, and more open areas for hunting.	Low Hunting habitat was present.	N/A
<i>Tyto tenebricosa</i> Sooty Owl	V		Yes	Prefers dense dimly lit forests, inhabiting pockets of rainforest and wet sclerophyll forest mainly in mountainous areas, often in south-east facing gullies.	Unlikely No suitable habitat was present.	N/A
FAUNA – MAMMALS						
<i>Dasyurus maculatus</i> ssp. <i>maculatus</i> Spotted-tailed Quoll	V	V	No	Inhabits sclerophyll forests, rainforests and coastal woodlands. Nests are made in rock caves and hollow logs or trees, and basking sites are usually found nearby.	Low Only marginal habitat was present.	No
<i>Phascogale tapoatafa</i> Brush-tailed Phascogale	V		No	Prefer dry sclerophyll open forest with sparse groundcover of herbs, grasses, shrubs or leaf litter.	Unlikely No suitable habitat was present.	N/A
<i>Phascolarctos cinereus</i> Koala	V	V	No	Coastal woodland and open forest containing suitable food trees.	Low Preferred Koala feed tree species were present. Isolation, lack of connection to other habitat and lack of nearby records.	No
<i>Notamacropus parma</i> Parma Wallaby	V		No	Range is now confined to the coast and ranges of central and northern NSW from the Gosford district to south of the Bruxner Highway between Tenterfield and Casino. Preferred habitat is moist eucalypt forest with thick, shrubby understorey, often with nearby grassy areas, rainforest margins and occasionally drier eucalypt forest.	Unlikely No suitable habitat was present.	N/A
<i>Potorous tridactylus</i> sp. <i>tridactylus</i> Long-nosed Potoroo	V	V	No	This species is known from a variety of habitats, including Rainforest, Open Forests and Woodlands with dense groundcover, and dense, wet coastal heathlands. Soft (often sandy) substrates are preferred by this species.	Unlikely No preferred habitat was present.	No

Species	Status			Habitat Description and Locally Known Populations	Likelihood Of Occurrence Within the Subject Land	Test of Significance
<i>Cercartetus nanus</i> Eastern Pygmy-possum	V		No	In NSW it extends from the coast inland as far as the Pilliga, Dubbo, Parkes and Wagga Wagga on the western slopes. Found in a broad range of habitats from rainforest through sclerophyll (including Box-Ironbark) forest and woodland to heath, but in most areas woodlands and heath appear to be preferred, except in north-eastern NSW where they are most frequently encountered in rainforest.	Unlikely No suitable habitat was present due to disturbance and isolation of the site.	N/A
<i>Petaurus australis</i> Yellow-bellied Glider	V		No	Occurs in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Forest type preferences vary with latitude and elevation; mixed coastal forests to dry escarpment forests in the north; moist coastal gullies and creek flats to tall montane forests in the south. Is found along the eastern coast to the western slopes of the Great Dividing Range, from southern Queensland to Victoria.	Unlikely No suitable habitat was present due to disturbance and isolation of the site.	N/A
<i>Petaurus norfolcensis</i> Squirrel Glider	V		No	Dry sclerophyll forests and woodlands with exudates for foraging and hollows for nesting.	Unlikely No suitable habitat was present due to disturbance and isolation of the site.	N/A
<i>Petauroides volans</i> Greater Glider		V	No	Eucalypt-dominated low open forests on the coast to tall forests in the ranges and low woodland west of Great Dividing Range. Not found within rainforests.	Unlikely No suitable habitat was present.	No
<i>Planigale maculata</i> Common Planigale	V		No	Inhabit rainforest, eucalypt forest, heathland, marshland, grassland and rocky areas where there is surface cover, and usually close to water.	Unlikely No suitable habitat was present due to disturbance and isolation of the site.	N/A
<i>Pseudomys novaehollandiae</i> New Holland Mouse		V	No	Known to inhabit open heathlands, open woodlands with a heathland understorey and vegetated sand dunes.	Unlikely No suitable habitat was present for this species.	No
<i>Pteropus poliocephalus</i> Grey-headed Flying-Fox	V	V	No	Wet and Dry Sclerophyll Forests, Rainforest, Mangroves and Paperbark swamps and Banksia Woodlands.	High Seasonal foraging habitat was available in the form of flowering myrtaceous canopy species.	No
<i>Saccolaimus flaviventris</i> Yellow-bellied Sheath-tail-bat	V		No	Has been reported from a wide variety of habitats. Roosts in tree hollows, animal burrows, dry clay cracks, under rock slabs and in abandoned Sugar Glider nests.	Low-Moderate Suitable hunting and roosting habitat were present.	N/A
<i>Micronomus norfolkensis</i> Eastern Freetail-bat	V		No	Appears to live in sclerophyll forests and woodland. Roosts in tree hollows or under loose bark.	Moderate Suitable hunting habitat was available.	N/A

Species	Status			Habitat Description and Locally Known Populations	Likelihood Of Occurrence Within the Subject Land	Test of Significance
<i>Falsistrellus tasmaniensis</i> Eastern False Pipistrelle	V		No	Inhabits sclerophyll forests and has been observed roosting in holes and hollow trunks of Eucalypts.	Known/Recorded Suitable hunting habitat was available. Roosting habitat was not present in the form of hollow-bearing trees.	N/A
<i>Miniopterus australis</i> Little Bentwing-bat	V		Yes	Tropical rainforest to warm-temperate wet and dry sclerophyll forest; caves or similar structures for roosting.	Moderate Suitable hunting habitat was present. Preferred roosting habitat was absent.	N/A
<i>Miniopterus orianae oceanensis</i> Large Bentwing-bat	V		No	Wet and dry tall open forest, rainforest, monsoon forest, open woodland, paperbark forests and open grasslands, caves or similar structures for roosting. It occasionally uses tree hollows.	Moderate Suitable foraging habitat was present. Preferred roosting habitat in the form of caves was absent.	N/A
<i>Myotis macropus</i> Southern Myotis	V		No	Various habitats of the coast and adjacent ranges with suitable waterbodies for hunting; caves or similar structures for roosting. It occasionally uses tree hollows.	Low No waterbodies were present for hunting. Preferred roosting habitat in the form of caves was absent.	N/A
<i>Scoteanax rueppellii</i> Greater Broad-nosed Bat	V		No	Tree-lined creeks, woodland/clearing ecotones and rainforest creeks, roosting mainly in tree hollows.	Moderate Suitable foraging and roosting habitat were present.	N/A
<i>Chalinolobus dwyeri</i> Large Pied Bat	V	V	Yes	Occupies dry sclerophyll forest and woodland. Roosts in caves, abandoned mud-nests of Fairy Martins and mine tunnels.	Low Suitable foraging habitat was present. Preferred roosting habitat was absent.	No
<i>Vespadelus troughtoni</i> Eastern Cave Bat	V		Yes	The Eastern Cave Bat is found in a broad band on both sides of the Great Dividing Range from Cape York to Kempsey, with records from the New England Tablelands and the upper north coast of NSW. The western limit appears to be the Warrumbungle Range, and there is a single record from southern NSW, east of the ACT. A cave-roosting species that is usually found in dry open forest and woodland, near cliffs or rocky overhangs; has been recorded roosting in disused mine workings, occasionally in colonies of up to 500 individuals.	Low Hunting habitat was available. No preferred roosting habitat was available within the site.	N/A

- migratory species protected under international agreements;

Fifty-nine nationally listed migratory species were recorded on the DoEE on-line database as occurring or having potential habitat available within 10km of the subject land, these being:

Migratory Terrestrial Species:

- *Cuculus optatus* (Oriental Cuckoo)
- *Hirundapus caudacutus* (White-throated Needletail)
- *Monarcha melanopsis* (Black-faced Monarch)
- *Motacilla flava* (Yellow Wagtail)
- *Myiagra cyanoleuca* (Satin Flycatcher)
- *Rhipidura rufifrons* (Rufous Fantail)
- *Symphysichrus trivirgatus* (Spectacled Monarch)

Migratory Wetland Species:

- *Calidris ruficollis* (Red-necked Stint)
- *Charadrius bicinctus* (Double-banded Plover)
- *Pandion haliaetus* (Osprey)
- *Arenaria interpres* (Ruddy Turnstone)
- *Pluvialis fulva* (Pacific Golden Plover)
- *Limosa limosa* (Black-tailed Godwit)
- *Limosa lapponica* (Bar-tailed Godwit)
- *Gallinago hardwickii* (Latham's Snipe)
- *Calidris tenuirostris* (Great Knot)
- *Limicola falcinellus* (Broad-billed Sandpiper)
- *Pluvialis squatarola* (Grey Plover)
- *Gallinago megala* (Swinhoe's Snipe)
- *Numenius phaeopus* (Whimbrel)
- *Numenius madagascariensis* (Eastern Curlew)
- *Gallinago stenura* (Pin-tailed Snipe)
- *Charadrius mongolus* (Lesser Sand Plover)
- *Tringa nebularia* (Common Greenshank)
- *Charadrius leschenaultii* (Greater Sand Plover)
- *Actitis hypoleucos* (Common Sandpiper)
- *Calidris acuminata* (Sharp-tailed Sandpiper)
- *Tringa stagnatilis* (Marsh Sandpiper)
- *Xenus cinereus* (Terek Sandpiper)
- *Numenius minutus* (Little Curlew)
- *Calidris melanotos* (Pectoral Sandpiper)
- *Tringa brevipes* (Grey-tailed Tattler)
- *Philomachus pugnax* (Ruff Reeve)
- *Calidris ferruginea* (Curlew Sandpiper)
- *Calidris canutus* (Red Knot)

Migratory Marine Birds

- *Anous stolidus* (Common Noddy)
- *Thalassarche melanophris* (Black-browed Albatross)
- *Macronectes halli* (Northern Giant Petrel)
- *Thalassarche bulleri* (Buller's Albatross)
- *Thalassarche salvini* (Salvin's Albatross)
- *Thalassarche steadi* (White-capped Albatross)
- *Macronectes giganteus* (Southern Giant-Petrel)
- *Sternula albifrons* (Little Tern)
- *Calonectris leucomelas* (Streaked Shearwater)
- *Phoebastria fusca* (Sooty Albatross)
- *Apus pacificus* (Fork-tailed Swift)

- *Thalassarche eremita* (Chatham Albatross)
- *Diomedea sanfordi* (Northern Royal Albatross)
- *Diomedea antipodensis* (Antipodean Albatross)
- *Thalassarche impavida* (Campbell Albatross)
- *Ardena grisea* (Sooty Shearwater)
- *Diomedea exulans* (Wandering Albatross)
- *Diomedea epomophora* (Southern Royal Albatross)
- *Thalassarche cauta* (Shy Albatross)
- *Fregata ariel* (Lesser Frigatebird)
- *Phaethon lepturus* (White-tailed Tropicbird)
- *Fregata minor* (Great Frigatebird)
- *Thalassarche carteri* (Indian Yellow-nosed Albatross)
- *Ardena carneipes* (Flesh-footed Shearwater)

Under the EPBC Act Policy Statement 1.1 – Significant Impact Guidelines (Department of the Environment, Water, Heritage and the Arts, 2009) an action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:

- Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species.
- Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species, or
- Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

No threatened migratory species were recorded within the site. Potential habitat was considered present for a few of the listed migratory species. The Project is unlikely to have a significant impact on any of these species.

a. nuclear activities;

The Project does not involve any type of nuclear activity.

b. the Commonwealth marine environment;

The Project does not involve the modification of the Commonwealth marine environment.



