

8 April 2020

Elizabeth Cruice
Associate – Lead Town Planner
i³ consulting Pty Ltd
Suite 2/ 39 Sherwood Road
Toowong, QLD, 4066



Dear Elizabeth,

Re: Constraints and Biodiversity PEA Chapter, Whittingham Solar Farm (our ref 19- 407)

NGH has undertaken a preliminary investigation of biodiversity assessments and constraints at the proposed Whittingham Solar Farm, located approximately 9 km South East of Singleton, NSW. Please find following a constraints assessment and biodiversity chapter for the Preliminary Environmental Assessment (PEA).

This analysis is based on desktop assessment and site survey which focused on the collection of rapid assessment and plot data to quantify initial desktop results. This report includes:

- Methodology;
- Biodiversity constraints;
- Considerations and recommendations;
- Preliminary constraints mapping of the study area.

If you have any questions, please contact me on the details below. I would be pleased to discuss this project with you further.

Yours sincerely,

Mitch Palmer
A/Principal Ecologist
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ABN 31 124 444 622 ACN 124 444 622

1. INTRODUCTION

The proposed Whittingham Solar Farm, the proposal, encompasses an area of approximately 339 ha within the Singleton Local Government Area, located approximately 9 km southeast of Singleton and 12 km west of Braxton. Currently, the land is predominantly used for rural activities, however the southern portions of the site were intended to be utilised as an Industrial Estate, with development approval granted 3 March 2017. A Draft Plan of Management was submitted as part of the clearing permit conditions, with clearing of woody vegetation carried out over within large areas of the site in accordance with the Draft Plan of Management and conditions of consent.

NGH has been engaged to provide a high-level biodiversity constraints analysis and prepare the biodiversity chapter as part of an overall Preliminary Environmental Assessment (PEA). The proposal site is primarily located on land zoned *RU1 - Primary Production* however, *IN3 – Heavy Industrial* and small areas with *E2 – Environmental Conservation*.

2. LEGISLATION

The proposal would be assessed under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and would most likely have a capital investment cost estimated at more than \$30 million. Therefore, the proposal would be considered to be “State Significant Development (SSD)” under Part 4 of the EP&A Act.

The *Biodiversity Conservation Act 2016* (BC Act) relates to the conservation of biodiversity. The purpose of the BC Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community consistent with the principles of ecological sustainable development. The BC Act brings in changes to biodiversity survey, assessment and offset methodologies. It also requires specific consideration of irreversible impacts. The proposal would impact on native vegetation and biodiversity values. As it is anticipated that the proposal would be SSD, it is mandatory for SSD projects to enter the Biodiversity Offset Scheme (BOS) and a Biodiversity Development Assessment Report (BDAR) would be required to assess biodiversity impacts following the Biodiversity Assessment Method (BAM). This is likely to trigger offset liabilities for the proposal, with any offset obligations achieved by;

- acquiring or retiring credits that are publicly available or setting up an onsite or offsite Stewardship Site under the BOS;
- making payments into the Biodiversity Conservation Fund using the offsets payment calculator (generally only suitable for small credit liabilities to risk and premium associated costs); or
- funding a biodiversity action that benefits the threatened entity(ies) impacted by the development.

Key fish habitat is defined under the *Fisheries Management Act 1994* as aquatic habitat important to the maintenance of fish populations generally and the survival and recovery of threatened aquatic species. Assessment of the Singleton LGA (DPI, 2017) identified key fish habitat within the proposal site boundaries. Waterway crossings as well as clearing and excavation near key fish habitat must be considered carefully and impacts on aquatic habitat and pollution risks mitigated.

The *National Parks and Wildlife Act 1974* (NPW Act) establishes the fundamental functions of the NSW National Parks and Wildlife Service. These include the conservation of nature, objects, features, places and management of land reserved under the Act. Specifically, the conservation of nature includes:

- Landforms of significance, including geological features and processes, and
- Landscapes and natural features of significance including wilderness and wild rivers.

Animal and plant provisions of the NPW Act have been repealed and replaced by the BC Act, however, the NPW Act also sets out to protect and preserve Aboriginal heritage values. Part 6 of this Act refers to Aboriginal objects and places and prevents persons from impacting on an Aboriginal place or relic, without consent or a

permit. Additional to the NPW Act, Department of Planning, Industry and Environment (DPIE – formally OEH) codes set out required assessment and consultation protocols for Aboriginal heritage impact assessments. This would be subject to additional assessment.

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is administered by the Commonwealth Department of Agriculture, Water and the Environment (DoAWE). Under the EPBC Act, if the Minister determines that an action is a 'controlled action' which would have or is likely to have a significant impact on a Matter of National Environmental Significance (MNES) or Commonwealth land, then the action may not be undertaken without prior approval of the Minister.

The EPBC Act identifies the following nine MNES:

- World Heritage properties.
- National heritage places.
- Ramsar wetlands of international significance.
- Threatened species and ecological communities.
- Migratory species.
- Commonwealth marine areas.
- The Great Barrier Reef Marine Park.
- Nuclear actions (including uranium mining).
- Water resources (in relation to coal seam gas development and large coal mining development).

Further flora and fauna studies would confirm biodiversity impacts, during the preparation of an EIS. At this stage, however, given the nature and scale of the proposal, **an EPBC referral on the basis of potential to significantly impact specific Commonwealth listed Threatened Ecological Communities, birds and bats is considered likely**. As a result, recognition of the need to address Commonwealth matters is recommended to be sought in the Secretary's Environmental Assessment Requirements (SEARs). If impacts are deemed significant, the project would become a controlled action and additional information and public exhibition processes may apply. An additional Commonwealth approval would be required.

2.1. LAND CATEGORISATION

A review of land categorisation under the *Local Land Services Act 2013* to clarify the native vegetation management regime would be undertaken. Where applicable to do so (land applicable to the LLS act ie rural land), the potential for land to be mapped as Category 1 exempt land would be evaluated, as land mapped or determined as Category 1 exempt land can be excluded from the BAM and are not required to be assessed, with exception to prescribed impacts, potentially saving time, money and potential offset obligations. Reference to relevant legislation is provided below;

- BC Act s6.8(3): The biodiversity assessment method is to exclude the assessment of the impacts of any clearing of native vegetation and loss of habitat on category 1-exempt land (within the meaning of Part 5A of the Local Land Services Act 2013), other than any impacts prescribed by the regulations under section 6.3.
- BAM 2.3.1.1 Biodiversity values not assessed under the BAM include: (d) biodiversity values associated with the assessment of the impacts of any clearing of native vegetation and loss of habitat on category 1-exempt land (within the meaning of Part 5A of the LLS Act), other than the additional biodiversity impacts in accordance with clause 6.1 of the BC regulation; (that being prescribed impacts).

As the Native Vegetation regulatory (NVR) maps are not publicly available, during the transitional period (until the entire Native Vegetation Regulatory map is released), accredited assessors may establish the categorisation of land for the consent authority to consider by approximating the method used to make the NVR map under the provisions of the BC Act and the LLS Act. This is done via;

