BIODIVERSITY/ECOLOGICAL ASSESSMENT REPORT

-incld 5 Part Test Assessment of Significance-

Orbit Planning
280 Scrumlo Road
Hebden

PREPARED BY:

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ECOLOGICAL CONSULTANTS ASSOCIATION OF NSW
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REGISTERED NUMBER:

JUNE 2023

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Cover Photo: View of subject site.

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Biodiversity Assessment Report	14.6.23	1	Orbit Planning
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AUTHOR DETAILS

PEAK LAND MANAGEMENT is an independent company specialising in providing quality consulting services in natural resource/land management including bush fire assessment. The company is a consultant member of the NSW Ecological Association, and accredited BAM Assessor and abides by both the NSW Ecological Association & NSW Office of Environment and Heritage professional code of conduct and ethics. PEAK LAND MANAGEMENT is licenced with Office of Environment and Heritage for survey and collection of threatened flora (SL 100640).

Some examples of the type of work PEAK LAND MANAGEMENT PTY LTD undertakes includes Review of Environmental Factors, Flora & Fauna Surveys/ Ecological Assessments, Bushland/Vegetation Management Plans, and Bush Fire Assessment Reports.

Mr Ted Smith is the Director of **PEAK LAND MANAGEMENT PTY LTD**. Ted has a Bachelor of Science Degree with Honours majoring in Physical Geography from the University of New South Wales, and a Graduate Diploma in Design for Bushfire Prone Areas from the University of Western Sydney. He is a qualified & experienced Ecologist being a Certified Practicing Ecological Consultant Ecologist (under the NSW Ecological Association -006); Certified Bushfire Practitioner (FPA Aust-17671), and accredited Biodiversity Assessment Method (BAM) Assessor with Office of Environment and Heritage (BAAS 17076).

Ted Smith was the author of this work, and conducted all fieldwork.

TERMS AND ABBREVIATIONS

Abbreviation	Meaning
APZ	Asset Protection Zone
AS3959-2018	Australian Standard – Construction of Buildings in Bush Fire Prone Areas
BCA	Building Code of Australia
BC Act	*Biodiversity Conservation Act 2016*
BAR	Biodiversity Assessment Report incld 5 Part Test. Prepared when under the clearing threshold, not on BV Map (or incorrectly mapped), no significant impact on any threatened species or Endangered Ecological Community or over a declared Outstanding Biodiversity Area, or a Part 5 activity where authority chooses not to opt in to BOS scheme.
BCAR	Biodiversity Certification Assessment Report
BDAR	Biodiversity Development Assessment Report
BE	Building envelope, including Asset Protection Zone, dwelling, effluent zone
BSSAR	Biodiversity Stewardship Site Assessment Report
BTA	Bushfire Threat Assessment
CEEC	Critically Endangered Ecological Community
Defendable Space	An area within the asset protection zone that provides an environment in which a person can undertake property protection after the passage of a bush fire with some level of safety.
Development site	The area of native vegetation impact from the proposed development footprint.
DPE	NSW Department of Planning and Environment
Ecological community	An assemblage of species occupying a particular area.
Ecosystem credit species	A measurement of the value of vegetation communities, EECs, CEECs and threatened species habitat for species that can be reliably predicted to occur with a PCT. Ecosystem credits measure the loss in biodiversity values at a development.
EEC	Endangered Ecological Community
EP&A Act	*NSW Environmental Planning and Assessment Act 1979*
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
FDI	Fire Danger Index
Ha	Hectare
HBT	Hollow bearing habitat tree
Habitat	(a) an area periodically or occasionally occupied by a species or ecological community, and (b) the biotic and abiotic components of an area.
IPA	Inner Protection Area
Key threatening process	A threatening process listed in Schedule 4 of the *Biodiversity Conservation Act 2016*.
LEP	Local Environment Plan
LGA	Local Government Area
LLS Act	*Local Land Services Amendment Act 2016*
Native Vegetation	Native vegetation means any of the following types of plants native to New South Wales: (a) trees (including any sapling or shrub or any scrub), (b) understorey plants,

	c) groundcover (being any type of herbaceous vegetation), (d) plants occurring in a wetland.
Native Vegetation clearing	Clearing native vegetation means any one or more of the following: (a) cutting down, felling, uprooting, thinning or otherwise removing native vegetation, (b) killing, destroying, poisoning, ringbarking or burning native vegetation.
Native vegetation regulatory map	A native vegetation regulatory map prepared and published under Division 2 of the LLS Act 2016.
NRAR	Natural Resources Access Regulator (NSW Water)
OPA	Outer Protection Area
PBP 2006	Planning for Bushfire Protection 2006
PCT	Plant Community Type
Preferred Koala Feed Trees	Tree species used preferentially as forage for Koalas. In the context of SEPP (Koala Habitat Protection) around 65 tree species are listed regionally including Swamp Mahogany (*Eucalyptus robusta)*, *Eucalyptus punctata* (Grey Gum), Parramatta Red Gum (*Eucalyptus parramattensis),* Scribbly Gum *(E.haemastoma),* Tallowood *(E. microcorys),* Forest Red Gum (*Eucalyptus tereticornis),* Narrow leafed Ironbark (*Eucalyptus crebra)* and Spotted Gum *(Corymbia maculata).*
Protected Animal	Any of the following that are native to Australia or that periodically or occasionally migrate to Australia (including their eggs and young): Amphibians—frogs or other members of the class amphibia. Birds—birds of any species. Mammals—mammals of any species (including aquatic or amphibious mammals but not including dingoes). Reptiles—snakes, lizards, crocodiles, tortoises, turtles or other members of the class reptilia.
Protected plant	(a) a plant that is of a threatened species, or (b) a plant that is part of a threatened ecological community, or (c) a protected plant (as listed in Schedule 6 of the BCA 2016).
RoTAP	Rare or Threatened Australian Plant
RF Act	*Rural Fires Act 1997*
RF Regulation	Rural Fires Regulation
SBDAR	Streamlined Biodiversity Development Assessment Report
Species/candidate credit species	Threatened species or components of species habitat that are identified in the Threatened Species Data Collection as requiring assessment for credit species. These species cannot be reliably predicted to use an area of land based on habitat surrogates.
STCA	Subject to Council approval
Study area	The locality including the subject land/development site and surrounding areas.
Subject site/land	The entire extent of the land holdings associated with the development. Includes vegetation and land that is not being developed, but may have indirect impacts upon it.
Threatening process	A process that threatens, or that may threaten, the survival or evolutionary development of species or ecological communities
VIS	NSW Vegetation Information System
VMP	Vegetation Management Plan

1.0 INTRODUCTION AND BACKGROUND

PEAK LAND MANAGEMENT has been engaged by Orbit Planning on behalf of the proponent to prepare an Ecological/Biodiversity Assessment Report (BAR) for a proposed 1 into 2 lot rural subdivision, with one nominated building envelope over land located at Lot 38 DP 6842 / 280 Scrumlo Road, Hebden (termed "subject or development site").

Proposed lots 381 & 382 are referred to as "subject site", and proposed building envelope, subdivision boundary, and access road over proposed lot 381 is termed "development site." The subject site is currently zoned RU1: Primary Production under the Muswellbrook LEP 2009. The subdivision proposal is for a one into two lot rural subdivision.

The report has been prepared in accordance with the *Biodiversity Conservation Act 2016* (BC Act), which is applicable for Muswellbrook LGA.

This report includes all ecological assessments required under the provisions of the *Environmental Planning and Assessment Act 1979, EP&BC Act 1999, BC Act 2016* and Singleton Shire Council Flora & Fauna Survey Guidelines/DCP. Please note this BAR includes a 5 Part Test assessment of significance (where applicable), and meets all requirements under the BC Act, and can be assessed by Council. It is not a Biodiversity Development Assessment Report as it is not triggered in this instance (STCA – see Table 2) and not required under the *BC Act 2016*, nor is any referral with NSW DPE required.

Note:- all areas of native vegetation impacted (incld LLS Act Category 1 mapped land areas) are assessed in this report for the purposes of Councils Flora & Fauna Survey Guidelines.

Note: Preliminary consultation was undertaken by Orbit Planning with Muswellbrook Shire Council Planning Officer Alisa Evans on 6 April 2023 who stated:

"*she advised that if there is no physical works required (ie no new fencing) than a Biodiversity report would not be required*".

In this case as a building envelope and access road proposed a Biodiversity Report has been undertaken. All proposed subdivision fence lines are existing, with no new fence lines proposed.

1.1 SCOPE OF WORKS

The proposal is for:

- 1 into 2 lot subdivision.
- Associated building envelope over proposed Lot 381, Asset Protection Zone, effluent area (to be located within Asset Protection Zone, not known at time of writing) and access road. BAL 12.5 Asset Protection Zones in conformance with Bush Fire Report.
- The maximum area of clearing to provide for all these proposed activities is <1Ha.
- All area measurements have been made using a Geographic Information System (GIS), from georeferenced Nearmap images, and the site ground truthed, and reference

made to the site location as identified on site by the proponents and site plan based upon that stated location.

- Location of building envelope & access road selected to minimise ecological impact, with no tree removal required.

In this case the area of impact proposed for native vegetation removal is <1Ha for BC Act area clearing determination (taking into account LLS Act Category of land). The total impact area is therefore under the 1Ha threshold (see Section 2.2 re: determination) for the minimum lot size.

The subject site is part mapped on the Biodiversity Values Map (Fig. 10). The proposed development area (building envelope, Asset Protection Zone, roads) have been designed to avoid any impact over the BV Map. Please note the proposed subdivision fence line over the BV Map is an existing fence line, with no alteration of fence line or clearing of native vegetation proposed. The proposal has no significant impact on threatened species or Endangered Ecological Communities. The development does not trigger the BOS, and does not require a BDAR, STCA.

The proposed development site (access roads, building envelope) has been sited to reduce clearing by being located over already cleared land, being paddocks with native plant cover. The development has reduced & avoided impact where feasible in conformation with the BC Act.