Australian Government

Department of Climate Change, Energy,
the Environment and Water

EPBC Act Protected Matters Report

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

Report created: 19-Apr-2024

[Summary](#)

[Details](#)

[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

[Acknowledgements](#)

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar)	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	8
Listed Threatened Species:	104
Listed Migratory Species:	77

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	88
Commonwealth Heritage Places:	2
Listed Marine Species:	103
Whales and Other Cetaceans:	12
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:	8
Regional Forest Agreements:	1
Nationally Important Wetlands:	3
EPBC Act Referrals:	71
Key Ecological Features (Marine):	None
Biologically Important Areas:	7
Bioregional Assessments:	1
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar Wetlands)		[Resource Information]
Ramsar Site Name	Proximity	Buffer Status
Hunter estuary wetlands	Within Ramsar site	In feature area

Listed Threatened Ecological Communities	[Resource Information]
--	--------------------------

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

Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Central Hunter Valley eucalypt forest and woodland	Critically Endangered	Community may occur within area	In feature area
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community likely to occur within area	In feature area
Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland	Endangered	Community may occur within area	In feature area
Kurri sand swamp woodland of the Sydney Basin bioregion	Endangered	Community may occur within area	In buffer area only
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area	In buffer area only
River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria	Critically Endangered	Community likely to occur within area	In feature area
Subtropical and Temperate Coastal Saltmarsh	Vulnerable	Community likely to occur within area	In buffer area only
Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions	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			

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Anthochaera phrygia</u> Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Ardenna grisea</u> Sooty Shearwater [82651]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<u>Arenaria interpres</u> Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area	In feature area
<u>Botaurus poiciloptilus</u> Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area	In feature area
<u>Calidris acuminata</u> Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area	In feature area
<u>Calidris canutus</u> Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
<u>Calidris ferruginea</u> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<u>Calidris tenuirostris</u> Great Knot [862]	Vulnerable	Roosting known to occur within area	In feature area
<u>Callocephalon fimbriatum</u> Gang-gang Cockatoo [768]	Endangered	Species or species habitat known to occur within area	In feature area
<u>Calyptorhynchus lathami lathami</u> South-eastern Glossy Black-Cockatoo [67036]	Vulnerable	Species or species habitat known to occur within area	In feature area
<u>Charadrius leschenaultii</u> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
<u>Charadrius mongolus</u> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Climacteris picumnus victoriae</u> Brown Treecreeper (south-eastern) [67062]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<u>Diomedea antipodensis</u> Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Diomedea antipodensis gibsoni</u> Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Diomedea epomophora</u> Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Diomedea exulans</u> Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Diomedea sanfordi</u> Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
<u>Erythroriorchis radiatus</u> Red Goshawk [942]	Endangered	Species or species habitat may occur within area	In feature area
<u>Falco hypoleucos</u> Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature area
<u>Fregetta grallaria grallaria</u> White-bellied Storm-Petrel (Tasman Sea), White-bellied Storm-Petrel (Australasian) [64438]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<u>Gallinago hardwickii</u> Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Grantiella picta</u> Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<u>Hirundapus caudacutus</u> White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
<u>Lathamus discolor</u> Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<u>Limosa lapponica baueri</u> Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380]	Endangered	Species or species habitat known to occur within area	In feature area
<u>Limosa limosa</u> Black-tailed Godwit [845]	Endangered	Roosting known to occur within area	In feature area
<u>Macronectes giganteus</u> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
<u>Macronectes halli</u> Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Melanodryas cucullata cucullata</u> South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat likely to occur within area	In feature area
<u>Neophema chrysostoma</u> Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area	In feature area
<u>Numenius madagascariensis</u> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<u>Pachyptila turtur subantarctica</u> Fairy Prion (southern) [64445]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Phoebastria fusca</u> Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<u>Pluvialis squatarola</u> Grey Plover [865]	Vulnerable	Roosting known to occur within area	In feature area
<u>Pterodroma leucophaea leucophaea</u> Gould's Petrel, Australian Gould's Petrel [26033]	Endangered	Species or species habitat may occur within area	In buffer area only
<u>Pterodroma neglecta neglecta</u> Kermadec Petrel (western) [64450]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In buffer area only
<u>Pycnoptilus floccosus</u> Pilotbird [525]	Vulnerable	Species or species habitat may occur within area	In feature area
<u>Rostratula australis</u> Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area	In feature area
<u>Stagonopleura guttata</u> Diamond Firetail [59398]	Vulnerable	Species or species habitat known to occur within area	In feature area
<u>Sternula nereis nereis</u> Australian Fairy Tern [82950]	Vulnerable	Species or species habitat may occur within area	In feature area
<u>Thalassarche bulleri</u> Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In feature area
<u>Thalassarche bulleri platei</u> Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In feature area
<u>Thalassarche carteri</u> Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Thalassarche cauta</u> Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Thalassarche eremita</u> Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
<u>Thalassarche impavida</u> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
<u>Thalassarche melanophris</u> Black-browed Albatross [64472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Thalassarche salvini</u> Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Thalassarche steadi</u> White-capped Albatross [64462]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<u>Tringa nebularia</u> Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area	In feature area
<u>Xenus cinereus</u> Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area	In feature area
FISH			
<u>Epinephelus daemeli</u> Black Rockcod, Black Cod, Saddled Rockcod [68449]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<u>Hippocampus whitei</u> White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Seriolella brama</u> Blue Warehou [69374]	Conservation Dependent	Species or species habitat known to occur within area	In buffer area only
<u>Thunnus maccoyii</u> Southern Bluefin Tuna [69402]	Conservation Dependent	Species or species habitat known to occur within area	In buffer area only
FROG			
<u>Litoria aurea</u> Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat known to occur within area	In feature area
<u>Mixophyes balbus</u> Stuttering Frog, Southern Barred Frog (in Victoria) [1942]	Vulnerable	Species or species habitat may occur within area	In feature area
<u>Uperoleia mahonyi</u> Mahony's Toadlet [89189]	Endangered	Species or species habitat known to occur within area	In feature area
MAMMAL			
<u>Balaenoptera musculus</u> Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
<u>Chalinolobus dwyeri</u> Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat known to occur within area	In feature area
<u>Dasyurus maculatus maculatus (SE mainland population)</u> Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area	In feature area
<u>Eubalaena australis</u> Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In buffer area only
<u>Notamacropus parma</u> Parma Wallaby [89289]	Vulnerable	Species or species habitat may occur within area	In feature area
<u>Petauroides volans</u> Greater Glider (southern and central) [254]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Petaurus australis australis</u> Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<u>Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)</u> 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
<u>Potorous tridactylus tridactylus</u> Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<u>Pseudomys novaehollandiae</u> New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat known to occur within area	In feature area
<u>Pteropus poliocephalus</u> Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area	In feature area
PLANT			
<u>Angophora inopina</u> Charmhaven Apple [64832]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<u>Caladenia tessellata</u> Thick-lipped Spider-orchid, Daddy Long-legs [2119]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<u>Commersonia prostrata</u> Dwarf Kerrawang [87152]	Endangered	Species or species habitat known to occur within area	In feature area
<u>Cryptostylis hunteriana</u> Leafless Tongue-orchid [19533]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<u>Cynanchum elegans</u> White-flowered Wax Plant [12533]	Endangered	Species or species habitat known to occur within area	In feature area
<u>Diuris praecox</u> Newcastle Doubletail [55086]	Vulnerable	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Eucalyptus camfieldii</u> Camfield's Stringybark [15460]	Vulnerable	Species or species habitat known to occur within area	In feature area
<u>Eucalyptus parramattensis subsp. decadens</u> Earp's Gum, Earp's Dirty Gum [56148]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<u>Euphrasia arguta</u> [4325]	Critically Endangered	Species or species habitat may occur within area	In feature area
<u>Grevillea parviflora subsp. parviflora</u> Small-flower Grevillea [64910]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<u>Grevillea shiressii</u> [19186]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<u>Melaleuca biconvexa</u> Biconvex Paperbark [5583]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<u>Persicaria elatior</u> Knotweed, Tall Knotweed [5831]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<u>Pomaderris brunnea</u> Rufous Pomaderris, Brown Pomaderris [16845]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<u>Prasophyllum sp. Wybong (C.Phelps ORG 5269)</u> a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area	In feature area
<u>Pterostylis gibbosa</u> Illawarra Greenhood, Rufa Greenhood, Pouched Greenhood [4562]	Endangered	Species or species habitat may occur within area	In buffer area only
<u>Rhizanthella slateri</u> Eastern Underground Orchid [11768]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Rhodamnia rubescens</u> Scrub Turpentine, Brown Malletwood [15763]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<u>Rhodomyrtus psidioides</u> Native Guava [19162]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<u>Rutidosis heterogama</u> Heath Wrinklewort [13132]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<u>Syzygium paniculatum</u> Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307]	Vulnerable	Species or species habitat known to occur within area	In feature area
<u>Tetralthea juncea</u> Black-eyed Susan [21407]	Vulnerable	Species or species habitat known to occur within area	In feature area
<u>Thelymitra adorata</u> Wyong Sun Orchid [84724]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
<u>Thesium australe</u> Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area	In feature area
REPTILE			
<u>Caretta caretta</u> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In feature area
<u>Chelonia mydas</u> Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
<u>Dermochelys coriacea</u> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area
<u>Eretmochelys imbricata</u> Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Natator depressus</u> Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area

SHARK

<u>Carcharias taurus (east coast population)</u> Grey Nurse Shark (east coast population) [68751]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<u>Carcharodon carcharias</u> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<u>Galeorhinus galeus</u> School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453]	Conservation Dependent	Species or species habitat may occur within area	In buffer area only
<u>Rhincodon typus</u> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<u>Sphyrna lewini</u> Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
<u>Anous stolidus</u> Common Noddy [825]		Species or species habitat likely to occur within area	In feature area
<u>Apus pacificus</u> Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
<u>Ardenna carneipes</u> Flesh-footed Shearwater, Fleishy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only
<u>Ardenna grisea</u> Sooty Shearwater [82651]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Calonectris leucomelas</u> Streaked Shearwater [1077]		Species or species habitat known to occur within area	In feature area
<u>Diomedea antipodensis</u> Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Diomedea epomophora</u> Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Diomedea exulans</u> Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Diomedea sanfordi</u> Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
<u>Fregata ariel</u> Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In feature area
<u>Fregata minor</u> Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area	In feature area
<u>Macronectes giganteus</u> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area
<u>Macronectes halli</u> Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Phaethon lepturus</u> White-tailed Tropicbird [1014]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Phoebastria fusca</u> Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<u>Sternula albifrons</u> Little Tern [82849]		Breeding may occur within area	In buffer area only
<u>Thalassarche bulleri</u> Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In feature area
<u>Thalassarche carteri</u> Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<u>Thalassarche cauta</u> Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Thalassarche eremita</u> Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
<u>Thalassarche impavida</u> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
<u>Thalassarche melanophrys</u> Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Thalassarche salvini</u> Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Thalassarche steadi</u> White-capped Albatross [64462]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Migratory Marine Species