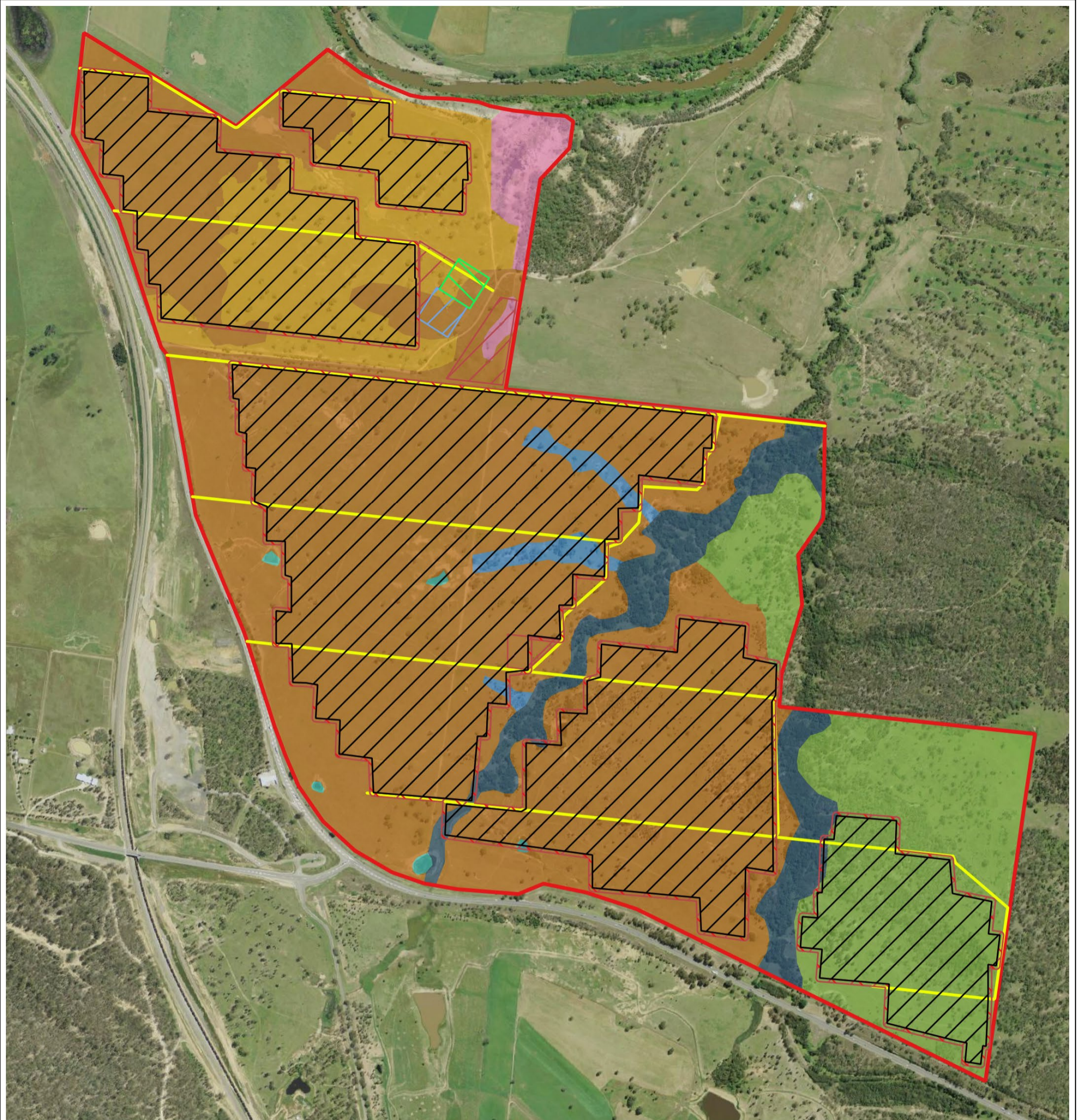
- Historic aerial imagery;
- Landuse mapping:

- A land use layer contributes to identifying land for inclusion in category 1 in the NVR map. Chapter 4 of the NVR map method statement describes the process for identifying and mapping existing and historical agricultural land use since 1 January 1990. Mapping existing and historical land use focuses on identifying patterns or evidence of agricultural land uses according to high resolution aerial or satellite imagery and classifying land under a national land use classification system.
- The 2017 land use dataset is available from SEED portal.
- Woody extent layer:
 - Contributes to identifying areas for inclusion in category 2 in the NVR map (including individual trees).
 - Latest publicly available is NSW Woody Vegetation Extent & FPC 2011 and 2017 update
- Boundaries of sensitive regulated and vulnerable regulated land available on the NVR map portal.

To meet the cat 1 exempt land requirement, land must be:














- Legally cleared at or since 1 Jan 1990 (Woody vegetation only)
- Significantly disturbed or modified since 1990 (Non-woody vegetation)

As the Land Category Assessment is preliminary and would need to be approved by the Department of Planning, Industry and Environment (DPIE), the results have not been incorporated into the constraints mapping for the proposal, however, will be completed during the EIS phase of the project and incorporated into the Biodiversity Development Assessment Report (BDAR) where relevant to do so and following consultation with DPIE.

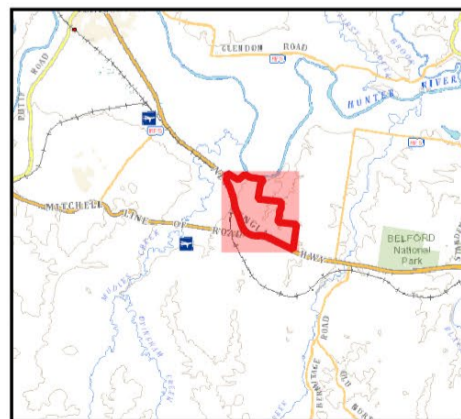


Vegetation Zone Map

Legend

 Array Area	Development Site Vegetation:
APZ	PCT and Management Zone
 substation	 1601, Mod
 Access roads	 1604, Cleared
 battery	 1604, Drainage
 compound	 1604, Mod
 Development Site	 1604, Scattered
	 1731, Mod
	 Dam, Dam

0 0.25 0.5 km



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Ref: 19-407 Workspace-5755-CH3D9H2 \\
 Vegetation Zone Map
 Author: brendon.t
 Date created: 08.04.2020
 Datum: GDA94 / MGA zone 56



NGH

Figure 1 – Site locality and vegetation zones

3. METHODOLOGY

3.1. DATABASE SEARCHES

Ecological values of the proposal were investigated at a high level. This has included the following information sources:

- Existing threatened species listings under the BC Act and EPBC Act;
- Existing records of threatened species sightings in the subject land, as recorded in the BioNet Database (OEH);
- EPBC Protected Matters Search Tool (nationally threatened species listed under the EPBC Act);
- Threatened species and communities identified as potentially occurring through the Biodiversity Assessment Methodology Calculator (BAM-C,OEH);
- Areas of outstanding biodiversity value declared under the BC Act 2016.

A search of the OEH BioNet Atlas database (BioNet) was conducted on the 14th October 2019, for an area including the proposal site and a 10km buffer around the proposal site. This search identified 20 Threatened Ecological Communities (TECs), five (5) threatened flora species and 25 threatened fauna species previously recorded within this area. These searches are undertaken on a broad scale to capture all entities that may be of interest. Additionally, a search of the EPBC Protected Matters Search Tool (PMST) was conducted on the 14th October 2019 and identified five (5) potential TECs, 15 migratory species and 33 threatened species that have potential to occur within 10km of the site. Detailed site investigations would consider those which are relevant to the site. BioNet and PMST search results are included as Appendix A.

3.2. SITE INSPECTION

A preliminary site inspection was undertaken by a Senior Ecologist (8 person-hours; 15th August 2019). The methodology included a site walkover, rapid assessment points identifying the dominant plant species and observations of habitat features such as large stick nests and hollow bearing trees when encountered. The site inspection focused on dominant canopy species and midstorey when present, however, persistent severe drought conditions in the Hunter Region and elsewhere in NSW in conjunction with grazing did not allow for groundcover to be readily identifiable at that time. Following the initial site inspection, site surveys were conducted in October 2019 to undertake representative Vegetation Integrity Plot data in accordance with the BAM and in conjunction with targeted threatened fauna and flora surveys for those identifiable during their optimal survey periods.

4. BIODIVERSITY CONSTRAINTS

4.1. CONSTRAINT DEFINITIONS

High Constraint (Red) – These are areas that should be avoided if possible and will require justification in the Biodiversity Development Assessment Report (BDAR) if they cannot be avoided, or areas that are likely to generate high biodiversity credit per hectare (ha) requirements that will require offsetting. These include areas of;

- TEC with an intact overstorey and/or native dominated understorey;
- Non-TEC Plant Community Types (PCTs) in good condition (good ecosystem credit species habitat);
- High potential candidate species credits habitat (i.e. Pale-headed Snake);
- Grey-crowned Babbler nesting and breeding areas;
- Permanent riparian areas in moderate to good condition;
- Areas identified to be retained within the Whittingham Estate Plan of Management.