A Bushfire Report has also been prepared by PEAK LAND MANAGEMENT (June, 2023) for the proposal which should be read in conjunction with this report. An Asset Protection Zone map is shown in Figure 8. It has requirements for an Asset Protection Zone within the development site, however no tree clearing required for any Asset Protection Zone or proposed boundary fence line.

Allowable exemptions

Impact area for the BC Act is taken as land mapped as Category 2 land, and additional land assessed as Category 2 land by the consultant, under the LLS Act, including where applicable the proposed development site footprint.

Clearing of native vegetation on Category 1 – exempt land does not require assessment or offsetting under the BAM (in accordance with section 6.8 of the *Biodiversity Conservation Act 2016).* In practice, this means that native vegetation on Category 1 – exempt land is not included in any area clearing calculations when determining whether the Biodiversity Offset Scheme (BOS) applies to a proposal.

2.0 PLANNING INSTRUMENTS

2.1 FEDERAL

Environment Protection and Biodiversity Conservation Act 1999

This Act is related to actions which may have a detrimental impact on matters of National Environmental Significance (NES). This includes:

- Nationally Threatened Species (including koala) and Ecological Communities,
- Listed Migratory Species which may be relevant to this site
- Declared world heritage sites
- Ramsar Wetlands
- Nuclear actions
- Actions in a Commonwealth marine area.

For the purposes of this Act this report should be used by Council to allow an Assessment of whether the site requires approval from Department of Environment. It is an offence to carry out an action that will or is likely to have a significant impact on one of the above NES matters without first obtaining an approval from the Commonwealth Environment Minister except where an exemption in the EPBC Act applies. A Bionet database search which includes listed locally recorded federal threatened species has been produced (Appendix 3).

The site is not a Declared World Heritage Site, Ramsar Wetland, has one Federal listed Critically Endangered Ecological Community present, and Nuclear Actions/Actions in a Commonwealth marine area are not relevant. There is habitat present for some listed EPBC threatened species, which are addressed within the 5 Part Test where applicable. The proposal in the consultant's opinion conforms to the *EP&BC Act 1999* and does not need referring to Federal Department of Environment.

2.2 STATE

Environmental Planning and Assessment Act 1979

Austlii state:- "*Under Section 55AA of the EP& A Act - Application of Part 7 of Biodiversity Conservation Act 2016 and Part 7A of Fisheries Management Act 1994. This Act has effect subject to the provisions of Part 7 of the Biodiversity Conservation Act 2016 and Part 7A of the Fisheries Management Act 1994 that relate to the operation of this Act in connection with the terrestrial and aquatic environment*".

Note. Those Acts contain additional requirements with respect to assessments, consents and approvals under this Act.

The *BC Act 2016* has been addressed within this report, and therefore the relevant biodiversity sections of the *EP& A Act 1979* have been addressed also.

Figure 1: Aerial photo showing subject lot (imagery from SIX maps, Lands Department)

Figure 2: Topographic map showing subject site (imagery from SIX maps, Lands Department)

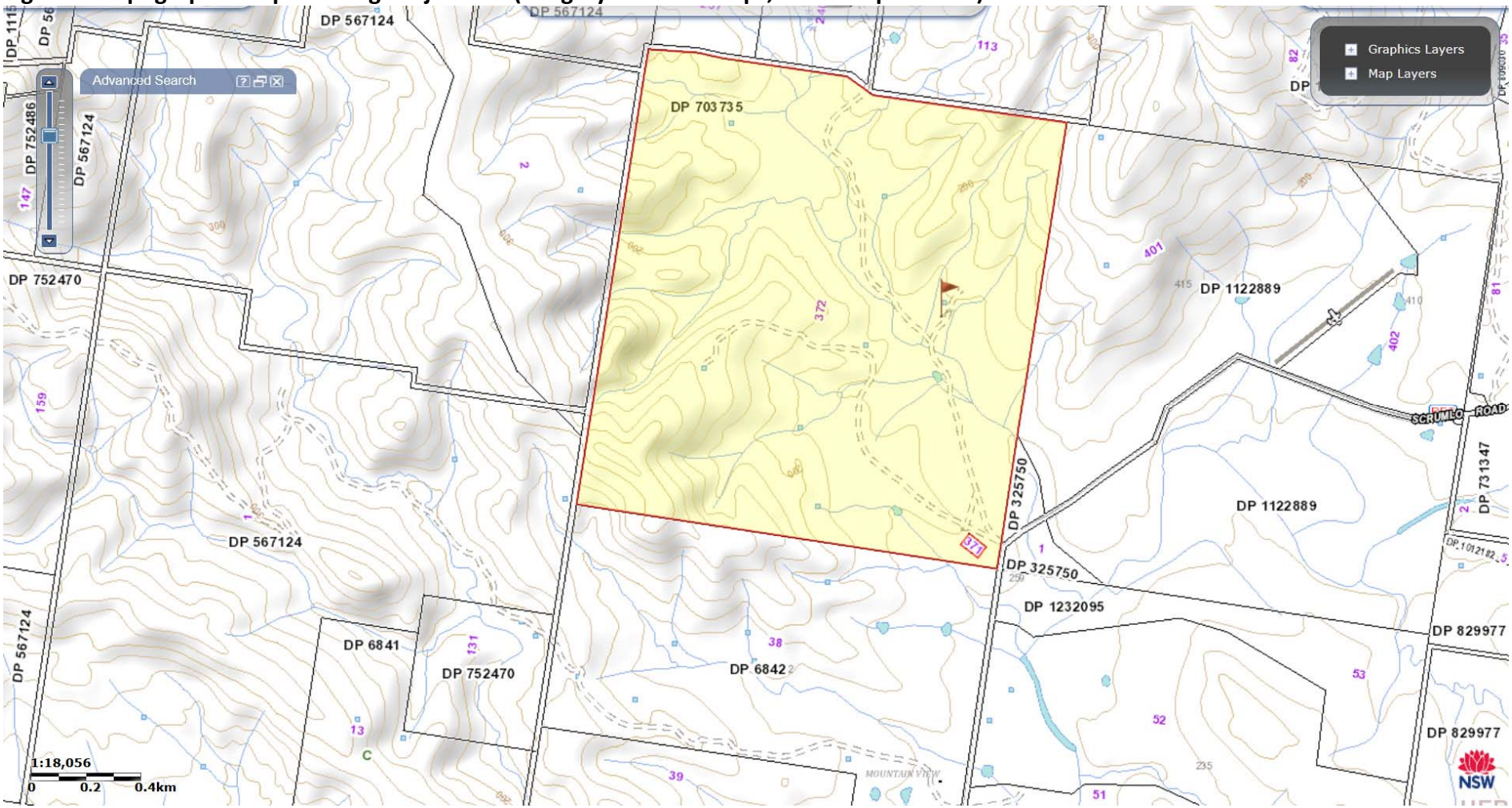


Figure 3: Proposed subdivision plan (from SCH, dated 7.6.23)

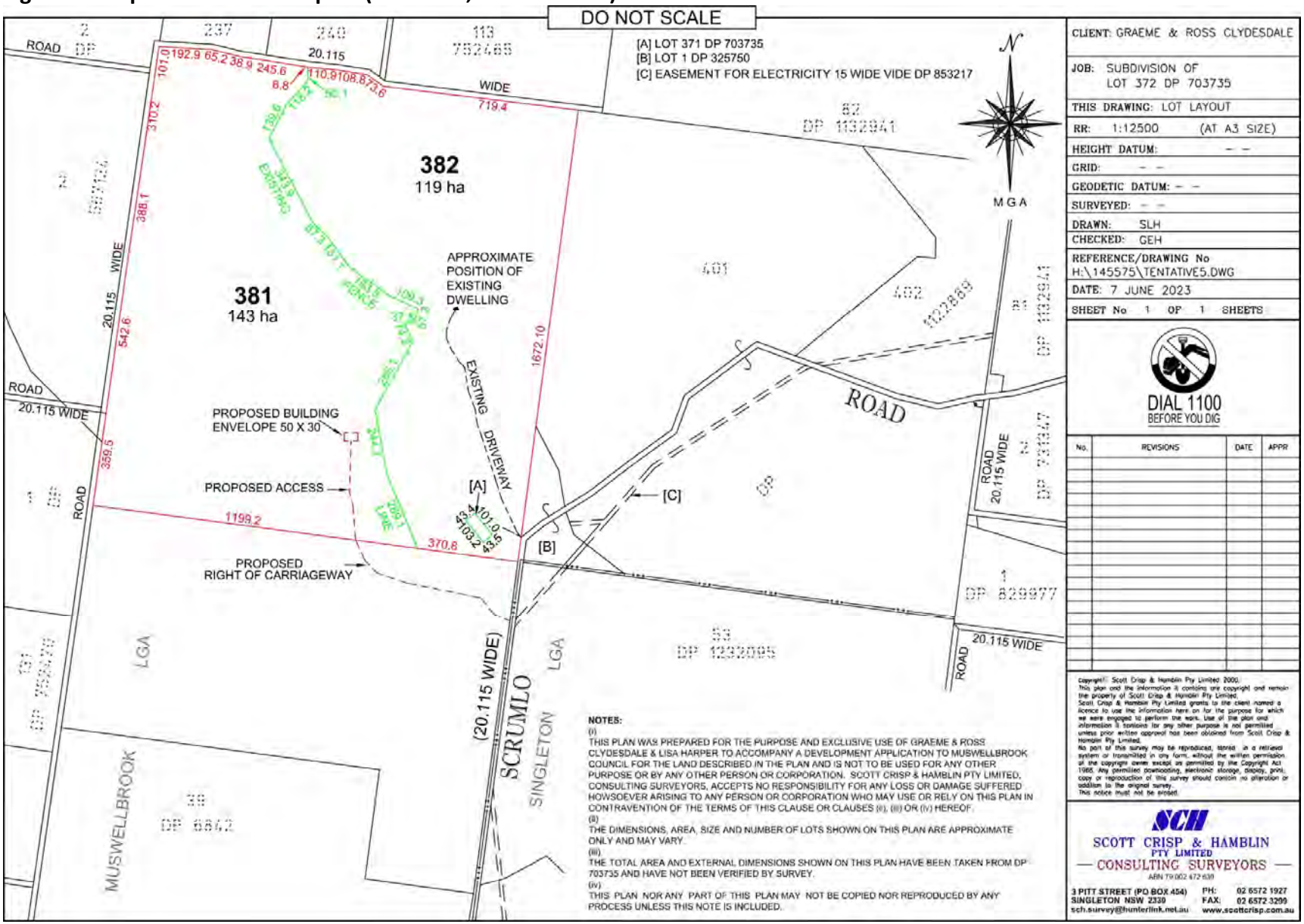


Figure 5: Site Map showing proposed subdivision, building envelope and access roads