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Balaenoptera edeni</u> Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
<u>Balaenoptera musculus</u> Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
<u>Caperea marginata</u> Pygmy Right Whale [39]		Foraging, feeding or related behaviour may occur within area	In buffer area only
<u>Carcharhinus longimanus</u> Oceanic Whitetip Shark [84108]		Species or species habitat may occur within area	In buffer area only
<u>Carcharodon carcharias</u> White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area	In buffer area only
<u>Caretta caretta</u> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In feature area
<u>Chelonia mydas</u> Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
<u>Dermochelys coriacea</u> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area
<u>Dugong dugon</u> Dugong [28]		Species or species habitat may occur within area	In buffer area only
<u>Eretmochelys imbricata</u> Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
<u>Eubalaena australis</u> as <u>Balaena glacialis australis</u> Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Lamna nasus</u> Porbeagle, Mackerel Shark [83288]		Species or species habitat likely to occur within area	In feature area
<u>Megaptera novaeangliae</u> Humpback Whale [38]		Species or species habitat known to occur within area	In buffer area only
<u>Mobula alfredi as Manta alfredi</u> Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat may occur within area	In feature area
<u>Mobula birostris as Manta birostris</u> Giant Manta Ray [90034]		Species or species habitat may occur within area	In feature area
<u>Natator depressus</u> Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
<u>Orcinus orca</u> Killer Whale, Orca [46]		Species or species habitat may occur within area	In buffer area only
<u>Rhincodon typus</u> Whale Shark [66680]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Migratory Terrestrial Species			
<u>Cuculus optatus</u> Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area
<u>Hirundapus caudacutus</u> White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area	In feature area
<u>Monarcha melanopsis</u> Black-faced Monarch [609]		Species or species habitat known to occur within area	In feature area
<u>Motacilla flava</u> Yellow Wagtail [644]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Myiagra cyanoleuca</u> Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
<u>Rhipidura rufifrons</u> Rufous Fantail [592]		Species or species habitat known to occur within area	In feature area
<u>Symposiachrus trivirgatus</u> as <u>Monarcha trivirgatus</u> Spectacled Monarch [83946]		Species or species habitat known to occur within area	In feature area
Migratory Wetlands Species			
<u>Actitis hypoleucos</u> Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
<u>Arenaria interpres</u> Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area	In feature area
<u>Calidris acuminata</u> Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area	In feature area
<u>Calidris canutus</u> Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area	In feature area
<u>Calidris ferruginea</u> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<u>Calidris melanotos</u> Pectoral Sandpiper [858]		Species or species habitat known to occur within area	In feature area
<u>Calidris ruficollis</u> Red-necked Stint [860]		Roosting known to occur within area	In feature area
<u>Calidris tenuirostris</u> Great Knot [862]	Vulnerable	Roosting known to occur within area	In feature area
<u>Charadrius bicinctus</u> Double-banded Plover [895]		Roosting known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Charadrius leschenaultii</u> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
<u>Charadrius mongolus</u> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In feature area
<u>Gallinago hardwickii</u> Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area	In feature area
<u>Gallinago megala</u> Swinhoe's Snipe [864]		Roosting likely to occur within area	In feature area
<u>Gallinago stenura</u> Pin-tailed Snipe [841]		Roosting likely to occur within area	In feature area
<u>Limicola falcinellus</u> Broad-billed Sandpiper [842]		Roosting known to occur within area	In feature area
<u>Limosa lapponica</u> Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
<u>Limosa limosa</u> Black-tailed Godwit [845]	Endangered	Roosting known to occur within area	In feature area
<u>Numenius madagascariensis</u> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<u>Numenius minutus</u> Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area	In feature area
<u>Numenius phaeopus</u> Whimbrel [849]		Roosting known to occur within area	In feature area
<u>Pandion haliaetus</u> Osprey [952]		Species or species habitat known to occur within area	In feature area
<u>Philomachus pugnax</u> Ruff (Reeve) [850]		Roosting known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Pluvialis fulva</u> Pacific Golden Plover [25545]		Roosting known to occur within area	In feature area
<u>Pluvialis squatarola</u> Grey Plover [865]	Vulnerable	Roosting known to occur within area	In feature area
<u>Tringa brevipes</u> Grey-tailed Tattler [851]		Roosting known to occur within area	In feature area
<u>Tringa nebularia</u> Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area	In feature area
<u>Tringa stagnatilis</u> Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area	In feature area
<u>Xenus cinereus</u> Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

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

Commonwealth Land Name	State	Buffer Status
Commonwealth Bank of Australia		
Commonwealth Land - Commonwealth Bank of Australia [11596]	NSW	In buffer area only
Commonwealth Trading Bank of Australia		
Commonwealth Land - Commonwealth Trading Bank of Australia [11591]	NSW	In buffer area only
Commonwealth Land - Commonwealth Trading Bank of Australia [11682]	NSW	In buffer area only
Commonwealth Land - Commonwealth Trading Bank of Australia [11703]	NSW	In buffer area only
Commonwealth Land - Commonwealth Trading Bank of Australia [11685]	NSW	In buffer area only
Communications, Information Technology and the Arts - Australian Broadcasting Corporation		
Commonwealth Land - Australian Broadcasting Corporation [11595]	NSW	In buffer area only
Communications, Information Technology and the Arts - Australian Postal Corporation		

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian Postal Commission [11593]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [11592]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [11594]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [11680]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [11687]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [11710]	NSW	In buffer area only
Commonwealth Land - Australian Postal Commission [11653]	NSW	In buffer area only
Commonwealth Land - Australian Postal Corporation [11690]	NSW	In buffer area only
Communications, Information Technology and the Arts - Telstra Corporation Limited		
Commonwealth Land - Australian & Overseas Telecommunications Corporation [11686]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11600]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11674]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11671]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11672]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11597]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11658]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11681]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11702]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11701]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11700]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11708]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11622]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Australian Telecommunications Commission [11657]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [16433]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11655]	NSW	In buffer area only
Commonwealth Land - Australian Telecommunications Commission [11656]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [11711]	NSW	In buffer area only
Commonwealth Land - Telstra Corporation Limited [11689]	NSW	In buffer area only
Defence		
Commonwealth Land - Defence Service Homes Corporation [11679]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11675]	NSW	In feature area
Commonwealth Land - Defence Service Homes Corporation [11598]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11673]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11705]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11524]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11693]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11692]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11696]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11697]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11691]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11698]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11699]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11694]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11695]	NSW	In buffer area only
Commonwealth Land - Defence Service Homes Corporation [11640]	NSW	In buffer area only
Defence - ADF CAREERS REFERENCE CENTRE [11228]	NSW	In buffer area only
Defence - ADF CAREERS REFERENCE CENTRE [11219]	NSW	In buffer area only
Defence - ADF CAREERS REFERENCE CENTRE [11229]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Defence - ADF CAREERS REFERENCE CENTRE [11222]	NSW	In buffer area only
Defence - ADF CAREERS REFERENCE CENTRE [11223]	NSW	In buffer area only
Defence - ADF CAREERS REFERENCE CENTRE [11225]	NSW	In buffer area only
Defence - ADF CAREERS REFERENCE CENTRE [11224]	NSW	In buffer area only
Defence - ADF CAREERS REFERENCE CENTRE [11221]	NSW	In buffer area only
Defence - ADF CAREERS REFERENCE CENTRE [11220]	NSW	In buffer area only
Defence - ADF CAREERS REFERENCE CENTRE [11227]	NSW	In buffer area only
Defence - ADF CAREERS REFERENCE CENTRE [11226]	NSW	In buffer area only
Defence - OFFICES [11195]	NSW	In buffer area only
Defence - STOCKTON RIFLE RANGE [10057]	NSW	In buffer area only
Defence - TS TOBRUK [10053]	NSW	In buffer area only
Defence - Defence Housing Authority		
Commonwealth Land - Defence Housing Authority [16170]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16172]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16171]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [11678]	NSW	In feature area
Commonwealth Land - Defence Housing Authority [16167]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16166]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16169]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16168]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16165]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [16173]	NSW	In buffer area only
Commonwealth Land - Defence Housing Authority [11688]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [11676]	NSW	In feature area
Commonwealth Land - Director of War Service Homes [11677]	NSW	In feature area
Commonwealth Land - Director of War Service Homes [11683]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [11704]	NSW	In buffer area only

Commonwealth Land Name	State	Buffer Status
Commonwealth Land - Director of War Service Homes [11652]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [11654]	NSW	In buffer area only
Commonwealth Land - Director of War Service Homes [11639]	NSW	In buffer area only

Unknown		
Commonwealth Land - [15660]	NSW	In buffer area only
Commonwealth Land - [11599]	NSW	In buffer area only
Commonwealth Land - [11706]	NSW	In buffer area only
Commonwealth Land - [11707]	NSW	In buffer area only
Commonwealth Land - [11709]	NSW	In buffer area only
Commonwealth Land - [11684]	NSW	In buffer area only
Commonwealth Land - [16434]	NSW	In buffer area only

Commonwealth Heritage Places			[Resource Information]
Name	State	Status	Buffer Status
Historic			
Fort Wallace	NSW	Listed place	In buffer area only
Nobbys Lighthouse	NSW	Listed place	In buffer area only