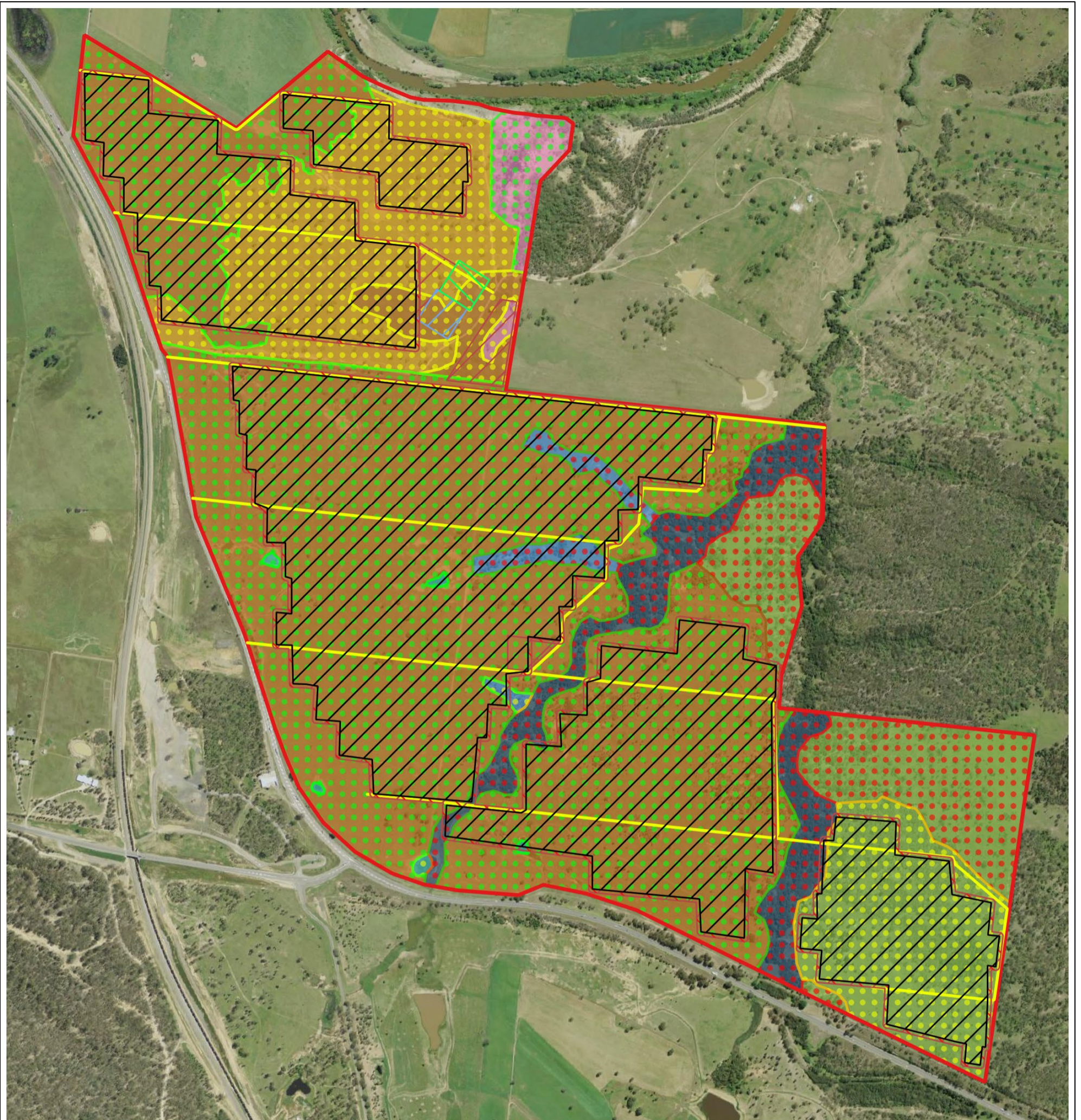
Moderate Constraint (Orange) – These areas do not necessarily need to be avoided but will generate a moderate biodiversity credit per hectare that require offsetting. Siting of infrastructure in these areas should focus on cleared areas where woody vegetation is absent/minimal if possible (ie canopy species is not present). These include areas of;

- Degraded TEC and TEC associated Derived Native Grasslands;
- Non-TEC PCTs in moderate condition (moderate ecosystem credit species habitat);
- Planted native vegetation consistent with that of a known TEC;
- Ephemeral riparian areas and farm dams in moderate condition with or without evidence of fringing riparian vegetation;
- Areas approved for clearing within the Whittingham Estate Development Consent but has **not** yet been undertaken at the time of the field surveys.

Low Constraint (Green) – These areas are unlikely to generate biodiversity credits (exotic areas) or may have low biodiversity credit requirements per hectare. These include areas of;

- Areas potentially mapped as Category 1 – Exempt Land under the *Local Land Services Amendment Act 2016*;
- Areas approved for clearing within the Whittingham Estate Development Consent and where removal of all woody vegetation has occurred;
- Degraded TEC derived grasslands (that are unlikely to meet the criteria for TEC determination);
- Non-TEC PCTs in low or poor condition;
- Ephemeral riparian areas and farm dams in low condition with no evidence of fringing riparian vegetation;
- Non-native vegetation (Exotic vegetation)

Note - Areas mapped as a high constraint or identified as red within Figure 2 do not represent areas that would stop a major project or SSD approval, however, may result in delays in project approval and if impacted, may contribute to a significant biodiversity loss and therefore generate significant associated costs in order to offset these impacts. It is recommended these areas be avoided or minimised as much as possible.

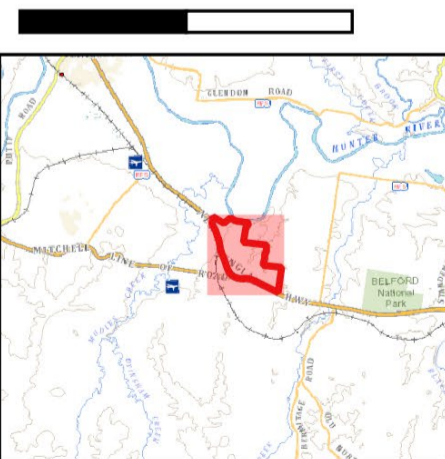


Constraints Map

Legend

- | | | |
|------------------|-------------------------------------|--------------------|
| Array Area | Development Site Vegetation: | Constraints |
| APZ | PCT and Management Zone | High |
| substation | 1601, Mod | Low |
| Access roads | 1604, Cleared | Moderate |
| battery | 1604, Drainage | |
| compound | 1604, Mod | |
| Development Site | 1604, Scattered | |
| | 1731, Mod | |
| | Dam, Dam | |

0 0.25 0.5 km



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Ref: 19-407 Workspace-5755-CH3D9H2 \\
 Constraints Map
 Author: brendon.t
 Date created: 08.04.2020
 Datum: GDA94 / MGA zone 56



Figure 2 – Constraints Map

4.2. VEGETATION COMMUNITIES AND THREATENED ECOLOGICAL COMMUNITIES (TECS)

The desktop assessment, preliminary site inspection and collection of floristic plots confirmed that the majority of the proposal site has been subject to historical clearing that has occurred along existing fence lines, for the establishment of farm access tracks and within areas approved under the initial conditions of consent for the Whittingham Estate industrial area. Based on existing mapping of the area, five (5) PCTs were mapped as potentially occurring, however, following the initial site inspection and collection of rapid assessment points and vegetation integrity plots, three (3) PCTs were identified as occurring throughout the proposal site in various conditions states (Table 1). Landscape characters (soils, aspect and topography) also informed the PCT determination.

Table 1 Present or potentially occurring PCTs and TECs

Plant Community Type	TEC	Observed within the proposal site	State Vegetation Map - Greater Hunter
Spotted Gum - Narrow-leaved Ironbark-Red Ironbark shrub - grass open forest of the central and lower Hunter (PCT 1601)	✓ Central Hunter Grey Box—Ironbark Woodland in the New South Wales North Coast and Sydney Basin Bioregions	✓	✓
Narrow-leaved Ironbark - Grey Box - Spotted Gum shrub - grass woodland of the central and lower Hunter (PCT1604)	✓ Central Hunter Grey Box—Ironbark Woodland in the New South Wales North Coast and Sydney Basin Bioregions	✓	✓
Swamp Oak - Weeping Grass grassy riparian forest of the Hunter Valley (PCT 1731)	☑ Potentially part of Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	✓	✓
Bull Oak grassy woodland of the central Hunter Valley (PCT 1692)	☑ Potentially part of Central Hunter Grey Box—Ironbark Woodland in the New South Wales North Coast and Sydney Basin Bioregions	-	✓
Spotted Gum - Red Ironbark - Narrow-leaved Ironbark - Grey Box shrub-grass open forest of the lower Hunter (1600)	✓ Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions	-	✓

The proposal site is located within the Hunter Interim Biogeographic Regionalisation for Australia (IBRA) sub-regions. Majority of the woody vegetation within the proposal site has been cleared under the previously Development Consent, however, remains as large scattered individuals to the north of the proposal site, and

as remnant intact vegetation within riparian areas and remnant forest and regrowth to the east of the proposal site. Generally, vegetation is dominated by Narrow-leaved Ironbark *Eucalyptus crebra*, Grey Box *Eucalyptus moluccana* and occasional Spotted Gum *Corymbia maculata*. Forest Red Gum *Eucalyptus tereticornis*, Rough-barked Apple and occasional Slaty Gum *Eucalyptus glaucina* occur in lower lying areas and minor drainage lines. Swamp Oak *Casuarina glauca* dominates the more permanent drainage lines within the proposal site. Midstorey when present was inclusive of largely dominated by exotic species such as by African Olive *Olea europaea subsp. africana* and Lantana *Lantana camara* with scattered individuals of Needle bush *Hakea sericea*, *Acacia falcata*, Silver-stemmed Wattle *Acacia parvipinnula* and Blackthorn *Bursaria spinosa*. Groundcover present included Barbed Wire Grass *Cymbopogon refractus*, Rock Fern *Cheilanthes sieberi subsp. sieberi* and Purple wiregrass *Aristida ramosa* with exotic species such as Fireweed *Senecio madagascariensis* and *Paspalum dilatatum* common.