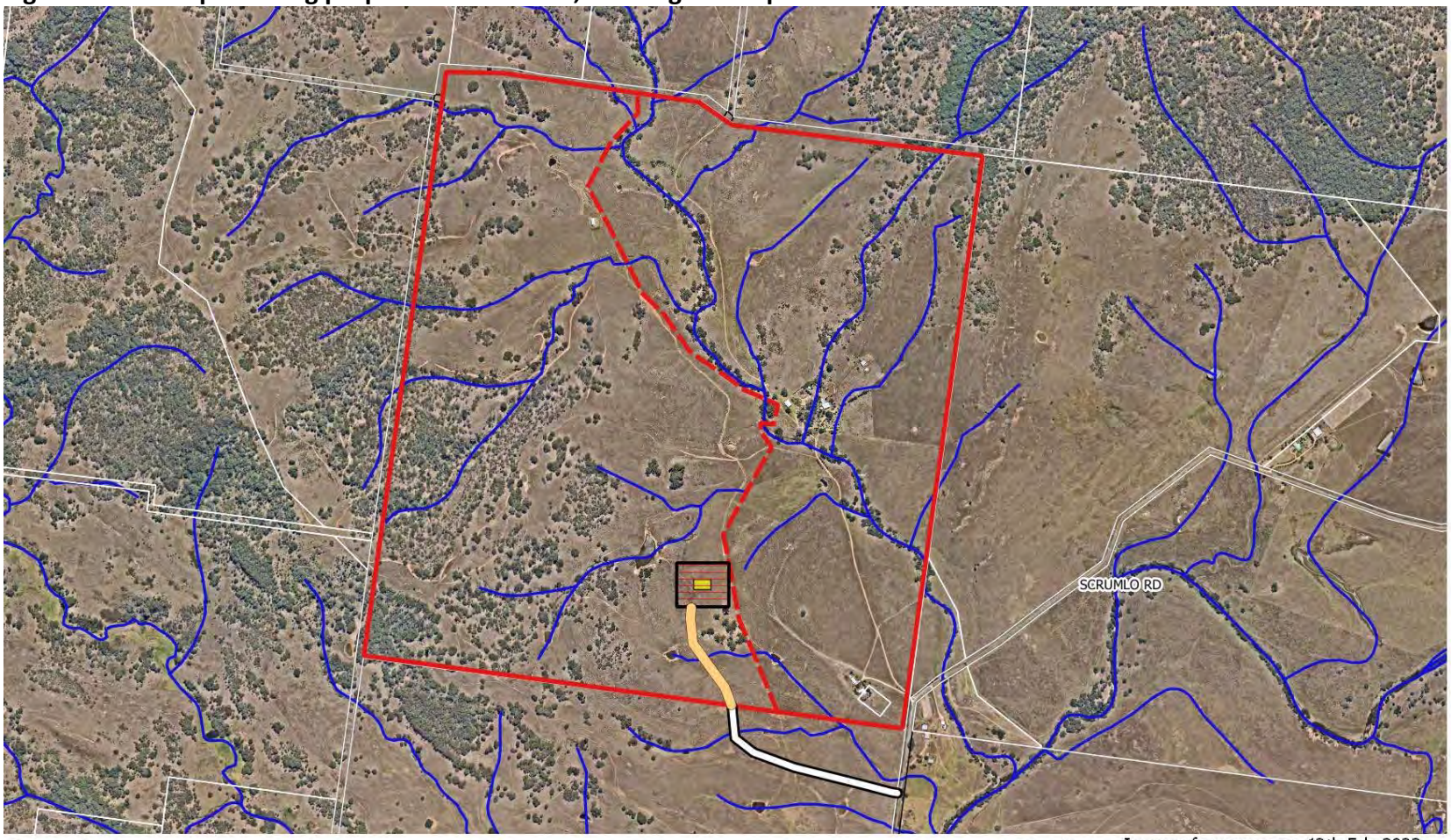


Figure 6a: Vegetation Communities over the subject site & surrounds (from NSW Vegetation Type Map, 2022)

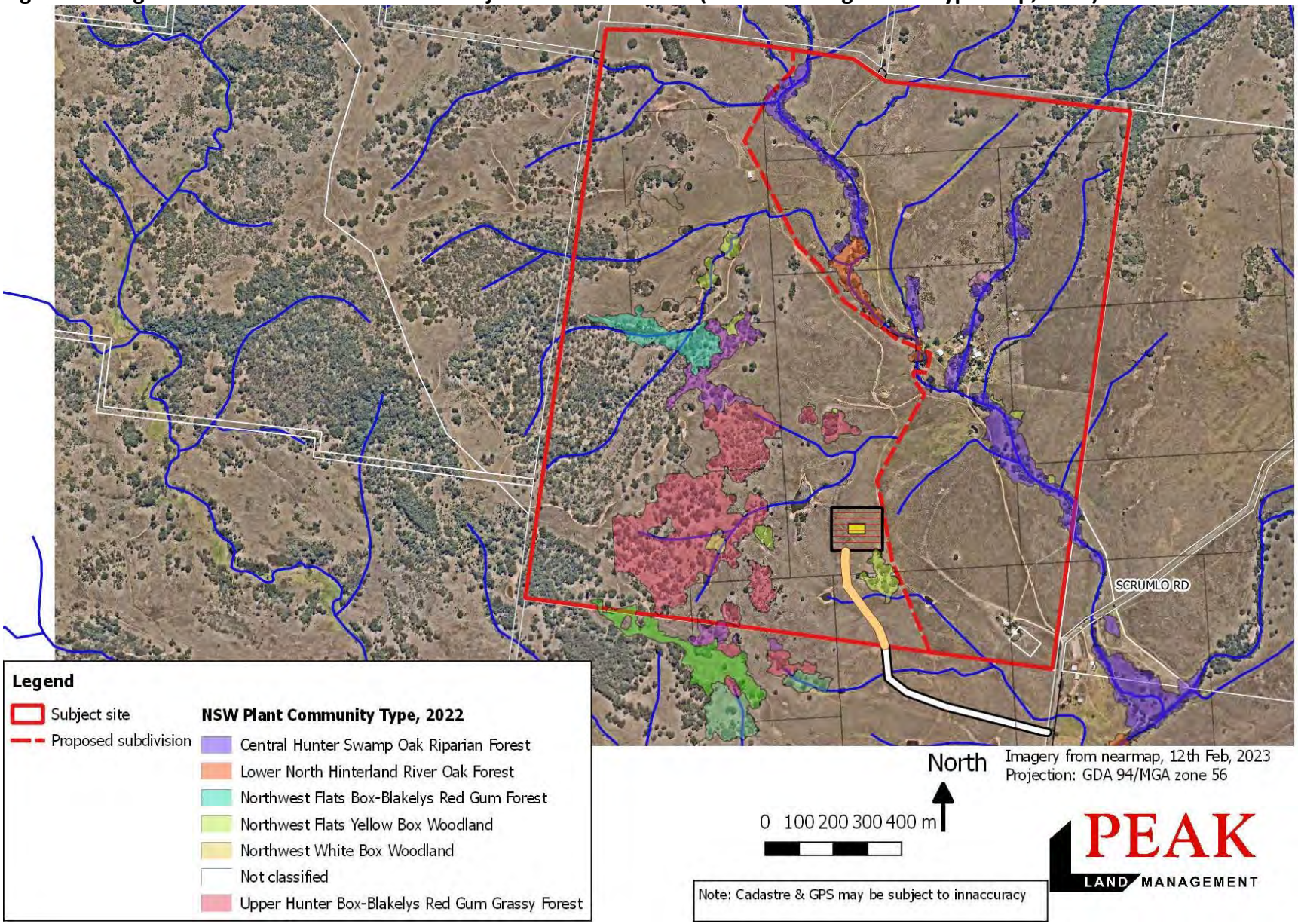


Figure 6b: Vegetation Communities over the subject site & surrounds (from NSW Vegetation Type Map, 2022)