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Anous stolidus			
Common Noddy [825]		Species or species habitat likely to occur within area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Ardenna carneipes as Puffinus carneipes			
Flesh-footed Shearwater, Fleishy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Ardenna grisea as Puffinus griseus</u> Sooty Shearwater [82651]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<u>Arenaria interpres</u> Ruddy Turnstone [872]	Vulnerable	Roosting known to occur within area	In feature area
<u>Bubulcus ibis as Ardea ibis</u> Cattle Egret [66521]		Breeding likely to occur within area overfly marine area	In feature area
<u>Calidris acuminata</u> Sharp-tailed Sandpiper [874]	Vulnerable	Roosting known to occur within area	In feature area
<u>Calidris canutus</u> Red Knot, Knot [855]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
<u>Calidris ferruginea</u> Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
<u>Calidris melanotos</u> Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area	In feature area
<u>Calidris ruficollis</u> Red-necked Stint [860]		Roosting known to occur within area overfly marine area	In feature area
<u>Calidris tenuirostris</u> Great Knot [862]	Vulnerable	Roosting known to occur within area overfly marine area	In feature area
<u>Calonectris leucomelas</u> Streaked Shearwater [1077]		Species or species habitat known to occur within area	In feature area
<u>Charadrius bicinctus</u> Double-banded Plover [895]		Roosting known to occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Charadrius leschenaultii</u> Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area	In feature area
<u>Charadrius mongolus</u> Lesser Sand Plover, Mongolian Plover [879]	Endangered	Roosting known to occur within area	In feature area
<u>Charadrius ruficapillus</u> Red-capped Plover [881]		Roosting known to occur within area overfly marine area	In feature area
<u>Diomedea antipodensis</u> Antipodean Albatross [64458]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Diomedea antipodensis gibsoni</u> as <u>Diomedea gibsoni</u> Gibson's Albatross [82270]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Diomedea epomophora</u> Southern Royal Albatross [89221]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Diomedea exulans</u> Wandering Albatross [89223]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Diomedea sanfordi</u> Northern Royal Albatross [64456]	Endangered	Species or species habitat may occur within area	In feature area
<u>Fregata ariel</u> Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat known to occur within area	In feature area
<u>Fregata minor</u> Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Gallinago hardwickii</u> Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
<u>Gallinago megala</u> Swinhoe's Snipe [864]		Roosting likely to occur within area overfly marine area	In feature area
<u>Gallinago stenura</u> Pin-tailed Snipe [841]		Roosting likely to occur within area overfly marine area	In feature area
<u>Haliaeetus leucogaster</u> White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
<u>Himantopus himantopus</u> Pied Stilt, Black-winged Stilt [870]		Roosting known to occur within area overfly marine area	In feature area
<u>Hirundapus caudacutus</u> White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area overfly marine area	In feature area
<u>Lathamus discolor</u> Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
<u>Limicola falcinellus</u> Broad-billed Sandpiper [842]		Roosting known to occur within area overfly marine area	In feature area
<u>Limosa lapponica</u> Bar-tailed Godwit [844]		Species or species habitat known to occur within area	In feature area
<u>Limosa limosa</u> Black-tailed Godwit [845]	Endangered	Roosting known to occur within area overfly marine area	In feature area
<u>Macronectes giganteus</u> Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Macronectes halli</u> Northern Giant Petrel [1061]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Merops ornatus</u> Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
<u>Monarcha melanopsis</u> Black-faced Monarch [609]		Species or species habitat known to occur within area overfly marine area	In feature area
<u>Motacilla flava</u> Yellow Wagtail [644]		Species or species habitat known to occur within area overfly marine area	In feature area
<u>Myiagra cyanoleuca</u> Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
<u>Neophema chrysostoma</u> Blue-winged Parrot [726]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
<u>Numenius madagascariensis</u> Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area	In feature area
<u>Numenius minutus</u> Little Curlew, Little Whimbrel [848]		Roosting likely to occur within area overfly marine area	In feature area
<u>Numenius phaeopus</u> Whimbrel [849]		Roosting known to occur within area	In feature area
<u>Pachyptila turtur</u> Fairy Prion [1066]		Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Pandion haliaetus</u> Osprey [952]		Species or species habitat known to occur within area	In feature area
<u>Phaethon lepturus</u> White-tailed Tropicbird [1014]		Species or species habitat known to occur within area	In feature area
<u>Philomachus pugnax</u> Ruff (Reeve) [850]		Roosting known to occur within area overfly marine area	In feature area
<u>Phoebastria fusca</u> Sooty Albatross [1075]	Vulnerable	Species or species habitat may occur within area	In buffer area only
<u>Pluvialis fulva</u> Pacific Golden Plover [25545]		Roosting known to occur within area	In feature area
<u>Pluvialis squatarola</u> Grey Plover [865]	Vulnerable	Roosting known to occur within area overfly marine area	In feature area
<u>Pterodroma cervicalis</u> White-necked Petrel [59642]		Species or species habitat may occur within area	In feature area
<u>Recurvirostra novaehollandiae</u> Red-necked Avocet [871]		Roosting known to occur within area overfly marine area	In feature area
<u>Rhipidura rufifrons</u> Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
<u>Rostratula australis as Rostratula benghalensis (sensu lato)</u> Australian Painted Snipe [77037]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
<u>Stercorarius antarcticus as Catharacta skua</u> Brown Skua [85039]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u><i>Sterna striata</i></u> White-fronted Tern [799]		Foraging, feeding or related behaviour likely to occur within area	In feature area
<u><i>Sternula albifrons</i> as <i>Sterna albifrons</i></u> Little Tern [82849]		Breeding may occur within area	In buffer area only
<u><i>Symposiachrus trivirgatus</i> as <i>Monarcha trivirgatus</i></u> Spectacled Monarch [83946]		Species or species habitat known to occur within area overfly marine area	In feature area
<u><i>Thalassarche bulleri</i></u> Buller's Albatross, Pacific Albatross [64460]	Vulnerable	Species or species habitat may occur within area	In feature area
<u><i>Thalassarche bulleri platei</i> as <i>Thalassarche sp. nov.</i></u> Northern Buller's Albatross, Pacific Albatross [82273]	Vulnerable	Species or species habitat may occur within area	In feature area
<u><i>Thalassarche carteri</i></u> Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
<u><i>Thalassarche cauta</i></u> Shy Albatross [89224]	Endangered	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u><i>Thalassarche eremita</i></u> Chatham Albatross [64457]	Endangered	Foraging, feeding or related behaviour may occur within area	In feature area
<u><i>Thalassarche impavida</i></u> Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area	In feature area
<u><i>Thalassarche melanophrys</i></u> Black-browed Albatross [66472]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Thalassarche salvini</u> Salvin's Albatross [64463]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area	In feature area
<u>Thalassarche steadi</u> White-capped Albatross [64462]	Vulnerable	Species or species habitat likely to occur within area	In feature area
<u>Tringa brevipes</u> as <u>Heteroscelus brevipes</u> Grey-tailed Tattler [851]		Roosting known to occur within area	In feature area
<u>Tringa nebularia</u> Common Greenshank, Greenshank [832]	Endangered	Species or species habitat known to occur within area overfly marine area	In feature area
<u>Tringa stagnatilis</u> Marsh Sandpiper, Little Greenshank [833]		Roosting known to occur within area overfly marine area	In feature area
<u>Xenus cinereus</u> Terek Sandpiper [59300]	Vulnerable	Roosting known to occur within area overfly marine area	In feature area
Fish			
<u>Acentronura tentaculata</u> Shortpouch Pygmy Pipehorse [66187]		Species or species habitat may occur within area	In buffer area only
<u>Festucalex cinctus</u> Girdled Pipefish [66214]		Species or species habitat may occur within area	In buffer area only
<u>Filicampus tigris</u> Tiger Pipefish [66217]		Species or species habitat may occur within area	In buffer area only
<u>Heraldia nocturna</u> Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227]		Species or species habitat may occur within area	In buffer area only
<u>Hippichthys penicillus</u> Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Hippocampus abdominalis</u> Big-belly Seahorse, Eastern Potbelly Seahorse, New Zealand Potbelly Seahorse [66233]		Species or species habitat may occur within area	In buffer area only
<u>Hippocampus whitei</u> White's Seahorse, Crowned Seahorse, Sydney Seahorse [66240]	Endangered	Species or species habitat likely to occur within area	In buffer area only
<u>Histiogamphelus briggsii</u> Crested Pipefish, Briggs' Crested Pipefish, Briggs' Pipefish [66242]		Species or species habitat may occur within area	In buffer area only
<u>Lissocampus runa</u> Javelin Pipefish [66251]		Species or species habitat may occur within area	In buffer area only
<u>Maroubra perserrata</u> Sawtooth Pipefish [66252]		Species or species habitat may occur within area	In buffer area only
<u>Notiocampus ruber</u> Red Pipefish [66265]		Species or species habitat may occur within area	In buffer area only
<u>Phyllopteryx taeniolatus</u> Common Seadragon, Weedy Seadragon [66268]		Species or species habitat may occur within area	In buffer area only
<u>Solegnathus spinosissimus</u> Spiny Pipehorse, Australian Spiny Pipehorse [66275]		Species or species habitat may occur within area	In buffer area only
<u>Solenostomus cyanopterus</u> Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area	In buffer area only
<u>Solenostomus paradoxus</u> Ornate Ghostpipefish, Harlequin Ghost Pipefish, Ornate Ghost Pipefish [66184]		Species or species habitat may occur within area	In buffer area only
<u>Stigmatopora argus</u> Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Stigmatopora nigra</u> Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277]		Species or species habitat may occur within area	In buffer area only
<u>Syngnathoides biaculeatus</u> Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area	In buffer area only
<u>Trachyrhamphus bicoarctatus</u> Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area	In buffer area only
<u>Urocampus carinirostris</u> Hairy Pipefish [66282]		Species or species habitat may occur within area	In buffer area only
<u>Vanacampus margaritifer</u> Mother-of-pearl Pipefish [66283]		Species or species habitat may occur within area	In buffer area only
Mammal			
<u>Arctocephalus forsteri</u> Long-nosed Fur-seal, New Zealand Fur- seal [20]		Species or species habitat may occur within area	In buffer area only
<u>Arctocephalus pusillus</u> Australian Fur-seal, Australo-African Fur-seal [21]		Species or species habitat may occur within area	In buffer area only
<u>Dugong dugon</u> Dugong [28]		Species or species habitat may occur within area	In buffer area only
Reptile			
<u>Caretta caretta</u> Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area	In feature area
<u>Chelonia mydas</u> Green Turtle [1765]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
<u>Dermochelys coriacea</u> Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
<u>Eretmochelys imbricata</u> Hawksbill Turtle [1766]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area
<u>Hydrophis platura as Pelamis platurus</u> Yellow-bellied Sea Snake [93746]		Species or species habitat may occur within area	In buffer area only
<u>Natator depressus</u> Flatback Turtle [59257]	Vulnerable	Foraging, feeding or related behaviour known to occur within area	In feature area

Whales and Other Cetaceans		[Resource Information]	
Current Scientific Name	Status	Type of Presence	Buffer Status
Mammal			
<u>Balaenoptera acutorostrata</u> Minke Whale [33]		Species or species habitat may occur within area	In buffer area only
<u>Balaenoptera edeni</u> Bryde's Whale [35]		Species or species habitat may occur within area	In buffer area only
<u>Balaenoptera musculus</u> Blue Whale [36]	Endangered	Species or species habitat may occur within area	In buffer area only
<u>Caperea marginata</u> Pygmy Right Whale [39]		Foraging, feeding or related behaviour may occur within area	In buffer area only
<u>Delphinus delphis</u> Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area	In buffer area only
<u>Eubalaena australis</u> Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area	In buffer area only
<u>Grampus griseus</u> Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area	In buffer area only

Current Scientific Name	Status	Type of Presence	Buffer Status
<u>Megaptera novaeangliae</u> Humpback Whale [38]		Species or species habitat known to occur within area	In buffer area only
<u>Orcinus orca</u> Killer Whale, Orca [46]		Species or species habitat may occur within area	In buffer area only
<u>Stenella attenuata</u> Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area	In buffer area only
<u>Tursiops aduncus</u> Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area	In buffer area only
<u>Tursiops truncatus s. str.</u> Bottlenose Dolphin [68417]		Species or species habitat may occur within area	In buffer area only

Extra Information

State and Territory Reserves			<u>[Resource Information]</u>
Protected Area Name	Reserve Type	State	Buffer Status
Awabakal	Nature Reserve	NSW	In buffer area only
Blue Gum Hills	Regional Park	NSW	In buffer area only
Glenrock	State Conservation Area	NSW	In buffer area only
Hexham Swamp	NRS Addition - Gazettal in Progress	NSW	In buffer area only
Hunter Wetlands	National Park	NSW	In buffer area only
Tilligerry	State Conservation Area	NSW	In buffer area only
Worimi	State Conservation Area	NSW	In buffer area only
Worimi	Regional Park	NSW	In buffer area only

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

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

Nationally Important Wetlands		[Resource Information]
Wetland Name	State	Buffer Status
Hexham Swamp	NSW	In buffer area only
Kooragang Nature Reserve	NSW	In feature area
Shortland Wetlands Centre	NSW	In buffer area only