Two TECs occur within the proposal site and consist of;

- Central Hunter Grey Box—Ironbark Woodland in the New South Wales North Coast and Sydney Basin Bioregions; and
- Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions

4.3. THREATENED FLORA AND FAUNA SPECIES

One (1) threatened flora species was observed during the site surveys to date. Numerous individuals of Slaty Gum *Eucalyptus glaucina* were observed. This species is also known to be locally common in the broader locality, with 186 known records within the 10km of the proposal site. It is not anticipated that these individuals would be impacted by the development. As *E.glaucina* is occurring in conjunction with *E.tereticornis*, it is likely that hybridisation between the species is occurring. Additionally, numerous Grey-crowned babbler, listed threatened under the BC Act, were observed within the proposal site, with evidence of breeding occurring within the small ephemeral drainage lines that occur within the site. One (1) Pale-headed snake, listed threatened under the BC Act, was also observed during surveys within PCT 1731 drainage line to the south east of the site. Detailed investigations on threatened flora and fauna within an EIS would be required. Known or potential threatened flora species that may assessment, as are known to occur, are indicated from the databases searches or that have potential habitat present are demonstrated in Table 2.

Table 2 Known or potential threatened flora and fauna species requiring survey, as indicated from the databases searches and/or potential habitat

Species	Indicated in 10km search area or calculator			Presence/Potential Optimal or required survey period
	EPBC Act (PMST)	BC Act (BioNet)	BAM – C Candidate Species	
TEC				
<i>Central Hunter Grey Box - Ironbark Woodland in the New South Wales North Coast and Sydney Basin Bioregions</i>	✓	✓	-	Present within proposal site
<i>Central Hunter Ironbark - Spotted Gum - Grey Box Forest in the New South Wales North Coast and Sydney Basin Bioregions</i>	✓	✓	-	
<i>Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>	-	✓	-	Unlikely to be within proposal site
<i>Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>	-	✓	-	Potential to be within proposal site

Species	Indicated in 10km search area or calculator			Presence/Potential Optimal or required survey period
	EPBC Act (PMST)	BC Act (BioNet)	BAM – C Candidate Species	
<i>Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions</i>	-	✓	-	Unlikely to be within proposal site
<i>Hunter Lowland Redgum Forest in the Sydney Basin and New South Wales North Coast Bioregions</i>	-	✓	-	Unlikely to be within proposal site
<i>Hunter Valley Foothills Slaty Gum Woodland in the Sydney Basin Bioregion</i>	✓	✓	-	Unlikely to be within proposal site
<i>Hunter Valley Vine Thicket in the NSW North Coast and Sydney Basin Bioregions</i>	-	✓	-	Unlikely to be within proposal site
<i>Hunter Valley Weeping Myall Woodland in the Sydney Basin Bioregion</i>	✓	✓	-	Unlikely to be within proposal site
<i>Kurri Sand Swamp Woodland in the Sydney Basin Bioregion</i>	-	✓	-	Unlikely to be within proposal site
<i>Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>	-	✓	-	Unlikely to be within proposal site
<i>Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions</i>	-	✓	-	Potential to be within proposal site
<i>Lower Hunter Valley Dry Rainforest in the Sydney Basin and NSW North Coast Bioregions</i>	-	✓	-	Unlikely to be within proposal site
<i>Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions</i>	✓	✓	-	Unlikely to be within proposal site
<i>River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>	-	✓	-	Unlikely to be within proposal site
<i>Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>	✓	✓	-	Present within proposal site
<i>Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>	-	✓	-	Unlikely to be within proposal site
<i>Sydney Freshwater Wetlands in the Sydney Basin Bioregion</i>	-	✓	-	Unlikely to be within proposal site
<i>Warkworth Sands Woodland in the Sydney Basin Bioregion</i>	-	✓	-	Unlikely to be within proposal site
<i>White Box - Yellow Box - Blakely's Red Gum Woodland</i>	✓	✓	-	Unlikely to be within proposal site
Flora				
<i>Acacia bynoeana</i> Bynoe's Wattle	✓	-	✓	Unlikely. Surveyable All Year
<i>Acacia pendula</i> population in the Hunter catchment	-	✓	-	Unlikely. Surveyable All Year
<i>Angophora inopina</i> Charmhaven Apple	✓	✓	-	Unlikely. Surveyable All Year

Species	Indicated in 10km search area or calculator			Presence/Potential Optimal or required survey period
	EPBC Act (PMST)	BC Act (BioNet)	BAM – C Candidate Species	
<i>Callistemon linearifolius</i>	-	-	✓	Potentially occurring. Surveyable Oct-Jan
<i>Cryptostylis hunteriana</i>	-		✓	Unlikely. Surveyable Sept
<i>Cymbidium canaliculatum</i> population in the Hunter Catchment	-	✓		Unlikely. Surveyable All Year
<i>Cynanchum elegans</i> White-flowered Wax Plant	✓	-	✓	Unlikely. Surveyable All Year
<i>Dichanthium setosum</i>	✓	-	-	Unlikely. Surveyable Dec-April
<i>Diuris praecox</i>	-	-	✓	Unlikely. Surveyable August
<i>Diuris tricolor</i>	-	-	✓	Potentially occurring. Surveyable Sept-Oct
<i>Eucalyptus camaldulensis</i> population in the Hunter catchment	-	✓	-	Unlikely. Surveyable Dec-Mar
<i>Eucalyptus castrensis</i>	-		✓	Unlikely. Surveyable All Year
<i>Eucalyptus glaucina</i> Slaty Red Gum	✓	✓	✓	Recorded onsite. Surveyable All Year
<i>Eucalyptus parramattensis</i> subsp. <i>decadens</i>	-	-	✓	Potentially occurring. Surveyable All Year
<i>Eucalyptus pumila</i> Pokolbin Mallee	✓	-	✓	Unlikely. Surveyable All Year
<i>Euphrasia arguta</i>	✓	-	-	Unlikely. Surveyable All Year
<i>Grevillea parviflora</i> subsp. <i>parviflora</i>	-	-	✓	Potentially occurring. Surveyable Aug-Nov
<i>Monotaxis macrophylla</i>	-	-	✓	Unlikely. Surveyable Aug-Feb
<i>Ozothamnus tessellatus</i>	-	-	✓	Unlikely. Surveyable Sept-Oct
<i>Persicaria elatior</i>	-	-	✓	Unlikely. Surveyable All Year
<i>Persoonia pauciflora</i>	✓	-	✓	Unlikely. Surveyable All Year
<i>Pomaderris queenslandica</i>	-	-	✓	Unlikely. Surveyable All Year
<i>Prasophyllum petilum</i>	✓	-	-	Unlikely. Surveyable Sept- Oct
<i>Prostanthera cineolifera</i>	✓	-	✓	Unlikely. Surveyable Sept-Oct
<i>Pterostylis chaetophora</i>	-	-	-	Unlikely. Surveyable Sept-Nov
<i>Pterostylis gibbosa</i>	✓	-	-	Unlikely. Surveyable Sept-Nov
<i>Rutidosis heterogama</i> Heath Wrinklewort	✓	-	✓	Potentially occurring. Surveyable All Year
<i>Syzygium paniculatum</i>	✓	-	-	Unlikely. Surveyable All Year
<i>Thesium australe</i> Austral Toadflax	✓	-	-	Unlikely. Surveyable Nov-Feb
Amphibians				