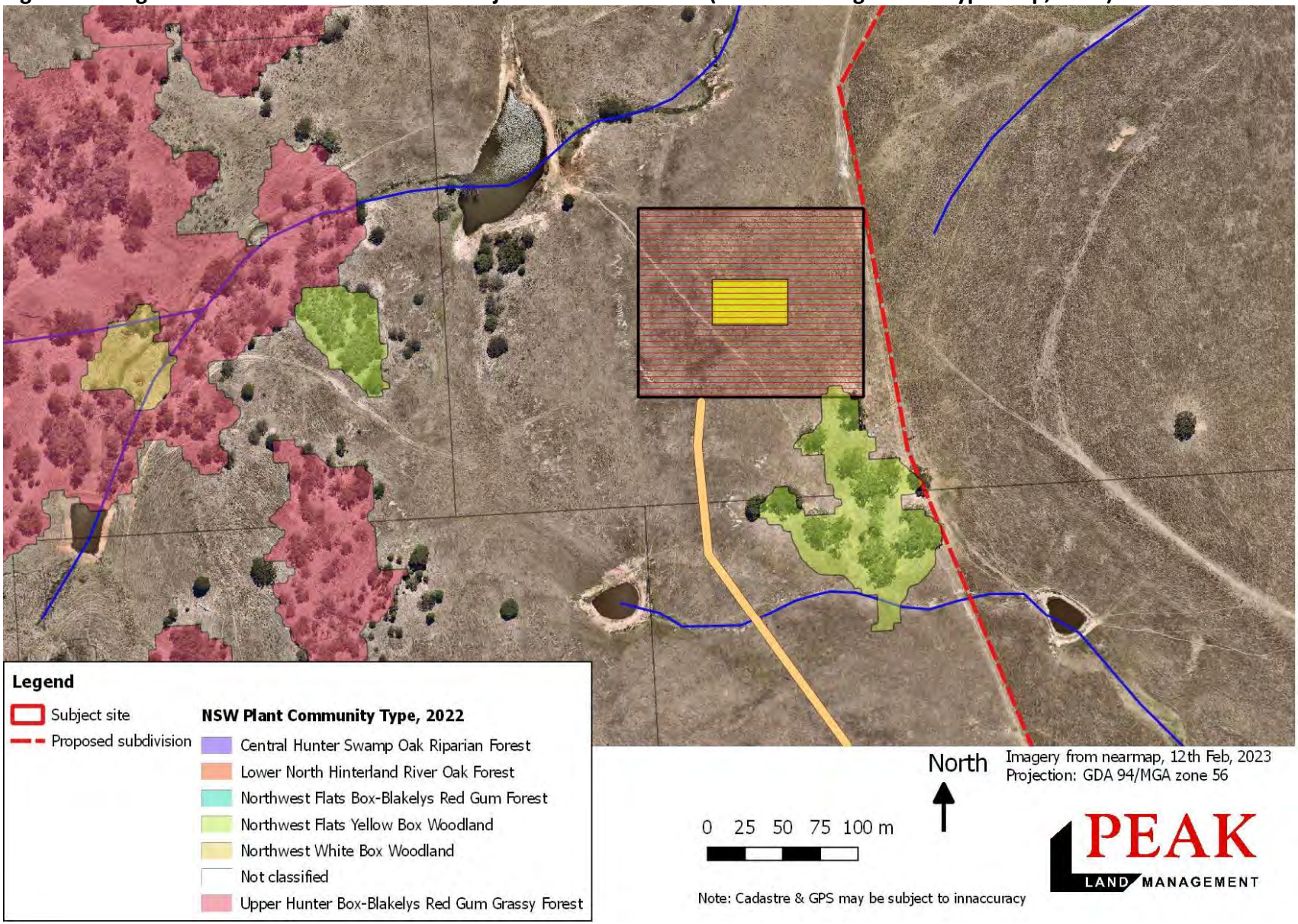


Figure 6c: Vegetation Communities over the subject site & surrounds (from Upper Hunter Vegetation Type Map, 2022)

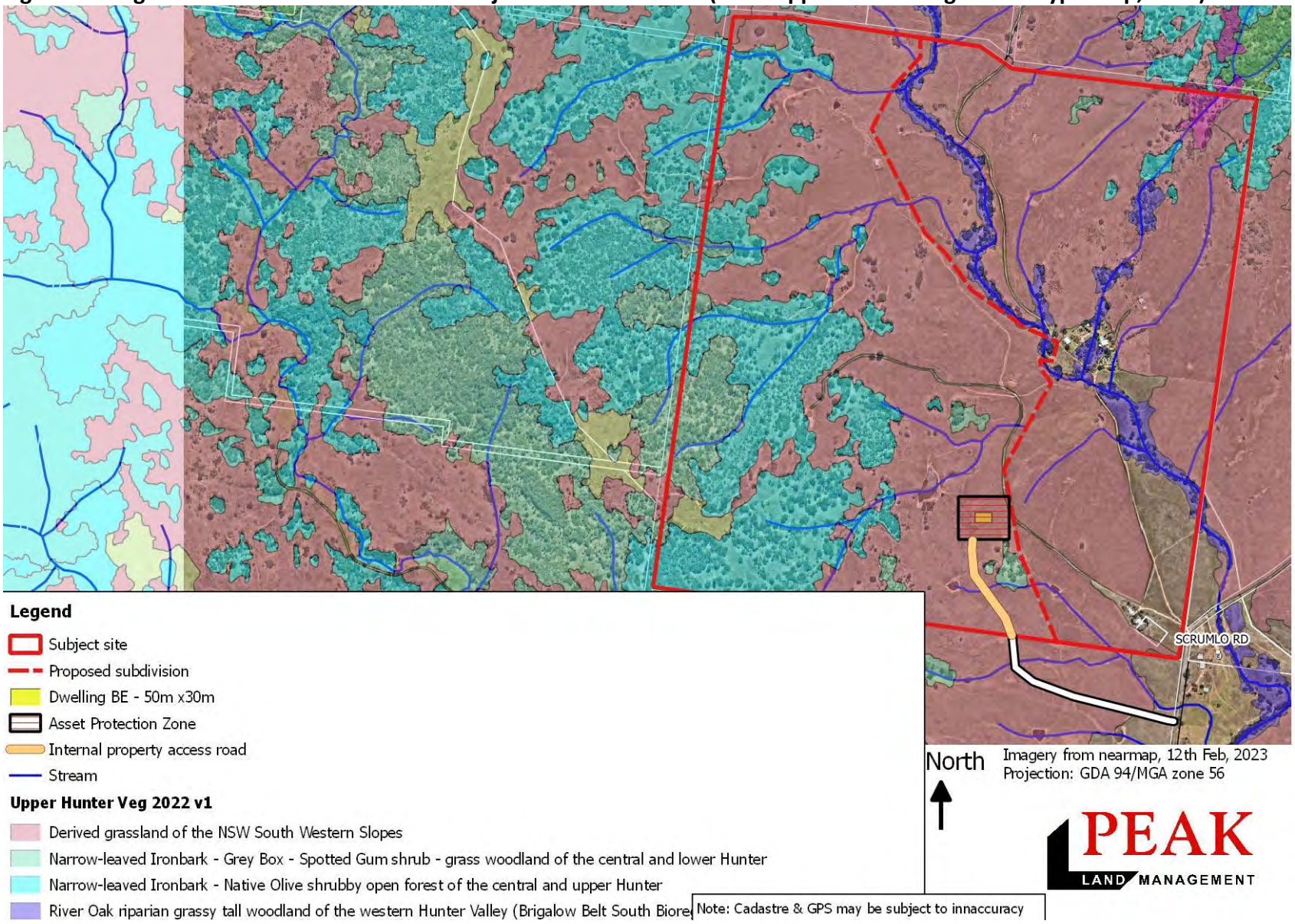


Figure 6d: Vegetation Communities over the subject site & surrounds (from Upper Hunter Vegetation Type Map, 2022)