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Eastern Rise Offshore Wind Project	2023/09544		Assessment	In buffer area only
Eastern Rise Offshore Wind Project Initial Marine Field Investigations	2023/09555		Completed	In buffer area only
Kurri Kurri Lateral Pipeline Project	2021/9113		Post-Approval	In buffer area only
M1 Motorway extension to Raymond Terrace, NSW	2018/8288		Post-Approval	In buffer area only
Residential development, Hillsborough, NSW	2014/7217		Assessment	In buffer area only
Tomago Battery Energy Storage System (BESS)	2023/09521		Completed	In buffer area only
Controlled action				
Cabbage Tree Road Sand Quarry, Williamtown, NSW	2016/7852	Controlled Action	Post-Approval	In buffer area only
Construction and Sequential Filling of Waste Emplacement Facility	2008/4652	Controlled Action	Post-Approval	In feature area
Former Rifle Range Residential Development, Popplewell Road, Fern Bay, NSW	2017/7993	Controlled Action	Proposed Decision	In buffer area only
Gas Transmission Pipeline	2011/5917	Controlled Action	Completed	In buffer area only
Gloucester Coal Seam Methane Gas Project	2008/4432	Controlled Action	Post-Approval	In buffer area only
Hunter River Port and Transport Corridor	2001/419	Controlled Action	Completed	In feature area
Hunter River south arm dredging	2003/950	Controlled Action	Post-Approval	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
<u>Kooragang Island Waste Emplacement Facility - Area 2 Closure Works, NSW</u>	2016/7670	Controlled Action	Post-Approval	In feature area
<u>Kooragang Wetland Rehabilitation Project</u>	2007/3220	Controlled Action	Post-Approval	In feature area
<u>Newcastle gas storage facility project</u>	2010/5752	Controlled Action	Post-Approval	In buffer area only
<u>Newcastle inner city bypass Rankin Park to Jesmond NSW</u>	2015/7550	Controlled Action	Post-Approval	In buffer area only
<u>Newcastle LNG export facility</u>	2011/5915	Controlled Action	Completed	In buffer area only
<u>Newcastle Power Station Project, Tomago, NSW</u>	2019/8425	Controlled Action	Post-Approval	In buffer area only
<u>Nobby's Lighthouse redevelopment</u>	2006/3179	Controlled Action	Completed	In buffer area only
<u>Northbank Enterprise Hub</u>	2021/9058	Controlled Action	Guidelines Issued	In buffer area only
<u>Northbank Enterprise Hub, Industrial and Business Park</u>	2010/5660	Controlled Action	Completed	In buffer area only
<u>Port Site and Materials Handling Development</u>	2001/242	Controlled Action	Completed	In feature area
<u>Protech Cold Mill Facility</u>	2001/274	Controlled Action	Post-Approval	In feature area
<u>Queensland Hunter Gas Pipeline, approximately 825 km in length</u>	2008/4483	Controlled Action	Completed	In buffer area only
<u>Remediation Works, Kooragang island waste facility emplacement facility NSW</u>	2011/5920	Controlled Action	Completed	In feature area
<u>River Dredging Operations</u>	2001/249	Controlled Action	Completed	In feature area
<u>Rutile and Zircon Mining on Stockton Rifle Range</u>	2000/8	Controlled Action	Post-Approval	In buffer area only
<u>Steel Mill</u>	2001/231	Controlled Action	Completed	In buffer area only
<u>Terminal 4 Coal Export Terminal Project, Kooragang Island</u>	2011/6029	Controlled Action	Post-Approval	In feature area
<u>Tomago Road Industrial Subdivision</u>	2007/3343	Controlled Action	Post-Approval	In buffer area only
Not controlled action				

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
<u>Blue Gum Vista Estate Residential development off Minmi Road</u>	2004/1507	Not Controlled Action	Completed	In buffer area only
<u>construction of a hydrological control structure at the mouth of Wader Creek and</u>	2002/780	Not Controlled Action	Completed	In buffer area only
<u>Construction of a Jetty</u>	2002/784	Not Controlled Action	Completed	In buffer area only
<u>Controlling Water Levels in Shortland Wetlands</u>	2010/5468	Not Controlled Action	Completed	In buffer area only
<u>Demolition of Ablutions Block, Snapper Island, NSW</u>	2018/8303	Not Controlled Action	Completed	In buffer area only
<u>Expansion to Kooragang Coal Terminal</u>	2007/3352	Not Controlled Action	Completed	In buffer area only
<u>Fort Scratchley refurbishment works</u>	2005/2283	Not Controlled Action	Completed	In feature area
<u>Fort Scratchley site remediation</u>	2005/2075	Not Controlled Action	Completed	In feature area
<u>Geological exploration and historical research of convict coal mines beneath For</u>	2004/1421	Not Controlled Action	Completed	In feature area
<u>Green & Golden Bell Frog Habitat Enhancement Project</u>	2004/1795	Not Controlled Action	Completed	In feature area
<u>Hexam Train Support Facility</u>	2012/6285	Not Controlled Action	Completed	In buffer area only
<u>Hexham Relief Roads Project</u>	2012/6309	Not Controlled Action	Completed	In buffer area only
<u>Hunter Natural Gas Pipeline</u>	2004/1902	Not Controlled Action	Completed	In buffer area only
<u>Improving rabbit biocontrol: releasing another strain of RHDV, strn two thirds of Australia</u>	2015/7522	Not Controlled Action	Completed	In feature area
<u>Industrial and Residential Subdivision, Minmi and Black Hill, Lower Hunter</u>	2008/4603	Not Controlled Action	Completed	In buffer area only
<u>Kooragang Coal Terminal Arrival Roads Stage 2 Upgrade, Newcastle, NSW</u>	2014/7229	Not Controlled Action	Completed	In buffer area only
<u>Nelson Bay Rd and Seaside Blvd intersection development, Nelson Bay, NSW</u>	2019/8433	Not Controlled Action	Completed	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
<u>Newcastle Inner City Bypass - Sandgate to Shortland</u>	2007/3633	Not Controlled Action	Completed	In buffer area only
<u>Nobbys Headland Redevelopment</u>	2008/4672	Not Controlled Action	Completed	In buffer area only
<u>Proposed maintenance and manufacturing facility to support industrial activities</u>	2007/3592	Not Controlled Action	Completed	In buffer area only
<u>Queensland Hunter Gas Pipeline, approximately 833 km in length</u>	2008/4620	Not Controlled Action	Completed	In buffer area only
<u>Revised alignment Hunter Natural Gas Pipeline</u>	2005/2470	Not Controlled Action	Completed	In buffer area only
<u>Richmond Vale Rail Trail</u>	2019/8568	Not Controlled Action	Completed	In buffer area only
<u>sale of property located at 96, Hunter Street</u>	2003/1097	Not Controlled Action	Completed	In feature area
<u>Sandgate Rail Grade Separation</u>	2005/1948	Not Controlled Action	Completed	In feature area
<u>Shorebird and wader habitat rehabilitation</u>	2001/457	Not Controlled Action	Completed	In buffer area only
<u>Stockpiling of lump coal up to 40,000 tonnes</u>	2003/1304	Not Controlled Action	Completed	In buffer area only
<u>Tomago Aluminium Rod & Conductor Manufacturing Facility</u>	2011/6085	Not Controlled Action	Completed	In buffer area only
<u>Tomago to Tomaree Electricity Supply Upgrade</u>	2003/1023	Not Controlled Action	Completed	In feature area
<u>Tomago Trunk Watermain Upgrade</u>	2008/4049	Not Controlled Action	Completed	In buffer area only
<u>Tomago Wetland Rehabilitation Project</u>	2011/5894	Not Controlled Action	Completed	In buffer area only
Not controlled action (particular manner)				
<u>Exploration Pilot Appraisal Program PEL 458</u>	2011/6154	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
<u>Fort Wallace Residential Development Proposal, north of Newcastle, NSW</u>	2017/7951	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
<u>Kooragang Island coal export terminal</u>	2006/2987	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action (particular manner)				
Kooragang Island Waste Emplacement Facility Closure Works	2012/6464	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Rehabilitation of Hexham Swamp	2003/1244	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Star of the South Offshore Surveys	2019/8525	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only
TransGrid 132kV Power Transmission Line	2002/794	Not Controlled Action (Particular Manner)	Post-Approval	In feature area
Wastewater Transfer Scheme	2011/5985	Not Controlled Action (Particular Manner)	Post-Approval	In buffer area only

Referral decision				
Breeding program for Grey Nurse Sharks	2007/3245	Referral Decision	Completed	In buffer area only

Biologically Important Areas		[Resource Information]	
Scientific Name	Behaviour	Presence	Buffer Status
Dolphins			
Tursiops aduncus			
Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Breeding	Likely to occur	In buffer area only
Tursiops aduncus			
Indo-Pacific/Spotted Bottlenose Dolphin [68418]	Foraging	Known to occur	In feature area
Seabirds			
Ardenna grisea			
Sooty Shearwater [82651]	Foraging	Likely to occur	In buffer area only
Ardenna pacifica			
Wedge-tailed Shearwater [84292]	Foraging	Likely to occur	In buffer area only
Ardenna tenuirostris			
Short-tailed Shearwater [82652]	Foraging	Likely to occur	In buffer area only
Sharks			
Carcharias taurus			
Grey Nurse Shark [64469]	Foraging	Known to occur	In buffer area only

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW



Scientific Name	Behaviour	Presence	Buffer Status
Whales			
Megaptera novaeangliae			
Humpback Whale [38]	Foraging	Known to occur	In buffer area only

Bioregional Assessments			[Resource Information]
SubRegion	BioRegion	Website	Buffer Status
Hunter	Northern Sydney Basin	BA website	In feature area

Caveat

1 PURPOSE

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

The report contains the mapped locations of:

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

2 DISCLAIMER

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

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

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

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

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

4 LIMITATIONS

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

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

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

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

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

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

Acknowledgements

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

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

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

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW



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

[© Commonwealth of Australia](#)
Department of Climate Change, Energy, the Environment and Water
GPO Box 3090
Canberra ACT 2601 Australia
+61 2 6274 1111

Appendix F: Vegetation survey data
Table F1 Vegetation BAM Plot survey data and locations

plot	pct	area	patchsize	condition class	zone	easting	northing	bearing	compTree	compShrub	compGrass	compForbs	compFerns	compOther	strucTree	strucShrub	strucGrass	strucForbs	strucFerns	strucOther	funLargeTrees	funHollowtrees	funLitterCover	funLenFallenLogs	funTreeStem5to9	funTreeStem10to19	funTreeStem20to29	funTreeStem30to49	funTreeStem50to79	funTreeRegen	funHighThreatExotic	Plot-based survey?	vegetation integrity
1A	3437	0.11	3	Disturbed	56	381398	6360919	9	6	0	0	0	0	1	31.4	0.0	0.0	0.0	0.0	0.2	0	0	87.0	4.4	1	1	1	1	0	1	35	☒ Yes ☐ No	☒ Yes ☐ No