Species	Indicated in 10km search area or calculator			Presence/Potential Optimal or required survey period
	EPBC Act (PMST)	BC Act (BioNet)	BAM – C Candidate Species	
<i>Heleioporus australiacus</i> Giant Burrowing Frog	✓	-	-	Unlikely. Surveyable Sept-May
<i>Litoria aurea</i> Green and Golden Bell Frog	✓	-	✓	Unlikely. Surveyable Nov-Feb
<i>Litoria brevipalmata</i> Green-thighed Frog	-	-	✓	Unlikely. Surveyable Oct-Mar
<i>Litoria booroolongensis</i> Booroolong Frog	✓	-	-	Unlikely. Surveyable Nov-Dec
Avifauna				
<i>Anthochaera Phrygia</i> Regent Honeyeater	✓	-	✓	Potentially occurring. Surveyable Sept- Nov
<i>Ardea ibis</i> Cattle Egret	-	✓	-	Potentially occurring. Surveyable All Year
<i>Artamus cyanopterus cyanopterus</i> Dusky Woodswallow	-	✓	-	Potentially occurring. Surveyable All Year
<i>Botaurus poiciloptilus</i> Australasian Bittern	✓	-	-	Unlikely. Surveyable All Year
<i>Burhinus grallarius</i> Bush Stone-curlew	-	-	✓	Unlikely. Surveyable All Year
<i>Callocephalon fimbriatum</i> Gang-gang Cockatoo	-	-	✓	Unlikely. Surveyable Oct-Jan
<i>Calyptorhynchus lathami</i> Glossy Black-Cockatoo	-	-	✓	Potentially occurring. Surveyable May-Aug
<i>Climacteris picumnus victoriae</i> Brown Treecreeper	-	✓	-	Potentially occurring. Surveyable All Year
<i>Chthonicola sagittata</i> Speckled Warbler	-	✓	-	Potentially occurring. Surveyable All Year
<i>Daphoenositta chrysoptera</i> Varied Sitella	-	✓	-	Potentially occurring. Surveyable All Year
<i>Ephippiorhynchus asiaticus</i> Black-necked Stork	-	✓	-	Unlikely. Surveyable All Year
<i>Erythrotriorchis radiatus</i> Red Goshawk	✓	-	-	Unlikely. Surveyable All Year
<i>Gallinago hardwickii</i> Latham's Snipe	-	✓	-	Unlikely. Surveyable All Year
<i>Grantiella picta</i> Painted Honeyeater	✓	-	-	Unlikely. Surveyable All Year
<i>Haliaeetus leucogaster</i> White-bellied Sea-Eagle	-	-	✓	Potentially occurring. Surveyable Jul-Dec
<i>Hieraaetus morphnoides</i> Little Eagle	-	-	✓	Potentially occurring. Surveyable Aug-Oct
<i>Hirundapus caudacutus</i> White-throated Needletail	✓	✓	-	Potentially occurring. Surveyable All Year
<i>Lathamus discolor</i> Swift Parrot	✓	✓	✓	Potentially occurring. Surveyable April-Aug
<i>Lophoictinia isura</i> Square-tailed Kite	-	-	✓	Potentially occurring. Surveyable Sept-Jan
<i>Merops ornatus</i> Rainbow Bee-eater	✓	✓	-	Potentially occurring. Surveyable All Year
<i>Ninox connivens</i> Barking Owl	-	-	✓	Potentially occurring. Surveyable May-Dec
<i>Ninox strenua</i>	-	✓	✓	Potentially occurring.

Species	Indicated in 10km search area or calculator			Presence/Potential Optimal or required survey period
	EPBC Act (PMST)	BC Act (BioNet)	BAM – C Candidate Species	
Powerful Owl				Surveyable May-Aug
<i>Numenius madagascariensis</i> Eastern Curlew	✓	-	-	Unlikely. Surveyable All Year
<i>Pomatostomus temporalis</i> <i>temporalis</i> Grey-crowned Babbler	-	✓	-	Recorded onsite. Surveyable All Year
<i>Petroica phoenicea</i> Flame Robin	-	✓	-	Potentially occurring. Surveyable All Year
<i>Rostratula australis</i> , Australian Painted-snipe	✓	-	-	Unlikely. Surveyable All Year
<i>Tyto novaehollandiae</i> Masked Owl	-	-	✓	Unlikely. Surveyable May-Aug
Reptiles				
<i>Delma impar</i> Striped Legless Lizard	-	-	✓	Unlikely. Surveyable Sept-Dec
<i>Hoplocephalus bitorquatus</i> Pale-headed Snake	-	-	✓	Recorded onsite. Surveyable Nov-Mar
Mammals				
<i>Cercartetus nanus</i> Eastern Pygmy-possum	-	-	✓	Potentially occurring. Surveyable Oct-Mar
<i>Chalinolobus dwyeri</i> Large-eared Pied Bat	✓	-	✓	Unlikely. Surveyable Nov-Jan
<i>Dasyurus maculatus</i> Spotted-tail Quoll	✓	✓	-	Potentially occurring. Surveyable All Year
<i>Falsistrellus tasmaniensis</i> Eastern False Pipistrelle	-	✓	-	Potentially occurring. Surveyable Nov-Jan
<i>Micronomus norfolkensis</i> Eastern Coastal Free-tailed Bat	-	✓	-	Potentially occurring. Surveyable Nov-Jan
<i>Miniopterus australis</i> Little Bent-winged Bat	-	-	✓	Potentially occurring. Surveyable Dec-Feb
<i>Miniopterus orianae oceanensis</i> Large Bent-winged Bat	-	-	✓	Potentially occurring. Surveyable Dec-Feb
<i>Myotis macropus</i> Southern Myotis	-	✓	✓	Potentially occurring. Surveyable Oct-Mar
<i>Petauroides volans</i> Greater Glider	✓	-	-	Unlikely. Surveyable All Year
<i>Petrogale penicillata</i> Brush-tailed Rock-wallaby	✓	-	✓	Unlikely. Surveyable All Year
<i>Petaurus norfolcensis</i> Squirrel Glider	-	✓	✓	Potentially occurring. Surveyable All Year
<i>Phascogale tapoatafa</i> Brush-tailed Phascogale	-	✓	✓	Potentially occurring. Surveyable All Year
<i>Phascolarctos cinereus</i> Koala	✓	✓	✓	Potentially occurring. Surveyable All Year
<i>Planigale maculata</i> Common Planigale	-	-	✓	Potentially occurring. Surveyable All Year
<i>Pseudomys novaehollandiae</i> New Holland Mouse	✓	-	-	Unlikely. Surveyable All Year
<i>Pteropus poliocephalus</i> Grey-headed Flying-fox	✓	✓	✓	Potentially occurring. Surveyable Oct-Dec
<i>Scoteanax rueppellii</i>	-	✓	-	Potentially occurring.

Species	Indicated in 10km search area or calculator			Presence/Potential Optimal or required survey period
	EPBC Act (PMST)	BC Act (BioNet)	BAM – C Candidate Species	
Greater Broad-nosed Bat				Surveyable Nov-Jan
<i>Vespadelus troughtoni</i> Eastern Cave Bat	-	-	✓	Potentially occurring. Surveyable Nov-Jan

4.4. FAUNA HABITAT

Vegetation within the proposal site forms part of a semi-contiguous patch of vegetation that links Pokolbin State Forest, the Singleton Military Area, and Belford National Park. Remnant native vegetation is in generally moderate to good condition and contains suitable habitat for a number of native fauna to occupy or move through the landscape. A number of hollow bearing trees and other habitat features such as large stick nests were observed, particularly within the northern portion of the proposal site, within scattered *Eucalyptus crebra* individuals. As previously mentioned, numerous Grey-crowned Babbler nests were observed along the minor ephemeral drainage lines. Conversely, within the majority of cleared areas, there is limited value in terms of fauna habitat, other than foraging opportunities for species such granivorous avifauna, raptors and macropod grazing. The high levels of disturbance and introduction or invasion of exotic species in some areas has substantially diminished the habitat values in these areas.

Waterways and riparian corridors provide aquatic habitat for species and fauna movement corridors and have high potential to transport sediments and other pollutants. Several ephemeral tributaries flow through the property north towards the Hunter River and may provide habitat for a number of amphibians and turtle species. These are therefore regarded as a moderate to high constraint.

4.5. CONCLUSIONS AND NEED FOR FURTHER ASSESSMENT

Avoiding and minimising impacts to native vegetation has been considered during initial design and will be further developed during the detailed assessments, particularly within areas of high constraint. As part of the EIS, the detailed ecological surveys and further investigation and assessment will be undertaken including:

- Assessment via Biodiversity Development Assessment Report (BDAR);
- Targeted surveys for subject species, both terrestrial and aquatic, as per DPIE and DoAWE requirements;
- Avoidance, minimisation and mitigation measures required;
- Offset strategies.

The Biodiversity Assessment Method (2016 Order, under the BC Act) will apply to the assessment, most likely generating an NSW offset requirement for the project. As the proposal may significantly impact Matters of National Environmental Significance, EPBC Act assessment requirements are also considered likely and would be addressed.

APPENDIX A DATABASE SEARCH RESULTS

Data from the BioNet BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°; ^^ rounded to 0.01°). Copyright the State of NSW through the Office of Environment and Heritage. Search criteria : Licensed Report of all Valid Records of Threatened (listed on TSC Act 1995) ,Commonwealth listed ,CAMBA listed ,JAMBA listed or ROKAMBA listed Communities in selected area [North: -32.55 West: 151.18 East: 151.33 South: -32.68] returned 0 records for 20 entities.