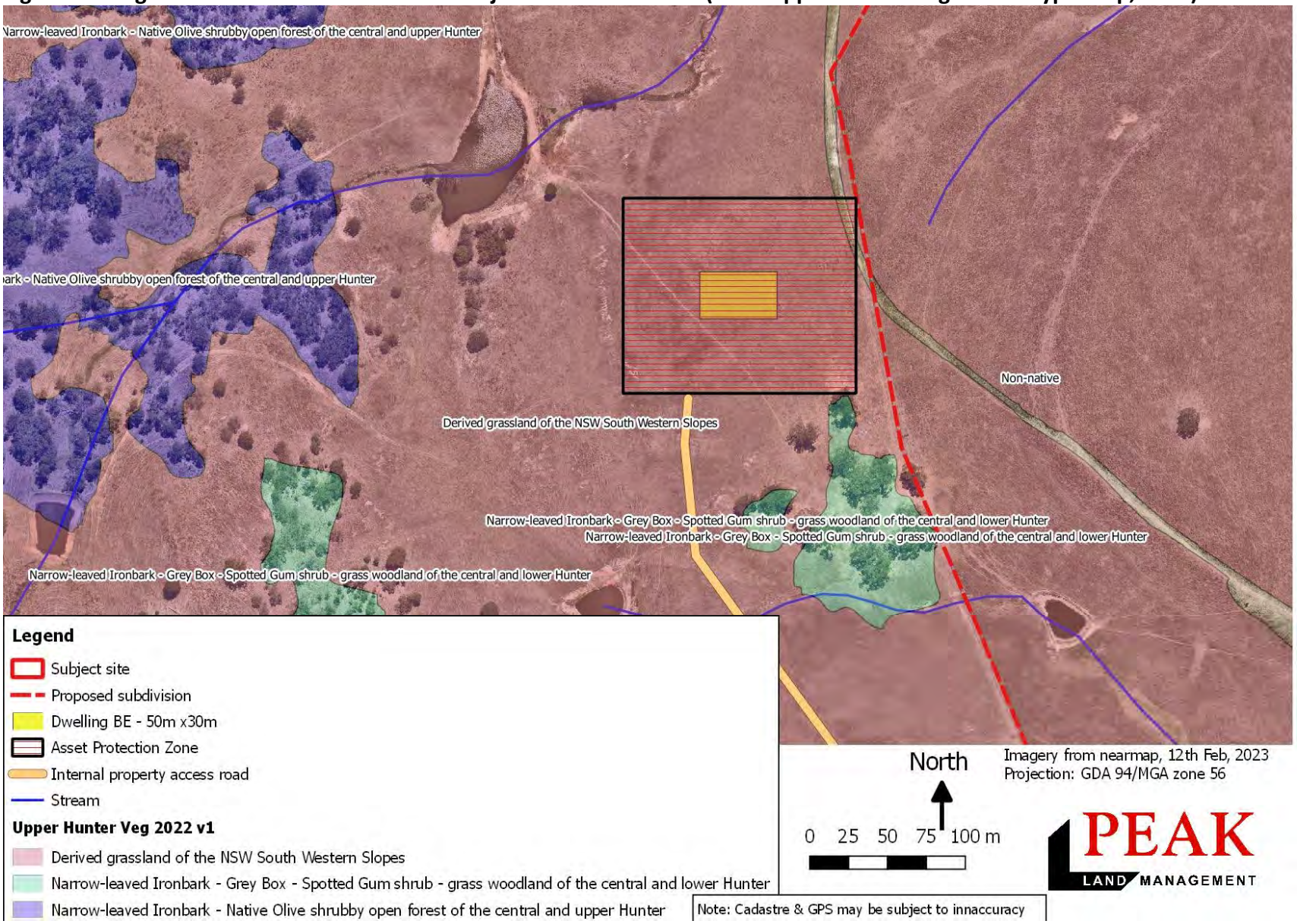


Figure 7a: Meander transect overall

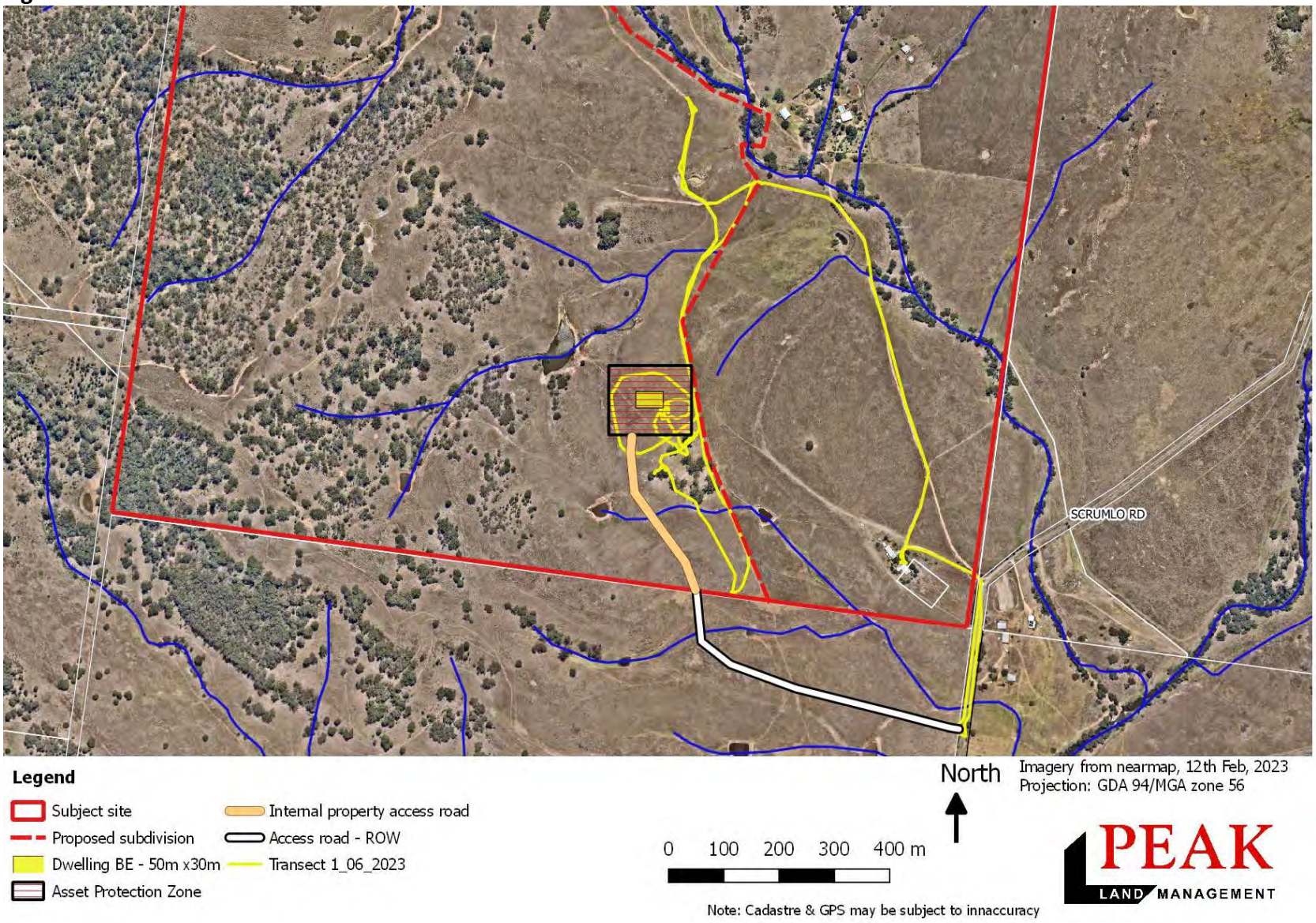


Figure 7b: Meander transect & hollow bearing habitat tree location

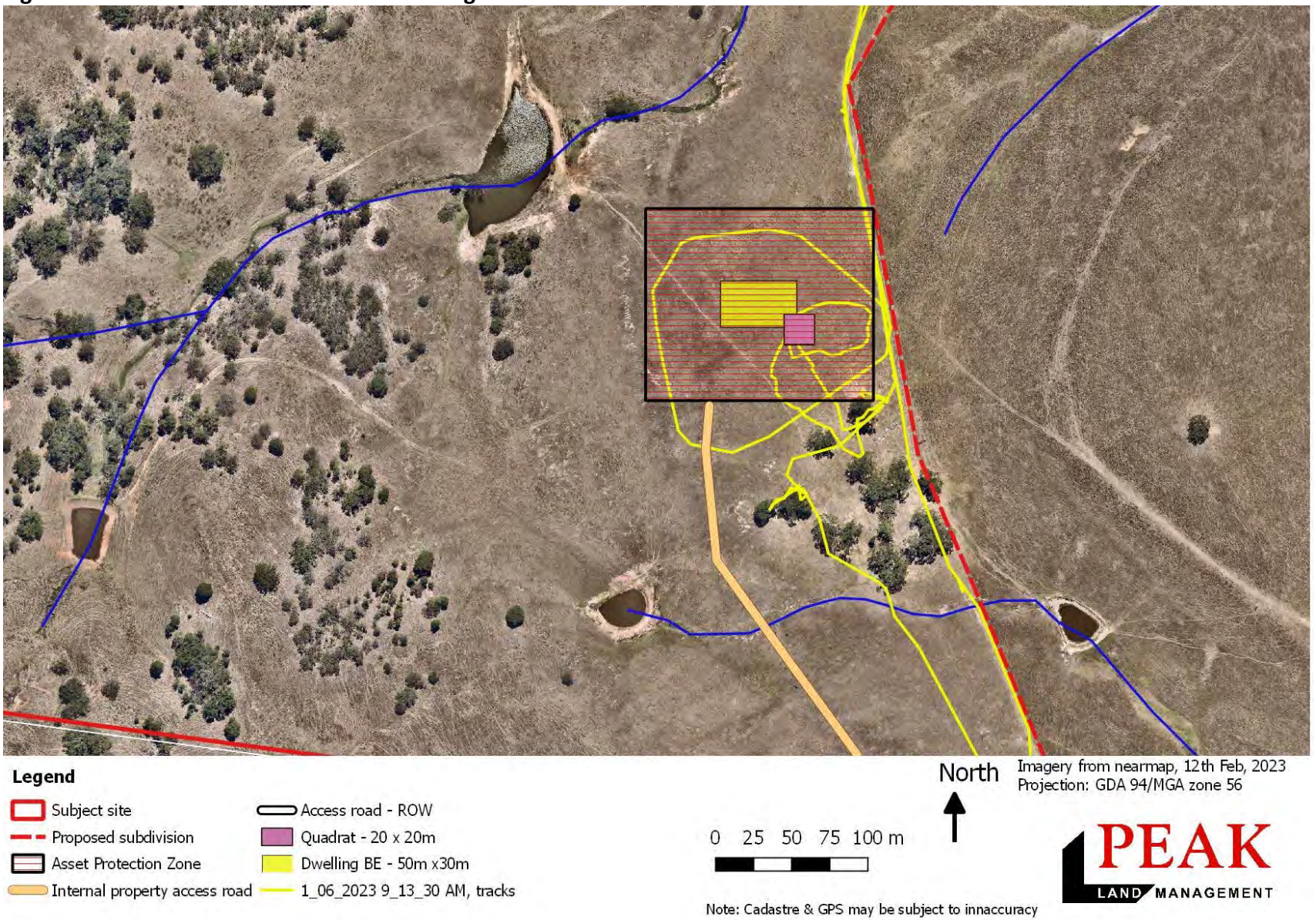


Figure 8: Hollow bearing habitat tree location within 50m of BE