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW

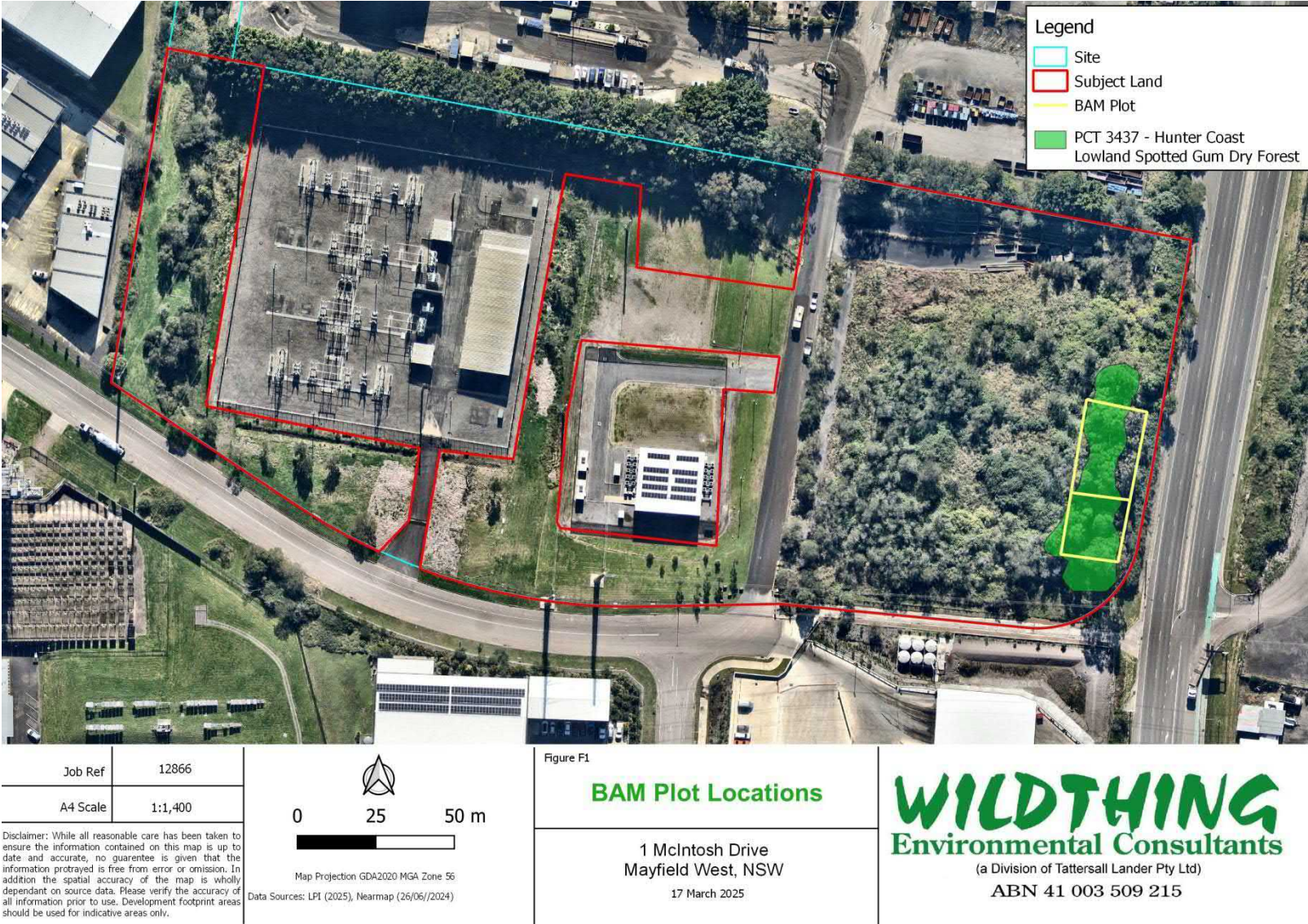


Figure F1 Vegetation BAM Plot location

WEST MAYFIELD - AUSGRID

Wildthing Environmental Consultants - Office # (02) 49513311

BAM Site - Field Survey Form Plot Identifier: 1A

Midline start	Midline end	Plot Size	Date	Plot Waypoint ID		Recorders
E-381398 N-6360919	E-381407 N-6360973	<u>20x50</u>	<u>4/04/2015</u>	Start -	End -	<u>Nicola</u>
IBRA region		<u>SPDNEY BASIN</u>				
Photo# <u>#9064</u>	Photo# <u>#9067</u>	Vegetation Class <u>Hunter-Macleay Dry Sclerophyll Forest</u>				
Bearing <u>90°</u>	Bearing <u>170°</u>	Vegetation Zone <u>Disturbed</u>				
PCT # <u>3437</u>	PCT Name <u>Hunter Coast Lowland Spotted Gum Dry Forest</u>					
Consistent BC ACT TEC?		<u>No</u>				

BAM Attribute (400 m ² plot)		Sum values
Count of Native Richness	Trees	<u>6</u>
	Shrubs	<u>0</u>
	Grasses etc.	<u>0</u>
	Forbs	<u>0</u>
	Ferns	<u>0</u>
	Other	<u>1</u>
Sum of Cover of native vascular plants by growth form group	Trees	<u>31.4</u>
	Shrubs	<u>0</u>
	Grasses etc.	<u>0</u>
	Forbs	<u>0</u>
	Ferns	<u>0</u>
	Other	<u>0.2</u>
High Threat Weed cover		<u>34.9</u>

BAM Attribute (1000 m ² plot)		
DBH	# Tree Stems Count	# Stems with Hollows
80 + cm	<u>0</u>	<u>0</u>
50 - 79 cm	<u>0</u>	
30 - 49 cm	<u>1</u>	
20 - 29 cm	<u>1</u>	
10 - 19 cm	<u>1</u>	
5 - 9 cm	<u>1</u>	
Regeneration < 5 cm		<u>1</u>
Length of logs (m) (≥10 cm diameter, >50 cm in length)		<u>4-4m</u>

Large Tree Sizes
Dry Sclerophyll Forests - ≥50, Forested Wetlands - ≥50, Freshwater Wetlands - NA, Grasslands - NA, Grassy Woodlands - ≥50, Heathlands - ≥30, Rainforests - ≥50, Saline Wetlands - NA, Semi-arid Woodland (grassy sub-formation) ≥30, Semi-arid woodlands (shrubby sub-formation) ≥30, Wet sclerophyll forests (grassy sub-formation) ≥79, Wetland sclerophyll forests (shrubby sub-formation) ≥79

BAM Attribute (1 x 1 m plots)	Litter cover (%)	Bare ground cover (%)	Cryptogam cover (%)	Rock cover (%)
Subplot score (% in each)	<u>90 85 75 95 70</u>	<u>10 10 0 0 0</u>	<u>0 0 0 0 0</u>	<u>0 0 0 0 0</u>
Average of the 5 subplots	<u>87.0</u>	<u>4.0</u>	<u>0</u>	<u>0</u>

Litter cover is assessed as the average percentage ground cover of litter recorded from five 1 m x 1 m plots centred at 5, 15, 25, 35, 45 m along the plot midline. Litter cover includes leaves, seeds, twigs, branchlets and branches (less than 10 cm in diameter). Assessors may also record the cover of rock, bare ground and cryptogams.

Physiography + site features that may help in determining PCT and Management Zone (optional)

Morphological Type	Landform Element	Landform Pattern	Microrelief
Lithology	Soil Surface Texture	Soil Colour	Soil Depth
Slope	Aspect	Site Drainage	Distance to nearest water and type

Additional Plot Comments: Some disturbance from Greater surveys

Wildthing Environmental Consultants - Office # (02) 49513311

400 m ² plot: Sheet 1 of 2	Survey Name	Plot Identifier	Recorders
Date 4/02/25		1A	

GF	Species	Cover	Abund	voucher
TG	1 Eucalyptus tereticornis	12	17	
TG	2 Corymbia maculata	10	17	
HTW	3 Lantana camara	30	50	
HTW	4 Megathyrus maximum	4	60	
TG	5 Casuarina glauca	1	7	
HTW	6 Bidens pilosa	0.1	20	
HTW	7 Erhantia erecta	0.2	50	
TG	8 Capaniopsis amicaoides	0.4	5	
TG	9 Eucalyptus siderophora	5	5	
HTW	10 Olea europaea	0.3	36	
E	11 Polymeria calycina	0.2	40	
E	12 Sanchis oleraceus	0.1	10	
HTW	13 Ochra serrulata	0.1	1	
TG	14 Eucalyptus punctata	3	5	
HTW	15 Ricinus communis	0.2	10	
E	16 Acacia saligna	0.3	3	
	17			
	18			
	19			
	20			
	21			
	22			
	23			
	24			
	25			
	26			
	27			
	28			
	29			
	30			
	31			
	32			
	33			
	34			
	35			
	36			
	37			
	38			
	39			
	40			
	41			
	42			
	43			
	44			



Plate F1: Plot 1A-PCT 3437_Disturbed Front Peg.



Plate F2: Plot 1A-3437_Disturbed Back Peg.

Appendix G: Credit reports



BAM Credit Summary Report

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00054663/BAAS23007/25/00054664	Mayfield West_Small Area BDAR_Ausgrid	28/10/2024
Assessor Name	Report Created	BAM Data version *
Nicola Mohr	24/03/2025	Current classification (live - default) (80)
Assessor Number	BAM Case Status	Date Finalised
BAAS23007	Finalised	24/03/2025
Assessment Revision	BOS entry trigger	Assessment Type
0	BOS Threshold: Biodiversity Values Map	Part 4 Developments (Small Area)

* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.

Ecosystem credits for plant communities types (PCT), ecological communities & threatened species habitat

Zone	Vegetation zone name	TEC name	Current Vegetation integrity score	Change in Vegetation integrity (loss / gain)	Area (ha)	Sensitivity to loss (Justification)	Species sensitivity to gain class	BC Act Listing status	EPBC Act listing status	Biodiversity risk weighting	Potential SAIL	Ecosystem credits
------	----------------------	----------	------------------------------------	--	-----------	-------------------------------------	-----------------------------------	-----------------------	-------------------------	-----------------------------	----------------	-------------------



BAM Credit Summary Report

Hunter Coast Lowland Spotted Gum Dry Forest											
1	3437_Dist urbed	Not a TEC	23.2	23.2	0.11	PCT Cleared - 60%	High Sensitivity to Gain			1.75	1
										Subtotal	1
										Total	1

Species credits for threatened species

Vegetation zone name	Habitat condition (Vegetation Integrity)	Change in habitat condition	Area (ha)/Count (no. individuals)	Sensitivity to loss (Justification)	Sensitivity to gain (Justification)	BC Act Listing status	EPBC Act listing status	Potential SAII	Species credits
-------------------------	--	-----------------------------------	--	---	---	--------------------------	----------------------------	-------------------	--------------------



BAM Biodiversity Credit Report (Like for like)

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00054663/BAAS23007/25/00054664	Mayfield West_Small Area BDAR_Ausgrid	28/10/2024
Assessor Name	Assessor Number	BAM Data version *
Nicola Mohr	BAAS23007	Current classification (live - default) (80)
Proponent Names	Report Created	BAM Case Status
	24/03/2025	Finalised
Assessment Revision	BOS entry trigger	Assessment Type
0	BOS Threshold: Biodiversity Values Map	Part 4 Developments (Small Area)
Date Finalised	* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.	
24/03/2025		

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Nil		
Species		
Nil		

Additional Information for Approval

Assessment Id	Proposal Name	Page 1 of 3
00054663/BAAS23007/25/00054664	Mayfield West_Small Area BDAR_Ausgrid	



BAM Biodiversity Credit Report (Like for like)

PCT Outside Ibra Added
None added

PCTs With Customized Benchmarks

PCT
No Changes

Predicted Threatened Species Not On Site

Name
No Changes

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
3437-Hunter Coast Lowland Spotted Gum Dry Forest	Not a TEC	0.1	0	1	1



BAM Biodiversity Credit Report (Like for like)

3437-Hunter Coast Lowland Spotted Gum Dry Forest	Like-for-like credit retirement options					
	Class	Trading group	Zone	HBT	Credits	IBRA region
	Hunter-Macleay Dry Sclerophyll Forests This includes PCT's: 1608, 3431, 3433, 3436, 3437, 3439, 3442, 3444, 3446	Hunter-Macleay Dry Sclerophyll Forests >=50% and <70%	3437_Disturbed	No	1	Hunter, Ellerston, Karuah Manning, Kerrabee, Liverpool Range, Peel, Tomalla, Upper Hunter, Wyong and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Species Credit Summary

No Species Credit Data

Credit Retirement Options

Like-for-like credit retirement options

Assessment Id

00054663/BAA523007/25/00054664

Proposal Name

Mayfield West_Small Area BDAR_Ausgrid

Page 3 of 3



BAM Biodiversity Credit Report (Variations)

Proposal Details

Assessment Id	Proposal Name	BAM data last updated *
00054663/BAAS23007/25/00054664	Mayfield West_Small Area BDAR_Ausgrid	28/10/2024
Assessor Name	Assessor Number	BAM Data version *
Nicola Mohr	BAAS23007	Current classification (live - default) (80)
Proponent Name(s)	Report Created	BAM Case Status
	24/03/2025	Finalised
Assessment Revision	BOS entry trigger	Assessment Type
0	BOS Threshold: Biodiversity Values Map	Part 4 Developments (Small Area)
Date Finalised	* Disclaimer: BAM data last updated may indicate either complete or partial update of the BAM calculator database. BAM calculator database may not be completely aligned with Bionet.	
24/03/2025		

Potential Serious and Irreversible Impacts

Name of threatened ecological community	Listing status	Name of Plant Community Type/ID
Nil		
Species		
Nil		

Additional Information for Approval

PCT Outside Ibra Added
None added

Assessment Id	Proposal Name	Page 1 of 3
00054663/BAAS23007/25/00054664	Mayfield West_Small Area BDAR_Ausgrid	



BAM Biodiversity Credit Report (Variations)

PCTs With Customized Benchmarks

PCT

No Changes

Predicted Threatened Species Not On Site

Name

No Changes

Ecosystem Credit Summary (Number and class of biodiversity credits to be retired)

Name of Plant Community Type/ID	Name of threatened ecological community	Area of impact	HBT Cr	No HBT Cr	Total credits to be retired
3437-Hunter Coast Lowland Spotted Gum Dry Forest	Not a TEC	0.1	0	1	1.00

3437-Hunter Coast Lowland Spotted Gum Dry Forest

Like-for-like credit retirement options

Class	Trading group	Zone	HBT	Credits	IBRA region
Hunter-Macleay Dry Sclerophyll Forests This includes PCT's: 1608, 3431, 3433, 3436, 3437, 3439, 3442, 3444, 3446	Hunter-Macleay Dry Sclerophyll Forests >=50% and <70%	3437_Disturbed	No	1	Hunter, Ellerston, Karuah Manning, Kerrabee, Liverpool Range, Peel, Tomalla, Upper Hunter, Wyong and Yengo. or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.