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Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Community				<i>Central Hunter Grey Box</i> <i>Ironbark Woodland in the New South Wales North Coast and Sydney Basin Bioregions</i>		Central Hunter Grey Box Ironbark Woodland in the New South Wales North Coast and Sydney Basin Bioregions	E3	CE	K	
Community				<i>Central Hunter Ironbark</i> <i>Spotted Gum</i> <i>Grey Box Forest in the New South Wales North Coast and Sydney Basin Bioregions</i>		Central Hunter Ironbark Spotted Gum Grey Box Forest in the New South Wales North Coast and Sydney Basin Bioregions	E3	CE	K	
Community				<i>Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>		Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3	V	P	
Community				<i>Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>		Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3		K	
Community				<i>Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions</i>		Hunter Floodplain Red Gum Woodland in the NSW North Coast and Sydney Basin Bioregions	E3		K	
Community				<i>Hunter Lowland Redgum Forest in the Sydney Basin and New South Wales North Coast Bioregions</i>		Hunter Lowland Redgum Forest in the Sydney Basin and New South Wales North Coast Bioregions	E3		K	








Community	<i>Hunter Valley Foothills Slaty Gum Woodland in the Sydney Basin Bioregion</i>	Hunter Valley Foothills Slaty Gum Woodland in the Sydney Basin Bioregion	V2	CE	K	
Community	<i>Hunter Valley Vine Thicket in the NSW North Coast and Sydney Basin Bioregions</i>	Hunter Valley Vine Thicket in the NSW North Coast and Sydney Basin Bioregions	E3		K	
Community	<i>Hunter Valley Weeping Myall Woodland in the Sydney Basin Bioregion</i>	Hunter Valley Weeping Myall Woodland in the Sydney Basin Bioregion	E4B	CE	K	
Community	<i>Kurri Sand Swamp Woodland in the Sydney Basin Bioregion</i>	Kurri Sand Swamp Woodland in the Sydney Basin Bioregion	E3		K	
Community	<i>Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>	Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3	CE	P	
Community	<i>Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions</i>	Lower Hunter Spotted Gum Ironbark Forest in the Sydney Basin and NSW North Coast Bioregions	E3		K	
Community	<i>Lower Hunter Valley Dry Rainforest in the Sydney Basin and NSW North Coast Bioregions</i>	Lower Hunter Valley Dry Rainforest in the Sydney Basin and NSW North Coast Bioregions	V2		K	
Community	<i>Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions</i>	Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions	E3	CE	K	
Community	<i>River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>	River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3		K	

Community	<i>Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>	Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3	E	K	
Community	<i>Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i>	Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3		K	
Community	<i>Sydney Freshwater Wetlands in the Sydney Basin Bioregion</i>	Sydney Freshwater Wetlands in the Sydney Basin Bioregion	E3		K	
Community	<i>Warkworth Sands Woodland in the Sydney Basin Bioregion</i>	Warkworth Sands Woodland in the Sydney Basin Bioregion	E3	CE	K	
Community	<i>White Box Yellow Box Blakely's Red Gum Woodland</i>	White Box Yellow Box Blakely's Red Gum Woodland	E3	CE	K	

Data from the BioNet BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°; ^^ rounded to 0.01°). Copyright the State of NSW through the Office of Environment and Heritage. Search criteria : Licensed Report of all Valid Records of Threatened (listed on TSC Act 1995) ,Commonwealth listed ,CAMBA listed ,JAMBA listed or ROKAMBA listed Entities in selected area [North: -32.55 West: 151.18 East: 151.33 South: -32.68] returned a total of 354 records of 30 species.

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Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Animalia	Aves	Apodidae	0334	<i>Hirundapus caudacutus</i>		White-throated Needletail	P	C,J,K	2	
Animalia	Aves	Ciconiidae	0183	<i>Ephippiorhynchus asiaticus</i>		Black-necked Stork	E1,P		8	
Animalia	Aves	Ardeidae	0977	<i>Ardea ibis</i>		Cattle Egret	P	C,J	1	
Animalia	Aves	Scolopacidae	0168	<i>Gallinago hardwickii</i>		Latham's Snipe	P	C,J,K	1	
Animalia	Aves	Psittacidae	0309	<i>Lathamus discolor</i>		Swift Parrot	E1,P,3	CE	1	
Animalia	Aves	Strigidae	0248	<i>Ninox strenua</i>		Powerful Owl	V,P,3		3	
Animalia	Aves	Meropidae	0329	<i>Merops ornatus</i>		Rainbow Bee-eater	P	J	1	
Animalia	Aves	Climacteridae	8127	<i>Climacteris picumnus victoriae</i>		Brown Treecreeper (eastern subspecies)	V,P		4	
Animalia	Aves	Acanthizidae	0504	<i>Chthonicola sagittata</i>		Speckled Warbler	V,P		17	
Animalia	Aves	Pomatostomidae	8388	<i>Pomatostomus temporalis temporalis</i>		Grey-crowned Babbler (eastern subspecies)	V,P		31	
Animalia	Aves	Neosittidae	0549	<i>Daphoenositta chrysoptera</i>		Varied Sittella	V,P		2	
Animalia	Aves	Artamidae	8519	<i>Artamus cyanopterus cyanopterus</i>		Dusky Woodswallow	V,P		1	
Animalia	Aves	Petroicidae	0382	<i>Petroica phoenicea</i>		Flame Robin	V,P		3	
Animalia	Mammalia	Dasyuridae	1008	<i>Dasyurus maculatus</i>		Spotted-tailed Quoll	V,P	E	2	
Animalia	Mammalia	Dasyuridae	1017	<i>Phascogale tapoatafa</i>		Brush-tailed Phascogale	V,P		3	
Animalia	Mammalia	Phascolarctidae	1162	<i>Phascolarctos cinereus</i>		Koala	V,P	V	1	
Animalia	Mammalia	Petauridae	1137	<i>Petaurus norfolcensis</i>		Squirrel Glider	V,P		6	
Animalia	Mammalia	Pteropodidae	1280	<i>Pteropus poliocephalus</i>		Grey-headed Flying-fox	V,P	V	11	
Animalia	Mammalia	Molossidae	1329	<i>Micronomus norfolkensis</i>		Eastern Coastal Free-tailed Bat	V,P		13	
Animalia	Mammalia	Vespertilionidae	1372	<i>Falsistrellus tasmaniensis</i>		Eastern False Pipistrelle	V,P		1	
Animalia	Mammalia	Vespertilionidae	1357	<i>Myotis macropus</i>		Southern Myotis	V,P		5	
Animalia	Mammalia	Vespertilionidae	1361	<i>Scoteanax rueppellii</i>		Greater Broad-nosed Bat	V,P		3	
Animalia	Mammalia	Vespertilionidae	1025	<i>Vespadelus troungtoni</i>		Eastern Cave Bat	V,P		1	

Plantae	Flora	Fabaceae (Mimosoideae)	3848	<i>Acacia pendula</i>	Acacia pendula population in the Hunter catchment	E2		2	
Plantae	Flora	Myrtaceae	9619	<i>Angophora inopina</i>	Charmhaven Apple	V	V	1	
Plantae	Flora	Myrtaceae	6360	<i>Eucalyptus camaldulensis</i>	Eucalyptus camaldulensis population in the Hunter catchment	E2		24	
Plantae	Flora	Myrtaceae	4096	<i>Eucalyptus glaucina</i>	Slaty Red Gum	V	V	186	
Plantae	Flora	Orchidaceae	6399	<i>Cymbidium canaliculatum</i>	Cymbidium canaliculatum population in the Hunter Catchment	E2,P,2		1	
Animalia	Mammalia	Miniopteridae	1346	<i>Miniopterus australis</i>	Little Bent-winged Bat	V,P		4	
Animalia	Mammalia	Miniopteridae	3330	<i>Miniopterus oriana oceanensis</i>	Large Bent-winged Bat	V		15	



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.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about [Environment Assessments](#) and the EPBC Act including significance guidelines, forms and application process details.