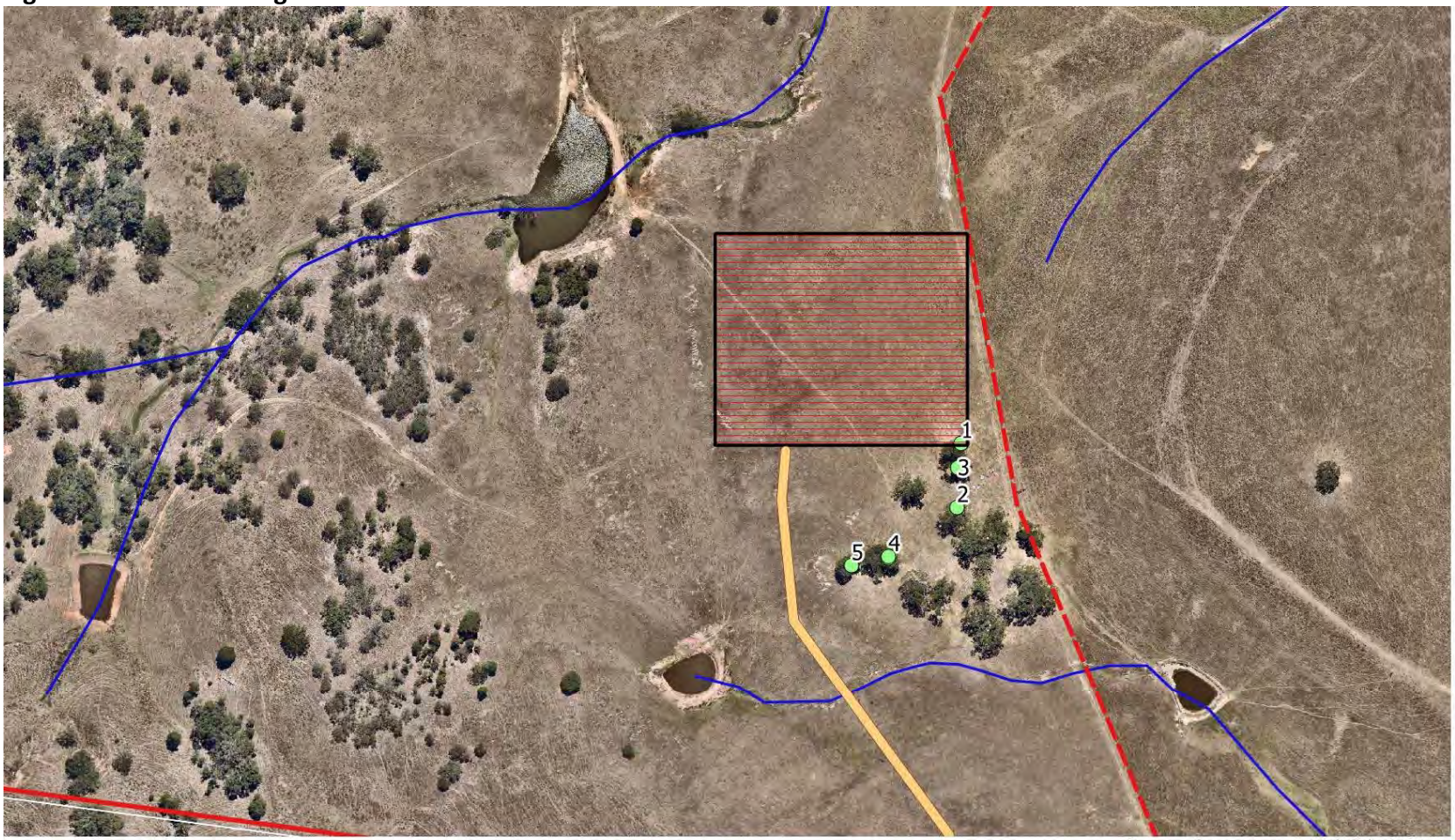


Figure 9: Asset Protection Zone (from PEAK LAND MANAGEMENT, 2023 Bush Fire Report)

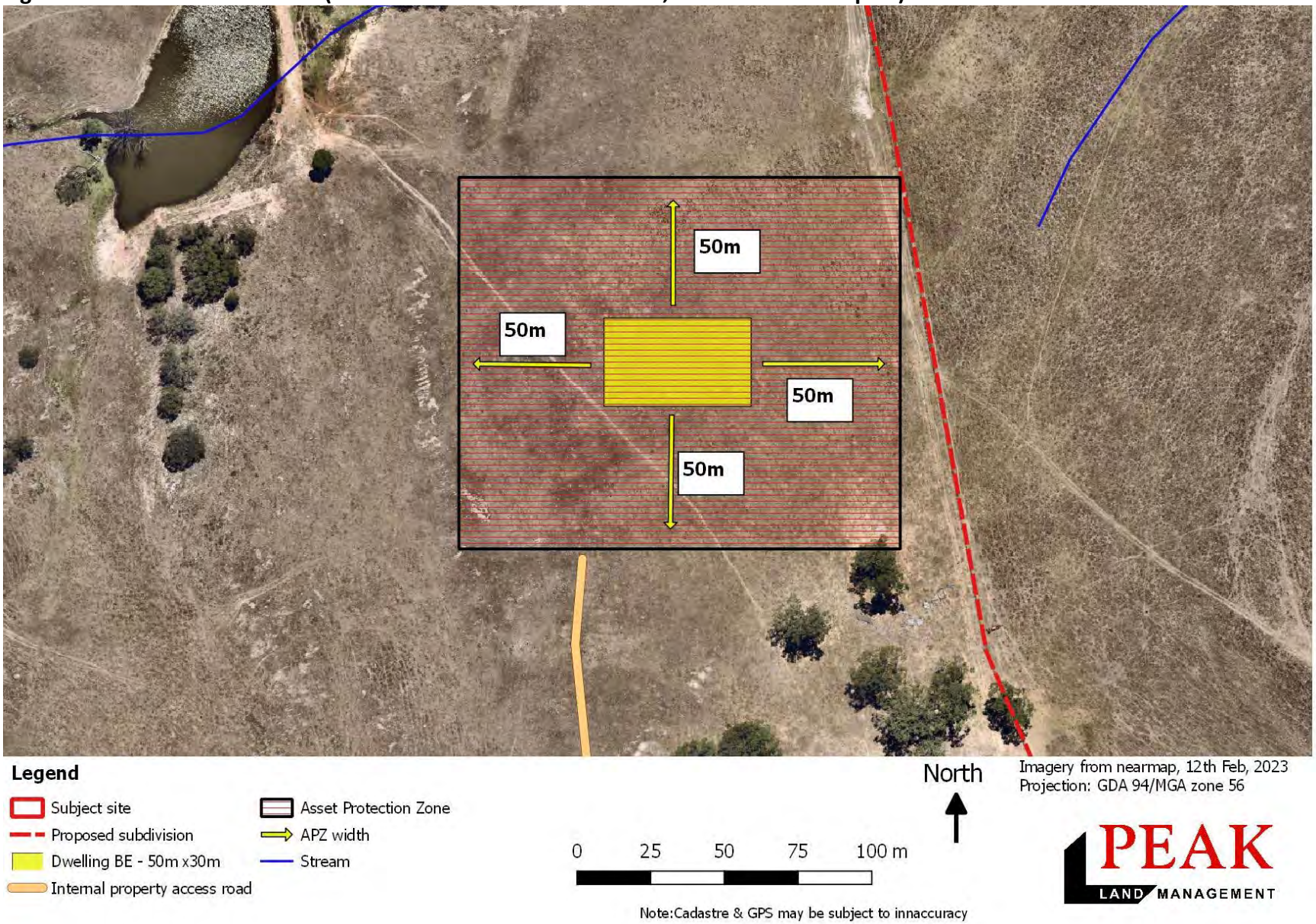


Figure 10a: Biodiversity Values Map (V15)–site part mapped

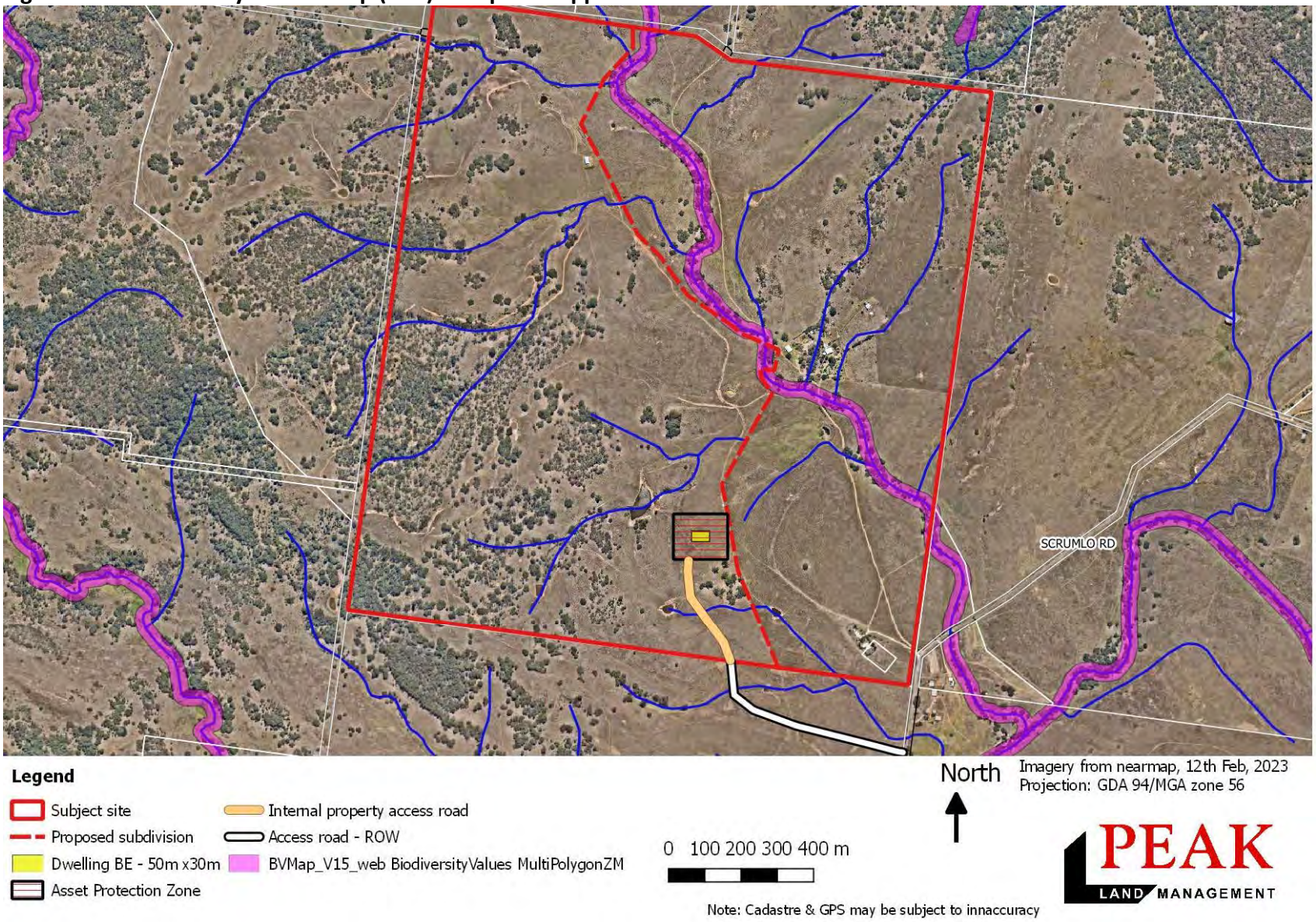
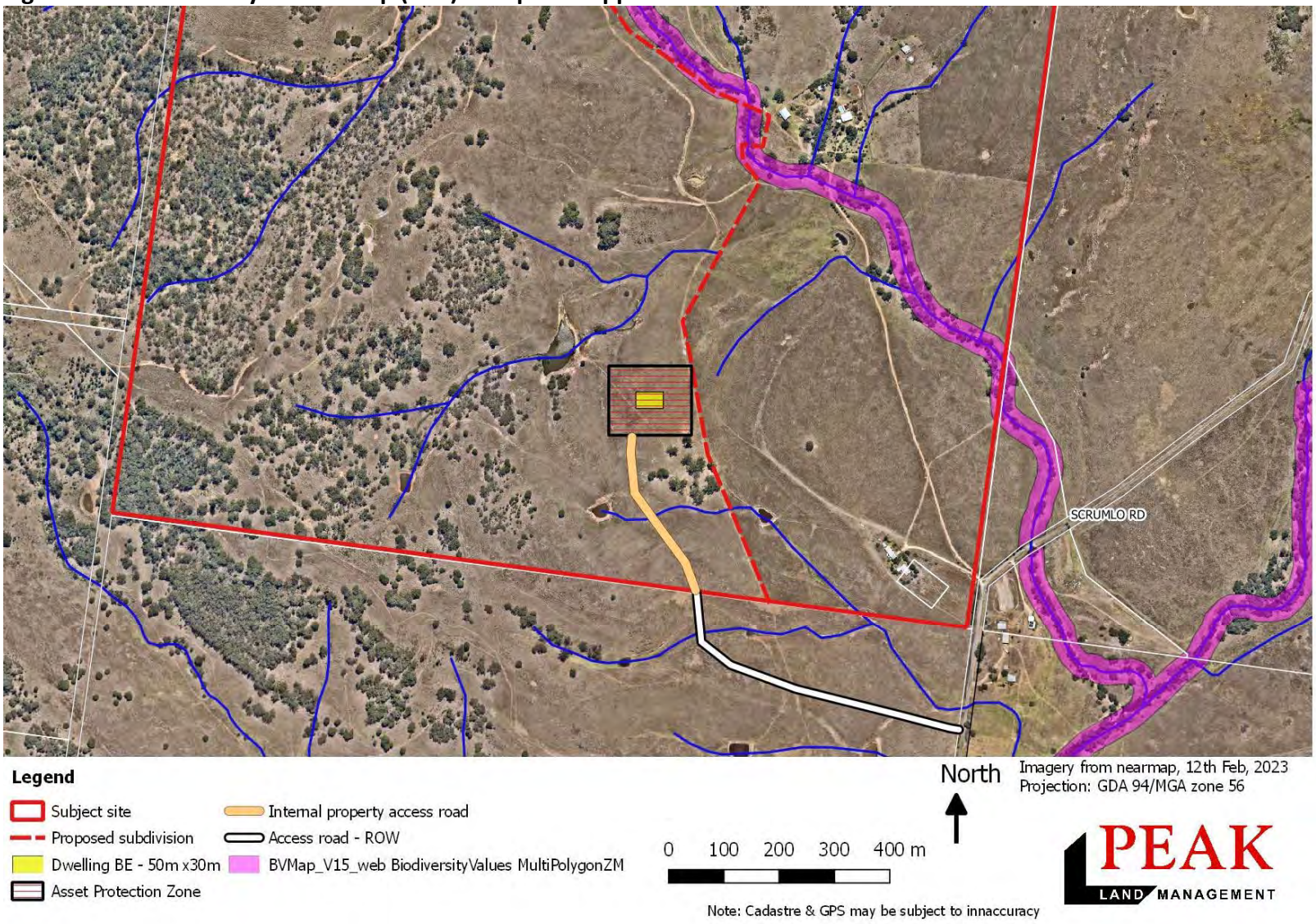