Variation options

Formation	Trading group	Zone	HBT	Credits	IBRA region
-----------	---------------	------	-----	---------	-------------

Assessment Id

00054663/BAAS23007/25/00054664

Proposal Name

Mayfield West_Small Area BDAR_Ausgrid

Page 2 of 3



BAM Biodiversity Credit Report (Variations)

	Dry Sclerophyll Forests (Shrub/grass sub-formation)	Tier 3 or higher threat status	3437_Disturbed	No	1	IBRA Region: Sydney Basin, or Any IBRA subregion that is within 100 kilometers of the outer edge of the impacted site.
--	--	--------------------------------	----------------	----	---	--

Species Credit Summary

No Species Credit Data

Credit Retirement Options Like-for-like options

Assessment Id

00054663/BAAS23007/25/00054664

Proposal Name

Mayfield West_Small Area BDAR_Ausgrid

Page 3 of 3

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW



Appendix H: Total Flora List

Introduced species are indicated by an asterisk (“*”).

The following standard abbreviations are used to indicate subspecific taxa:

- subsp.** subspecies
- var.-** variety
- x -** hybrid between the two indicated species

Threatened Species - NSW Biodiversity Conservation Act 2016 (BC Act)

- V** Vulnerable
- E1** Endangered
- E2** Endangered Population
- E4A** Critically Endangered Population

Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

- V** Vulnerable
- E** Endangered
- CE** Critically Endangered

Serious and Irreversible Impact SAI

Regional Significance (Hunter Rare Plants Database – Version 1 2003)

- L** endemic to Hunter Region
- DA** disjunct in the Hunter Region, rare or localized (aggregated)
- DB** disjunct in the Hunter Region, widespread and uncommon (broad)
- R** rare but extends beyond the Hunter Region
- U** everywhere uncommon
- N** at northern distributional limit in the Hunter
- E** at eastern distributional limit in the Hunter
- S** at southern distributional limited in the Hunter
- W** at western distributional limited in the Hunter
- T** may be threatened in the Hunter Region
- S** Probably secure in the Hunter Region

Weeds

Priorities under the Biosecurity Act 2015

- G** General Biosecurity Duty - any person dealing with plant matter must take measures to prevent, minimise or eliminate the biosecurity risk (as far as is reasonably practicable).
- P** Prohibition on dealings - Must not be imported into the State or sold.
- R** Regional Recommended Measure - Land managers mitigate the risk of the plant being introduced to their land. Land managers reduce impacts from the plant on priority assets. Land managers prevent spread from their land where feasible. The plant or parts of the plant are not traded, carried, grown or released into the environment.

NSW BC Act 2016

- T** Listed as a Threatening Process under the NSW BC Act 2016.
- N** Weed of National Significance (WoNS)

Table H1 Total Flora List

SCIENTIFIC NAME	COMMON NAME	BC ACT	EPBC ACT	SAIL	REGIONALLY SIGNIFICANT	WEEDS	FLOWERING PERIOD
MAGNOLIOPSIDA: Magnoliidae							
LILOPSIDA: (Monocotyledons)							
Amaryllidaceae							
<i>*Nothoscordum gracile</i>	Onion Weed						
Commelinaceae							
<i>Commelina cyanea</i>	Scurvy Weed						
<i>*Tradescantia fluminensis</i>	Wandering Jew						
Poaceae							
<i>*Andropogon virginicus</i>	Whisky Grass						
<i>*Axonopus fissifolius</i>	Narrow-leaved Carpet Grass						
<i>*Bromus catharticus</i>	Prairie Grass						
<i>*Cenchrus clandestinus syn Pennisetum clandestinum</i>	Kikuyu						
<i>*Chloris gayana</i>	Rhodes Grass						
<i>Cynodon dactylon</i>	Common Couch						
<i>*Ehrharta erecta</i>	Panic Veldt Grass						
<i>*Hyparrhenia hirta</i>	Coolatai Grass						Sept
<i>*Hyparrhenia rufa subsp. altissima</i>	Giant Coolatai Grass						
<i>*Lolium perenne</i>	Perennial Ryegrass						
<i>*Megathyrsus maximus syn. Panicum maximum</i>	Guinea Grass						
<i>*Melinis repens</i>	Red Natal Grass						
<i>*Paspalum dilatatum</i>	Paspalum						
<i>*Paspalum urvillei</i>	Vasey Grass						
<i>*Pennisetum setaceum</i>	African fountain grass						
<i>*Setaria parviflora syn. Setaria gracillis</i>	Slender Pigeon Grass						
<i>*Stenotaphrum secundatum</i>	Buffalo Grass						
MAGNOLIIDAE (Dicotyledons)							
Apiaceae							
<i>*Foeniculum vulgare</i>	Fennel						
Apocynaceae							

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW

SCIENTIFIC NAME	COMMON NAME	BC ACT	EPBC ACT	SAIL	REGIONALLY SIGNIFICANT	WEEDS	FLOWERING PERIOD
* <i>Araujia sericifera</i> (syn. <i>A. hortorum</i>).	Moth Plant						
* <i>Gomphocarpus fruticosus</i>	Narrow-leaved Cottonbush						
Araliaceae							
* <i>Hydrocotyle bonariensis</i>	Kurnell Curse						
Asteraceae							
* <i>Ambrosia artemisiifolia</i>	Annual Ragweed						Noxious Weed
* <i>Bidens pilosa</i>	Cobblers Pegs						
* <i>Chrysanthemoides monilifera</i> subsp. <i>rotundata</i>	Bitou Bush						
* <i>Cirsium vulgare</i>	Spear Thistle						Sept
* <i>Conyza bonariensis</i>	Flax-leaved Fleabane						
* <i>Hypochaeris radicata</i>	Catsear, Flatweed						
* <i>Senecio madagascariensis</i>	Fireweed						Sept, Oct
* <i>Senecio pterophorus</i>	African Daisy						
* <i>Taraxacum officinale</i>	Dandelion						
Bignoniaceae							
* <i>Jacaranda mimosifolia</i>	Jacaranda						Oct
Campanulaceae							
<i>Lobelia purpurascens</i>	White Root						
Casuarinaceae							
<i>Casuarina glauca</i>	Swamp She-oak						
Euphorbiaceae							
* <i>Euphorbia peplus</i>	Petty Spurge						
* <i>Ricinus communis</i>	Castor Oil Plant						
Fabaceae Subfamily (Faboideae)							
* <i>Medicago polymorpha</i>	Burr Medic						
* <i>Trifolium repens</i>	White Clover						Sept, Oct
* <i>Vicia sativa</i>	Vetch						
Fabaceae (Subfamily Mimosoideae)							
<i>Acacia saligna</i>	Golden Wreath Wattle						Aug, Sept

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW

SCIENTIFIC NAME	COMMON NAME	BC ACT	EPBC ACT	SAIL	REGIONALLY SIGNIFICANT	WEEDS	FLOWERING PERIOD
Malvaceae							
* <i>Sida rhombifolia</i>	Paddys Lucerne						
Meliaceae							
<i>Melia azedarach</i> var. <i>australasica</i>	White Cedar						
Myrtaceae							
<i>Corymbia maculata</i>	Spotted Gum						Mar, Apr
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	Grey Ironbark						
<i>Eucalyptus punctata</i>	Grey Gum						
<i>Eucalyptus tereticornis</i>	Forest Red Gum						May, Aug, Sept, Oct
Oleaceae							
* <i>Olea europaea</i> subsp. <i>cuspidata</i>	African Olive						
Pittosporaceae							
<i>Pittosporum undulatum</i>	Sweet Pittosporum						Aug, Sept
Plantaginaceae							
* <i>Plantago lanceolata</i>	Plantain						
Polygonaceae							
* <i>Rumex crispus</i>	Curled Dock						
Proteaceae							
<i>Grevillea robusta</i>	Silky Oak						
Rosaceae							
* <i>Rubus fruticosus</i> ssp. <i>aggregate</i>	Blackberry						
Rubiaceae							
* <i>Galium aparine</i>	Clevers						
Solanaceae							
* <i>Cestrum parqui</i>	Green Cestrum						Sept, Oct
* <i>Solanum nigrum</i>	Blackberry Nightshade						

SCIENTIFIC NAME	COMMON NAME	BC ACT	EPBC ACT	SAII	REGIONALLY SIGNIFICANT	WEEDS	FLOWERING PERIOD
<i>*Solanum mauritianum</i>	Wild Tobacco						
Verbenaceae							
<i>*Lantana camara</i>	Lantana						Noxious
<i>*Verbena bonariensis</i>	Purple Top						
<i>*Verbena rigida</i> var. <i>rigida</i>	Veined Verbena						
SCIENTIFIC NAME	COMMON NAME	BC ACT	EPBC ACT	SAII	REGIONALLY SIGNIFICANT	WEEDS	FLOWERING PERIOD
MAGNOLIOPSIDA: Magnoliidae							
LILOPSIDA: (Monocotyledons)							
Amaryllidaceae							
<i>*Nothoscordum gracile</i>	Onion Weed						
Commelinaceae							
<i>Commelina cyanea</i>	Scurvy Weed						
<i>*Tradescantia fluminensis</i>	Wandering Jew						
Poaceae							
<i>*Andropogon virginicus</i>	Whisky Grass						
<i>*Axonopus fissifolius</i>	Narrow-leaved Carpet Grass						
<i>*Bromus catharticus</i>	Prairie Grass						
<i>*Cenchrus clandestinus</i> syn <i>Pennisetum clandestinum</i>	Kikuyu						
<i>*Chloris gayana</i>	Rhodes Grass						
<i>Cynodon dactylon</i>	Common Couch						
<i>*Ehrharta erecta</i>	Panic Veldt Grass						
<i>*Hyparrhenia hirta</i>	Coolatai Grass						Sept
<i>*Hyparrhenia rufa</i> subsp. <i>altissima</i>	Giant Coolatai Grass						
<i>*Lolium perenne</i>	Perennial Ryegrass						
<i>*Megathyrsus maximus</i> syn. <i>Panicum maximum</i>	Guinea Grass						
<i>*Melinis repens</i>	Red Natal Grass						
<i>*Paspalum dilatatum</i>	Paspalum						
<i>*Paspalum urvillei</i>	Vasey Grass						
<i>*Pennisetum setaceum</i>	African fountain grass						
<i>*Setaria parviflora</i> syn. <i>Setaria gracillis</i>	Slender Pigeon Grass						