Report created: 14/10/19 13:50:01

[Summary](#)

[Details](#)

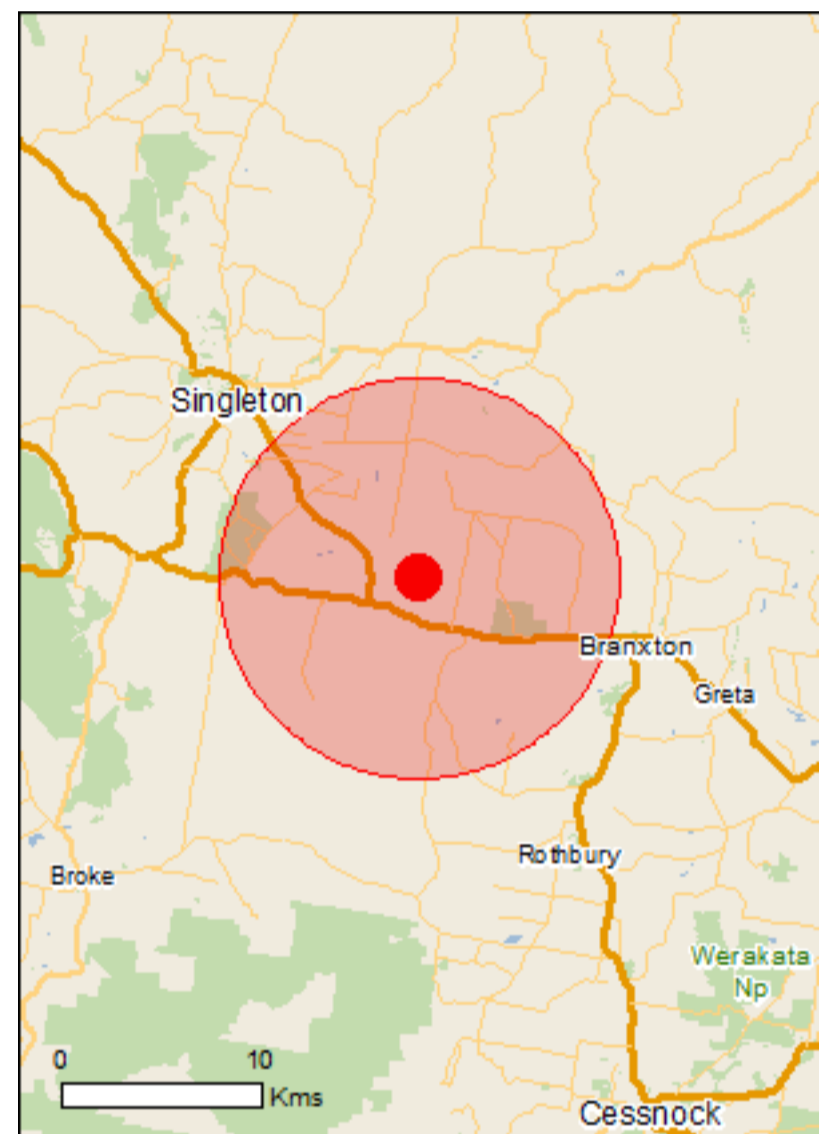
[Matters of NES](#)

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

[Extra Information](#)

[Caveat](#)

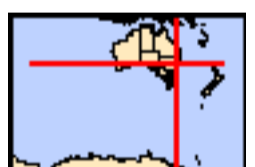
[Acknowledgements](#)



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

[Coordinates](#)

Buffer: 10.0Km



Summary

Matters of National Environmental 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:	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	5
Listed Threatened Species:	33
Listed Migratory Species:	15

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 <http://www.environment.gov.au/heritage>

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

Commonwealth Land:	2
Commonwealth Heritage Places:	None
Listed Marine Species:	21
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	1
Regional Forest Agreements:	1
Invasive Species:	41
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar)

[\[Resource Information \]](#)

Name	Proximity
Hunter estuary wetlands	30 - 40km upstream

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.

Name	Status	Type of Presence
Central Hunter Valley eucalypt forest and woodland	Critically Endangered	Community likely to occur within area
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area
Hunter Valley Weeping Myall (Acacia pendula) Woodland	Critically Endangered	Community may occur within area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area

Listed Threatened Species

[\[Resource Information \]](#)

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat known to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat likely to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area

Name	Status	Type of Presence
Rostratula australis Australian Painted-snipe, Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Frogs		
Heleioporus australiacus Giant Burrowing Frog [1973]	Vulnerable	Species or species habitat may occur within area
Litoria aurea Green and Golden Bell Frog [1870]	Vulnerable	Species or species habitat likely to occur within area
Litoria booroolongensis Booroolong Frog [1844]	Endangered	Species or species habitat may occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat known to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat may occur within area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat likely to occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Plants		
Acacia bynoeana Bynoe's Wattle, Tiny Wattle [8575]	Vulnerable	Species or species habitat likely to occur within area
Angophora inopina Charmhaven Apple [64832]	Vulnerable	Species or species habitat may occur within area
Cynanchum elegans White-flowered Wax Plant [12533]	Endangered	Species or species habitat likely to occur within area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus glaucina Slaty Red Gum [5670]	Vulnerable	Species or species habitat likely to occur within area
Eucalyptus pumila Pokolbin Mallee [16510]	Vulnerable	Species or species habitat may occur within area
Euphrasia arguta [4325]	Critically Endangered	Species or species

Name	Status	Type of Presence
Persoonia pauciflora North Rothbury Persoonia [67214]	Critically Endangered	habitat may occur within area Species or species habitat likely to occur within area
Prasophyllum sp. Wybong (C.Phelps ORG 5269) a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area
Prostanthera cineolifera [11233]	Vulnerable	Species or species habitat likely to occur within area
Pterostylis gibbosa Illawarra Greenhood, Rufa Greenhood, Pouched Greenhood [4562]	Endangered	Species or species habitat may occur within area
Rutidosis heterogama Heath Wrinklewort [13132]	Vulnerable	Species or species habitat likely to occur within area
Syzygium paniculatum Magenta Lilly Pilly, Magenta Cherry, Daguba, Scrub Cherry, Creek Lilly Pilly, Brush Cherry [20307]	Vulnerable	Species or species habitat may occur within area
Thesium australe Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat may occur within area

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

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area

Migratory Wetlands Species

Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area

Name	Threatened	Type of Presence
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land

[\[Resource Information \]](#)

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.

Name
Commonwealth Land - Commonwealth Land - Australian Telecommunications Corporation

Listed Marine Species

[\[Resource Information \]](#)

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat known to occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Chrysococcyx osculans Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves [\[Resource Information \]](#)

Name	State
Belford	NSW

Regional Forest Agreements [\[Resource Information \]](#)

Note that all areas with completed RFAs have been included.

Name	State
North East NSW RFA	New South Wales

Invasive Species

[[Resource Information](#)]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resources Audit, 2001.

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Alauda arvensis Skylark [656]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Pycnonotus jocosus Red-whiskered Bulbul [631]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur

Name	Status	Type of Presence within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Alternanthera philoxeroides Alligator Weed [11620]		Species or species habitat likely to occur within area
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Asparagus aethiopicus Asparagus Fern, Ground Asparagus, Basket Fern, Sprengi's Fern, Bushy Asparagus, Emerald Asparagus [62425]		Species or species habitat likely to occur within area
Asparagus plumosus Climbing Asparagus-fern [48993]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera subsp. monilifera Boneseed [16905]		Species or species habitat likely to occur within area
Cytisus scoparius Broom, English Broom, Scotch Broom, Common Broom, Scottish Broom, Spanish Broom [5934]		Species or species habitat likely to occur within area
Dolichandra unguis-cati Cat's Claw Vine, Yellow Trumpet Vine, Cat's Claw Creeper, Funnel Creeper [85119]		Species or species habitat likely to occur within area
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species

Name	Status	Type of Presence
Opuntia spp. Prickly Pears [82753]		habitat likely to occur within area
		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Sagittaria platyphylla Delta Arrowhead, Arrowhead, Slender Arrowhead [68483]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

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.

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

Where very little information is available for 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 reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

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

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

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

Coordinates

-32.63326 151.25438

Acknowledgements

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

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

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

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

Proposal Details

Assessment Id 00016534/BAAS17051/19/0001653 5	Proposal Name Whittingham SF	BAM data last updated * 26/11/2019
Assessor Name	Report Created 03/03/2020	BAM Data version * 22
Assessor Number	Assessment Type Major Projects	BAM Case Status Open
	Assessment Revision 0	Date Finalised To be 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.