Figure 10b: Biodiversity Values Map (V15)–site part mapped.



Biodiversity Conservation Act 2016.

The BC Act 2016 repeals the *Threatened Species Conservation Act 1995* (NSW), the *Native Vegetation Conservation Act, Nature Conservation Trust Act 2001* (NSW) and parts of the *National Parks and Wildlife Act 1974* (NSW).

The BC Act establishes a new regulatory framework for assessing and offsetting biodiversity impacts on proposed developments. Where development consent is granted, the authority may impose as a condition of consent an obligation to retire a number and type of biodiversity credits determined under the new Biodiversity Assessment Method (**BAM**).

The purpose of the Act (from Austlii, Aug,2017) relevant to this Biodiversity Assessment Report is:

The purpose of this Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development.

OEH state: - *"The test of significance detailed in section 7.3 of the Biodiversity Conservation Act 2016 must be used to determine whether a local development is likely to significantly affect threatened species.*

Proponents will need to supply evidence relating to the triggers for the Biodiversity Offsets Scheme (BOS) *Threshold and the test of significance when submitting their application to the consent authority.*

Area clearing threshold

The area threshold varies depending on the minimum lot size (shown in the Lot Size Maps made under the relevant Local Environmental Plan (LEP)), or actual lot size (where there is no minimum lot size provided for the relevant land under the LEP).

The area threshold applies to all proposed native vegetation clearing associated with a development proposal – for example in the case of a subdivision; all future clearing across the lots subject to the subdivision, must be considered". Table 2 shows the proposed clearing amount, and other details.

Table 1: Area clearing thresholds (from BC Act 2016)

Minimum lot size associated with the property	Threshold for clearing, above which the BAM and offsets scheme apply
Less than 1 ha	0.25 ha or more
1 ha to less than 40 ha	0.5 ha or more
40 ha to less than 1000 ha	1 ha or more
1000 ha or more	2 ha or more

Biodiversity Values Map (BV Map)

OEH 2018 (www.lmbc.nsw.gov.au/Maps/index.html?viewer=BVMap) state: - "*The Biodiversity Values Map (BV Map) identifies land with high biodiversity value, as defined by the Biodiversity Conservation Regulation 2017. The Biodiversity Offsets Scheme applies to all local developments, major projects or the clearing of native vegetation where the State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017 applies. Any of these will require entry into the Biodiversity Offsets Scheme if they occur on land mapped on the Biodiversity Values Map. Exempt and complying development or private native forestry are not subject to the Biodiversity Offsets Scheme".*

The subject site is part mapped on the Biodiversity Values Map (Fig. 10). In this case part of the BV map appears incorrect over this site (existing property access road to dwelling over proposed Lot 382, and boundary fence for proposed subdivision is an existing fence line).

NSW DPE state in these cases: "*The BAM does not need to be applied to areas that have 100% exotic cover, unless the vegetation is providing habitat or resources for threatened species. In this case, the impact on threatened species habitat that is non-native vegetation must be assessed as a prescribed impact under clause 6.1 of the Biodiversity Conservation Regulation 2017*".

The vegetation has been inspected on site and determined in this case flora is 100% exotic grassland/weed cover, or has no native vegetation at all over the property access road, which provides no threatened species habitat. Photos are shown in Appendix 1 to demonstrate this. The 5 Part Test found no significant impact over any threatened species or Endangered Ecological Community.

Therefore this proposal does not trigger the BC Act full BDAR assessment (Table 2) under this criteria STCA.

5 Part Test

Under the *Biodiversity Conservation Act 2016 (Sect 7.3)*, a 5 Part Test is undertaken to determine whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats.

Under the *Biodiversity Conservation Act 2016* Part 4 development work will require a 5 Part Test for any clearing of native vegetation, impacts over threatened flora/fauna species and Endangered Ecological Communities.

The "Five Part Test of Significance" was not required in this instance as no habitat is considered present for any threatened species, and no Endangered Ecological Communities affected by the proposal over the development site.

There is no significant impact over any threatened species or Endangered Ecological Communities or Endangered Populations (see Section 6).

This report has also addressed other relevant ecological factors over the site such as threatened species observations, Endangered Ecological Communities, hollow bearing habitat trees, other habitat features such as caves, hollow logs, connectivity, water bodies/creeks, and details amount of native vegetation clearing proposed for the development.

Table 2: Summary of BC Act triggers applicable to the subject site

Land zone & Development type (under EP& A Act) & land type under LLS Act	Minimum lot size associated with the property	Applicable threshold for clearing, above which the BAM and offsets scheme apply	Biodiversity Values mapped over site?	Proposed clearing (Ha)	5 Part Test Assessment of significance required?	Full BDAR required
RU1,Part 4. Cat 1 & Cat 2 lands	80Ha	1Ha or more	No	0.0Ha	Yes	No*

*See 5 Part Test results, no significant impact on any threatened species, Endangered Ecological Community or critical habitat was found.

Planning data obtained from www.planningportal.nsw.gov.au/spatialviewer, and Native Vegetation Regulatory map, 2022.

Local Land Services Act, 2013

Rural land is defined as land zoned as RU1, RU2, RU3, RU4, RU6 and deferred matters. RU5 is considered not to be rural land.

If your proposed activity is on an area zoned as non-rural (e.g. urban, peri-urban, environmental zones) under a local council's Local Environmental Plan) then the Biodiversity Conservation Act will need addressing.

Rural land in NSW is categorised into:

- *Exempt land (Category 1) - category 1 is land cleared of native vegetation as at 1 January 1990 or lawfully cleared after 1 January 1990, Low conservation grasslands, Land containing only low conservation groundcover (not being grasslands).*
- *Regulated land (Category 2) – Land not cleared as at 1 January 1990 or unlawfully cleared after 1 January 1990, grasslands that are neither low nor high conservation grasslands, protected riparian areas, land susceptible to erosion, or land that is otherwise environmentally sensitive, coastal wetlands and littoral rainforests (Coastal Management Act 2016), high conservation grasslands, core Koala habitat identified in a plan of management (Koala Habitat Protection State Environmental Planning Policy), critically endangered plants and critically endangered ecological communities, land subject to a condition of development consent requiring the land to be set aside for conservation purposes under the Environmental Planning and Assessment Act 1979, rainforest and old-growth forest.*

- *Excluded land (Category 3).*

NSW DPE state in regard to assessing development impacts on Category 1 - exempt land and the Biodiversity Offset Scheme:

The Biodiversity Assessment Method (BAM) applies to clearing and development proposals on Category 1 - exempt land (as per Part 5A Local Land Services Act 2013*) in some circumstances. Clearing of native vegetation on Category 1 - exempt land does not require assessment or offsetting under the BAM (in accordance with section 6.8 of the Biodiversity Conservation Act 2016). In practice, this means that native vegetation on Category 1 - exempt land is not included in any area clearing calculations when determining whether the Biodiversity Offset Scheme (BOS) applies to a proposal.*

Assessment of prescribed biodiversity impacts on Category 1 - exempt land is required for a clearing proposal or development where the BOS applies. This includes:

- *local development assessed under Part 4 of the Environmental Planning and Assessment Act 1979*
- *activities assessed and determined under Part 5 of the Environmental Planning and Assessment Act 1979*
- *clearing of native vegetation that requires approval by the Native Vegetation Panel under the Local Land Services Act 2013.*

In this case the BOS does not apply. The DA will be assessed under Section 4.15 of the EP&A Act, 1979.