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW

SCIENTIFIC NAME	COMMON NAME	BC ACT	EPBC ACT	SAIL	REGIONALLY SIGNIFICANT	WEEDS	FLOWERING PERIOD
<i>*Stenotaphrum secundatum</i>	Buffalo Grass						
MAGNOLIIDAE (Dicotyledons)							
Apiaceae							
<i>*Foeniculum vulgare</i>	Fennel						
Apocynaceae							
<i>*Araujia sericifera</i> (syn. <i>A. hortorum</i>).	Moth Plant						
<i>*Gomphocarpus fruticosus</i>	Narrow-leaved Cottonbush						
Araliaceae							
<i>*Hydrocotyle bonariensis</i>	Kurnell Curse						
Asteraceae							
<i>*Ambrosia artemisiifolia</i>	Annual Ragweed						Noxious Weed
<i>*Bidens pilosa</i>	Cobblers Pegs						
<i>*Chrysanthemoides monilifera</i> subsp. <i>rotundata</i>	Bitou Bush						
<i>*Cirsium vulgare</i>	Spear Thistle						Sept
<i>*Conyza bonariensis</i>	Flax-leaved Fleabane						
<i>*Hypochaeris radicata</i>	Catsear, Flatweed						
<i>*Senecio madagascariensis</i>	Fireweed						Sept, Oct
<i>*Senecio pterophorus</i>	African Daisy						
<i>*Taraxacum officinale</i>	Dandelion						
Bignoniaceae							
<i>*Jacaranda mimosifolia</i>	Jacaranda						Oct
Campanulaceae							
<i>Lobelia purpurascens</i>	White Root						
Casuarinaceae							
<i>Casuarina glauca</i>	Swamp She-oak						
Euphorbiaceae							
<i>*Euphorbia peplus</i>	Petty Spurge						
<i>*Ricinus communis</i>	Castor Oil Plant						

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW

SCIENTIFIC NAME	COMMON NAME	BC ACT	EPBC ACT	SAIL	REGIONALLY SIGNIFICANT	WEEDS	FLOWERING PERIOD
Fabaceae Subfamily (Faboideae)							
* <i>Medicago polymorpha</i>	Burr Medic						
* <i>Trifolium repens</i>	White Clover						Sept, Oct
* <i>Vicia sativa</i>	Vetch						
Fabaceae (Subfamily Mimosoideae)							
<i>Acacia saligna</i>	Golden Wreath Wattle						Aug, Sept
Malvaceae							
* <i>Sida rhombifolia</i>	Paddys Lucerne						
Meliaceae							
<i>Melia azedarach</i> var. <i>australasica</i>	White Cedar						
Myrtaceae							
<i>Corymbia maculata</i>	Spotted Gum						Mar, Apr
<i>Eucalyptus paniculata</i> subsp. <i>paniculata</i>	Grey Ironbark						
<i>Eucalyptus punctata</i>	Grey Gum						
<i>Eucalyptus tereticornis</i>	Forest Red Gum						May, Aug, Sept, Oct
Oleaceae							
* <i>Olea europaea</i> subsp. <i>cuspidata</i>	African Olive						
Pittosporaceae							
<i>Pittosporum undulatum</i>	Sweet Pittosporum						Aug, Sept
Plantaginaceae							
* <i>Plantago lanceolata</i>	Plantain						
Polygonaceae							
* <i>Rumex crispus</i>	Curled Dock						
Proteaceae							
<i>Grevillea robusta</i>	Silky Oak						
Rosaceae							

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW



SCIENTIFIC NAME	COMMON NAME	BC ACT	EPBC ACT	SAIL	REGIONALLY SIGNIFICANT	WEEDS	FLOWERING PERIOD
<i>*Rubus fruticosus ssp. aggregate</i>	Blackberry						
Rubiaceae							
<i>*Galium aparine</i>	Clevers						
Solanaceae							
<i>*Cestrum parqui</i>	Green Cestrum						Sept, Oct
<i>*Solanum nigrum</i>	Blackberry Nightshade						
<i>*Solanum mauritianum</i>	Wild Tobacco						
Verbenaceae							
<i>*Lantana camara</i>	Lantana						Noxious
<i>*Verbena bonariensis</i>	Purple Top						
<i>*Verbena rigida var. rigida</i>	Veined Verbena						

Appendix I: Fauna Survey Results

Amphibian

No amphibian species were recorded within the impact area during fieldwork. Whilst no amphibian species listed as threatened under the BC Act or EPBC Act were recorded during fieldwork, *Litoria aurea* (Green & Golden Bell Frog) is known to occur within the locality on Kooragang Island. No suitable habitat was considered to be present for this species.

Avifauna

Avifauna species recorded within the site and surrounds were:

- *Rhipidura albiscapa* (Grey Fantail);
- *Pardalotus punctatus* (Spotted Pardalote);
- *Hirundo neoxena* (Welcome Swallow);
- *Malurus cyaneus* (Superb Blue Wren);
- *Eudynamys orientalis* (Pacific Koel);
- *Ocyphaps lophotes* (Crested Pigeon);
- *Cracticus nigrogularis* (Pied Butcherbird);
- *Platycercus eximius* (Eastern Rosella);
- *Gymnorhina tibicen* (Magpie);
- *Coracina novaehollandiae* (Black-faced Cuckoo Shrike).

No avifauna species listed as threatened under the BC Act or EPBC Act were recorded within the site during surveys.

Reptiles

One reptile species was observed during field surveys; *Saproscincus mustelinus* (Weasel Skink).

No reptile species listed as threatened under the BC Act or EPBC Act were recorded within the site during surveys.

Terrestrial Mammals

Diggings attributed to bandicoot were commonly observed within the site and *Isodon macrourus* (Northern Brown Bandicoot) was captured on remote camera surveys. Other fauna captured during camera surveys were *Rattus rattus* (Black Rat) and *Vulpes vulpes* (Red Fox). Images captured during remote camera surveys area shown in Plates H1 and H2.

Previously a *Wallabia bicolor* (Swamp Wallaby) was observed within the site (Pers. comm. Radha Rockwood 2024).

No terrestrial mammal species listed as threatened under the BC Act or EPBC Act 1999 were recorded within the subject land.



Plate I1: Northern Brown Bandicoot on remote camera - 13/01/2025 (date on camera is incorrect)



Plate I2: Red Fox on remote camera - 14/01/2025 (date on camera is incorrect)

Microchiropteran Bats

The following species were identified from Anabat recordings:

- Possible *Austronomus australis* (White-striped free-tailed bat) – low-moderate confidence
- *Chalinolobus gouldii* (Gould's wattled bat) – high confidence
- *Falsistrellus tasmaniensis* (Eastern False Pipistrelle) – high confidence
- *Ozimops ridei* (Ride's Free-Tailed Bat) – high confidence
- *Vespadelus vulturnus* (Little Forest Bat) – high confidence

Falsistrellus tasmaniensis (Eastern False Pipistrelle) is listed as Vulnerable under the BC Act.

Incidental Observations and Secondary Indications

A number of incidental observations and secondary indications of fauna were observed during the survey and included:

- A large number of diggings attributed to bandicoot were commonly found throughout the site.

Appendix J Tree Survey Results

Tree Data Key for Table I1.

- ***DBH** – Diameter at Breast Height. Tree trunk diameter measured at breast height (1.4 metres above ground level).
- ***Tree Height** –(m)
- **Coordinates** - GDA – 2020, MGA 56
- **Habitat/Hollows** –

Class 1 – very large sized hollow openings (i.e., >20cm) suitable for species such as Owls

Class 2 – large sized hollow openings (i.e., 15-20cm) suitable for species such as Owls and Possums

Class 3 – medium sized hollow-openings (i.e., 5-15cm) suitable for species such as Gliders and Possums

Class 4 – small sized hollow openings (i.e., <5cm) suitable for species such as microchiropteran bats.

Spout - Hollow opening towards sky offering little protection from the weather

Arboreal Termite Nest – provides potential nesting opportunities for hollow-dependent birds, such as kingfishers and kookaburras

Table J1: Details of surveyed trees within the subject land and within close proximity

Tree No.	Species	Easting	Northing	DBH (m)	Height (m)	Comments
1	<i>Eucalyptus punctata</i> Grey Gum	381407	6360995	0.1	4	Remove
2	<i>Corymbia maculata</i> Spotted Gum	381406	6360973	0.45	18	Remove
3	<i>C. maculata</i>	381407	6360972	0.27	10	Remove
4	<i>C. maculata</i>	381406	6360969	0.15		Remove
5	<i>C. maculata</i>	381403	6360960	0.3		Remove
6	<i>C. maculata</i>	381404	6360960	0.37		Remove
7	<i>C. maculata</i>	381405	6360961	0.27, 0.35	16	Remove
8	<i>C. maculata</i>	381401	6360963	0.3	18	Remove
9	<i>C. maculata</i>	381401	6360960	0.21		Remove
10	<i>C. maculata</i>	381403	6360958	0.18, 0.24		Remove
11	<i>C. maculata</i>	381404	6360959	0.29		Remove
12	<i>C. maculata</i>	381401	6360956	0.24	17	Remove
13	<i>Eucalyptus tereticornis</i> Forest Red Gum	381403	6360955	0.31		Remove
14	<i>E. tereticornis</i>	381403	6360953	0.28		Remove
15	<i>E. tereticornis</i>	381403	6360951	0.25		Remove
16	<i>C. maculata</i>	381401	6360951	0.29	16	Remove
17	<i>E. tereticornis</i>	381403	6360949	0.17, 0.23		Remove
18	<i>E. tereticornis</i>	381403	6360949	0.26		Remove
19	<i>E. tereticornis</i>	381399	6360949	0.24		Remove
20	<i>E. tereticornis</i>	381396	6360948	0.26		Remove
21	<i>C. maculata</i>	381396	6360948	0.32		Remove
22	<i>E. tereticornis</i>	381399	6360945	0.38		Remove
23	<i>C. maculata</i>	381401	6360942	0.28		Remove
24	<i>E. tereticornis</i>	381400	6360919	0.83	18	Remove
25	<i>E. tereticornis</i>	381278	6361039	0.39	10	Retain
26	<i>E. tereticornis</i>	381281	6361038	0.32	8	Retain
27	<i>E. tereticornis</i>	381283	6361040	0.21		Retain
28	<i>Corymbia citriodora</i> Lemon Scented Gum	381287	6361038	0.19		Retain
29	<i>Acacia saligna</i>	381197	6360946	0.25	7	Potentially Remove

Proposed BESS
1 McIntosh Drive
MAYFIELD WEST NSW



Tree No.	Species	Easting	Northing	DBH (m)	Height (m)	Comments
	Golden Wreath Wattle					
30	<i>Casuarina glauca</i> Swamp Oak	381208	6360942	0.2	7	Potentially Remove
31	<i>A. saligna</i>	381222	6360987	0.17	4	Potentially Remove
32	<i>A. saligna</i>	381224	6361004	0.17	5	Potentially Remove
33	<i>C. glauca</i>	381231	6361016	0.16	4	Potentially Remove
34	<i>C. glauca</i>	381233	6361024	0.17	6	Potentially Remove
35	<i>A. saligna</i>	381229	6361030	0.15	10	Potentially Remove