List of Species Requiring Survey

Name	Presence	Survey Months												
<i>Acacia bynoeana</i> Bynoe's Wattle		<table border="1"> <tr> <td>Jan</td><td>Feb</td><td>Mar</td><td>Apr</td><td>May</td><td>Jun</td> </tr> <tr> <td>Jul</td><td>Aug</td><td>Sep</td><td>Oct</td><td>Nov</td><td>Dec</td> </tr> </table>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Jan	Feb	Mar	Apr	May	Jun									
Jul	Aug	Sep	Oct	Nov	Dec									
<i>Burhinus grallarius</i> Bush Stone-curlew		<table border="1"> <tr> <td>Jan</td><td>Feb</td><td>Mar</td><td>Apr</td><td>May</td><td>Jun</td> </tr> <tr> <td>Jul</td><td>Aug</td><td>Sep</td><td>Oct</td><td>Nov</td><td>Dec</td> </tr> </table>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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<i>Callistemon linearifolius</i> Netted Bottle Brush		<table border="1"> <tr> <td>Jan</td><td>Feb</td><td>Mar</td><td>Apr</td><td>May</td><td>Jun</td> </tr> <tr> <td>Jul</td><td>Aug</td><td>Sep</td><td>Oct</td><td>Nov</td><td>Dec</td> </tr> </table>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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<i>Calyptorhynchus lathami</i> Glossy Black-Cockatoo		<table border="1"> <tr> <td>Jan</td><td>Feb</td><td>Mar</td><td>Apr</td><td>May</td><td>Jun</td> </tr> <tr> <td>Jul</td><td>Aug</td><td>Sep</td><td>Oct</td><td>Nov</td><td>Dec</td> </tr> </table>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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<i>Cercartetus nanus</i> Eastern Pygmy-possum		<table border="1"> <tr> <td>Jan</td><td>Feb</td><td>Mar</td><td>Apr</td><td>May</td><td>Jun</td> </tr> <tr> <td>Jul</td><td>Aug</td><td>Sep</td><td>Oct</td><td>Nov</td><td>Dec</td> </tr> </table>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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<p><i>Eucalyptus glaucina</i> Slaty Red Gum</p>		<table border="1"> <tr> <td>Jan</td><td>Feb</td><td>Mar</td><td>Apr</td><td>May</td><td>Jun</td> </tr> <tr> <td>Jul</td><td>Aug</td><td>Sep</td><td>Oct</td><td>Nov</td><td>Dec</td> </tr> </table>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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<p><i>Eucalyptus parramattensis subsp. decadens</i> Eucalyptus parramattensis subsp. decadens</p>		<table border="1"> <tr> <td>Jan</td><td>Feb</td><td>Mar</td><td>Apr</td><td>May</td><td>Jun</td> </tr> <tr> <td>Jul</td><td>Aug</td><td>Sep</td><td>Oct</td><td>Nov</td><td>Dec</td> </tr> </table>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Jul	Aug	Sep	Oct	Nov	Dec									
<p><i>Eucalyptus pumila</i> Pokolbin Mallee</p>		<table border="1"> <tr> <td>Jan</td><td>Feb</td><td>Mar</td><td>Apr</td><td>May</td><td>Jun</td> </tr> <tr> <td>Jul</td><td>Aug</td><td>Sep</td><td>Oct</td><td>Nov</td><td>Dec</td> </tr> </table>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Jan	Feb	Mar	Apr	May	Jun									
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<p><i>Chalinolobus dwyeri</i> Large-eared Pied Bat</p>		<table border="1"> <tr> <td>Jan</td><td>Feb</td><td>Mar</td><td>Apr</td><td>May</td><td>Jun</td> </tr> <tr> <td>Jul</td><td>Aug</td><td>Sep</td><td>Oct</td><td>Nov</td><td>Dec</td> </tr> </table>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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<p><i>Cryptostylis hunteriana</i> Leafless Tongue Orchid</p>	<p>*Survey months are outside of the months specified in Bionet.</p>	<table border="1"> <tr> <td>Jan</td><td>Feb</td><td>Mar</td><td>Apr</td><td>May</td><td>Jun</td> </tr> <tr> <td>Jul</td><td>Aug</td><td>Sep</td><td>Oct</td><td>Nov</td><td>Dec</td> </tr> </table>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Jul	Aug	Sep	Oct	Nov	Dec									
<p><i>Cynanchum elegans</i> White-flowered Wax Plant</p>		<table border="1"> <tr> <td>Jan</td><td>Feb</td><td>Mar</td><td>Apr</td><td>May</td><td>Jun</td> </tr> <tr> <td>Jul</td><td>Aug</td><td>Sep</td><td>Oct</td><td>Nov</td><td>Dec</td> </tr> </table>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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<p><i>Diuris praecox</i> Rough Doubletail</p>		<table border="1"> <tr> <td>Jan</td><td>Feb</td><td>Mar</td><td>Apr</td><td>May</td><td>Jun</td> </tr> <tr> <td>Jul</td><td>Aug</td><td>Sep</td><td>Oct</td><td>Nov</td><td>Dec</td> </tr> </table>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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<p><i>Diuris tricolor</i> Pine Donkey Orchid</p>		<table border="1"> <tr> <td>Jan</td><td>Feb</td><td>Mar</td><td>Apr</td><td>May</td><td>Jun</td> </tr> <tr> <td>Jul</td><td>Aug</td><td>Sep</td><td>Oct</td><td>Nov</td><td>Dec</td> </tr> </table>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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<p><i>Grevillea parviflora subsp. parviflora</i> Small-flower Grevillea</p>		<table border="1"> <tr> <td>Jan</td><td>Feb</td><td>Mar</td><td>Apr</td><td>May</td><td>Jun</td> </tr> <tr> <td>Jul</td><td>Aug</td><td>Sep</td><td>Oct</td><td>Nov</td><td>Dec</td> </tr> </table>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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Jul	Aug	Sep	Oct	Nov	Dec									
<p><i>Hoplocephalus bitorquatus</i> Pale-headed Snake</p>		<table border="1"> <tr> <td>Jan</td><td>Feb</td><td>Mar</td><td>Apr</td><td>May</td><td>Jun</td> </tr> <tr> <td>Jul</td><td>Aug</td><td>Sep</td><td>Oct</td><td>Nov</td><td>Dec</td> </tr> </table>	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
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<i>Lathamus discolor</i> Swift Parrot		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
<i>Persicaria elatior</i> Tall Knotweed		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
<i>Persoonia pauciflora</i> North Rothbury Persoonia		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
<i>Lophoictinia isura</i> Square-tailed Kite		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
<i>Miniopterus australis</i> Little Bent-winged Bat		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
<i>Miniopterus orianae oceanensis</i> Large Bent-winged Bat		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
<i>Monotaxis macrophylla</i> Large-leafed Monotaxis		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
<i>Myotis macropus</i> Southern Myotis		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
<i>Ninox connivens</i> Barking Owl		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
<i>Ninox strenua</i> Powerful Owl	*Survey months are outside of the months specified in Bionet.	Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
<i>Ozothamnus tessellatus</i> Ozothamnus tessellatus		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

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<i>Phascogale tapoatafa</i> Brush-tailed Phascogale		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
<i>Phascolarctos cinereus</i> Koala		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
<i>Planigale maculata</i> Common Planigale		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
<i>Pomaderris queenslandica</i> Scant Pomaderris		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
<i>Prostanthera cineolifera</i> Singleton Mint Bush		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
<i>Pteropus poliocephalus</i> Grey-headed Flying-fox		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
<i>Rutidosia heterogama</i> Heath Wrinklewort		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
<i>Tyto novaehollandiae</i> Masked Owl		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
<i>Vespadelus troughtoni</i> Eastern Cave Bat		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
<i>Anthochaera phrygia</i> Regent Honeyeater		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
<i>Eucalyptus castrensis</i> Singleton Mallee		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

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<i>Callocephalon fimbriatum</i> Gang-gang Cockatoo		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<i>Hieraetus morphnoides</i> Little Eagle		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<i>Haliaeetus leucogaster</i> White-bellied Sea-Eagle		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<i>Delma impar</i> Striped Legless Lizard		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<i>Pterostylis chaetophora</i> Pterostylis chaetophora		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

List of Species Not On Site

Name
<i>Litoria aurea</i> Green and Golden Bell Frog
<i>Litoria brevipalmata</i> Green-thighed Frog
<i>Petrogale penicillata</i> Brush-tailed Rock-wallaby

APPENDIX B SITE PHOTOS

Easting	Northing	Description	Image
334897	6387174	Areas cleared and subject to previous development consent PCT 1604 cleared	
334103	6388964	Farm dam with no aquatic or fringing aquatic vegetation	
334684	6387767	Minor ephemeral drainage lines containing Grey-crowned Babbler nests. PCT 1604_drainage	

Easting	Northing	Description	Image
334242	6388748	Scattered <i>Eucalyptus crebra</i> with the northern portion of the proposal site. PCT 1604 scattered	
335688	6386686	Remnant vegetation. PCT 1601 Mod	
335509	6386766	Swamp Oak dominated drainage line	

Easting	Northing	Description	Image
334407	6388994	Scattered <i>Eucalyptus crebra</i> with the northern portion of the proposal site. PCT 1604 scattered	