Note the development site is mapped as predominantly clear/no category on the Transitional Native Vegetation regulatory map, except over Cedar Creek which is mapped as Category 2 land. The land category where not mapped on the Transitional Native Vegetation regulatory map is determined on site by the consultant/Council. The mapping appears accurate in this case, except trees to the south of the building envelope should be mapped s category 2 land also.

A more accurate map (as mapped by PEAK LAND MANAGEMENT after site inspection) is shown in Figure 12.

This takes into account the following:

- Most of the development site does not have trees or native groundcover >50% cover considered to predate 1990 (apart from low value native grasslands which are Category 1 lands), and therefore these parts of the site are considered Category 1 land. Figures 12a & 12b show historical aerial photography at 1993 which demonstrate this.
- Lawfully cleared land as of 1990 with <50% native groundcover is classed as Category 1 land.
- Part of the site along Cedar Creek is mapped on the Biodiversity Values Map and considered *environmentally sensitive* land.
- New boundary fence lines are not proposed, being existing cleared fence lines, and therefore do not involve clearing vegetation classed as Category 2 land, and are therefore

not included as clearing within the clearing threshold total, or as an impact trigger over BV mapped land.

- There is no other management that may clear native vegetation to the author's knowledge. Access roads, Asset Protection Zones and effluent areas are to be located over existing cleared land/nominated Asset Protection Zones.

No clearing impact over Category 2 land is proposed. There is some clearing of Category 1 land, which are assessed within this report, being native grasslands only (Fig 15).

Note- all areas impacted (incld Category 1 mapped areas) are assessed in this report for the purposes of Councils Flora & Fauna Survey Guidelines (Fig 15).

Water Management Act, 2000 – Riparian Management
Water Management (General) Regulation 2018

All licensing and approvals functions undertaken by NRAR under the Water Management Act 2000 and Water Act 1912, have been transferred to the NSW Department of Planning and Environment—Water (NSW DPE-Water). The Natural Resources Regulator (NRAR) continues to be responsible for compliance and enforcement of water laws.

NSW DPE-Water regulates and controls works along rivers and foreshore areas of streams or drainage lines, termed waterfront land where within 40m of a mapped (as shown on a topographic map) lake or creek.

The development site (access road to proposed building envelope, and to existing dwelling over proposed Lot 382) is located over a mapped creek line, or riparian zone.

None of these riparian zones are naturally vegetated. The existing access road to the existing dwelling over proposed Lot 382 is a formed existing approved road, with concrete weir, and is not required to be referred.

The ROW and internal property access road to the proposed building envelope crosses two small first order streams, with defined bed and bank (see photos). A culvert or similar structure may be required. No other stream features present, including no riparian vegetation. Referral to NSW DPE is at the delegation/decision of Council.

Appropriate erosion and sedimentation control principles, should be followed nevertheless for any works to prevent off site sedimentation/water quality runoff & indirect impacts on local creeks/dams/drainage lines.

State Environmental Planning Policy (Biodiversity and Conservation) 2021

SEPP (Biodiversity and Conservation) 2021 incorporates the provisions of previous SEPP (Koala Habitat Protection) 2021. This SEPP is applicable to Part 4 Development Applications and is considered further here.

***State Environmental Planning Policy (Koala Habitat Protection) 2021*.**

The State Environmental Planning Policy (Koala Habitat Protection) 2021 was made and commenced on 17 March 2021.

The Koala SEPP 2021 reinstates the policy framework of SEPP Koala Habitat Protection 2019 to 83 Local Government Areas (LGA) in NSW. At this stage:

- *In nine of these LGAs – Metropolitan Sydney (Blue Mountains, Campbelltown, Hawkesbury, Ku-Ring-Gai, Liverpool, Northern Beaches, Hornsby, Wollondilly) and the Central Coast LGA – Koala SEPP 2021 applies to **all zones**.*
- *In all other identified LGAs, Koala SEPP 2021 **does not apply** to land zoned RU1 Primary Production, RU2 Rural Landscape or RU3 Forestry.*

For all RU1, RU2 and RU3 zoned land outside of the Sydney Metropolitan Area and the Central Coast, Koala SEPP 2020 continues to apply. This is an interim measure while new land management and private native forestry codes are developed in line with the NSW Government's announcement on 8 March 2021.

The principles of the Koala SEPP 2021 are to:

- *Help reverse the decline of koala populations by ensuring koala habitat is properly considered during the development assessment process.*
- *Provide a process for councils to strategically manage koala habitat through the development of koala plans of management.*

This land is zoned RU1, and outside of Sydney. It therefore needs to comply with the former SEPP 2020.

SEPP 2020 states:

- *Provides a framework for councils to prepare a strategic koala plan of management that would apply to the whole or part of a local government area.*
- *Applies to development applications on land over one hectare in a relevant LGA.*
- *Requires development applications to be consistent with a council strategic koala plan of management that applies to the land, or, if there is no strategic plan, sets out a two-step process to determine if the land is core koala habitat and if it is, produce an Individual Koala Plan of Management before council can grant consent to a development application.*
- *Exempts clearing of vegetation from the application of the SEPP if the purpose of the clearing is to maintain an Asset Protection Zone as part of rebuilding a dwelling destroyed or damaged by bushfire and allows the dwelling to be sited anywhere on the lot.*
- *Saves all Koala Plans of Management approved under SEPP 44 and 2019 Koala SEPP.*

In this Policy:
"core koala habitat" means an area of land with a resident population of koalas, evidenced by attributes such as breeding females (that is, females with young) and recent sightings of and historical records of a population.

"guidelines" means the guidelines, as in force from time to time, made for the purposes of this Policy by the Director.

"potential koala habitat" means areas of native vegetation where the trees of the types listed in Schedule 2 constitute at least 15% of the total number of trees in the upper or lower strata of the tree component".

This SEPP applies across NSW to land which is greater than 1 hectare in extent, including adjoining land in the same ownership whether or not the proposal applies to the whole or only part of the land, and is not a National Park or Forestry Reserve. Therefore this SEPP applies, and will be addressed here.

No scats, tree use marks or visual sightings of koalas were seen on or around the site, including over the development area including Asset Protection Zones and access roads. No feed trees as listed under this SEPP occur over the subject site and the site is therefore not considered potential Koala habitat.

There is no Koala Plan of Management (KPoM) known to exist over this site. No clearing of any Koala feed tre, or any tree, is proposed.

It is considered that the proposed works conform to this SEPP, and that no further koala SEPP studies are considered warranted or required under this SEPP.

NSW Rural Fire Service 10/50 Vegetation Clearing Code of Practice for NSW.

NSW Rural Fire Service state:
"The 10/50 Vegetation Clearing Scheme was introduced following the devastating 2013 bush fires in which more than 200 properties were destroyed. If you live in an area close to the bush, you need to prepare your home. The 10/50 Vegetation Clearing Scheme gives people living near the bush an additional way of being better prepared for bush fires.
The scheme allows people in a designated area to:

- *Clear trees on their property within 10 metres of a home, without seeking approval; and*
- *Clear underlying vegetation such as shrubs (but not trees) on their property within 50 metres of a home, without seeking approval.*

This site is within a designated 10/50 Vegetation Clearing Entitlement Area as it is mapped as Bush Fire Prone Land. This Code of Practice has been taken into account, with survey extending 50m from proposed development footprint over the subject site.

NSW Rural Fire Service Rural Boundary Clearing Code, 2021

This code has been abbreviated below, and only sections related to the Hunter and Central Coast are shown here.

The objective of the Rural Boundary Clearing Code is to simplify vegetation management for owners or occupiers of land for the purpose of bush fire hazard mitigation by allowing them to

clear vegetation on their property within 25 metres of their property boundary. This should be undertaken with consideration of environmental impacts.

The Code will apply to any holding within a rural zone within the Boundary Clearing Code Vegetation Map (derived from bush fire prone land 2015 Guide for Bush Fire Prone Land Mapping). Vegetation clearing under this Rural Boundary Clearing Code may only be undertaken on parcels of land (cadastre lots) that are in the rural boundary clearing area as identified on the Rural Boundary Clearing online tool on the day of clearing. Vegetation clearing that is carried out in accordance with this Rural Boundary Clearing Code is considered to be authorised clearing under NSW legislation.

State laws cannot override Commonwealth laws. Clearing in accordance with the Rural Boundary Clearing Code does not constitute an approval (or exemption) under Commonwealth laws, such as the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), and the Aboriginal and Torres Strait Islander Heritage Protection Act 1984. The clearing of vegetation under this Rural Boundary Clearing Code can only be conducted with the consent of the landowner.

*The types of vegetation that **cannot** be removed under Sect 6.2 of the Code include:*

a. SEPP Coastal Management - Coastal Wetlands (not including the proximity area) as mapped and provided to the NSW RFS by the Department of Planning, Industry and Environment;
b. N/A;
c. N/A;
d. SEPP Coastal Management – Littoral Rainforests (not including the proximity area) as mapped and provided to the NSW RFS by the Department of Planning, Industry and Environment,
e. Core Koala habitat identified at Attachment 'A' as mapped and provided to the NSW RFS by the Department of Planning, Industry and Environment;
f. Ramsar Wetlands;
g. vegetation within 100 metres of the coastline or estuaries of NSW;
h. N/A;
i. N/A;
j. Critically Endangered Ecological Communities (as listed in Attachment A – Vegetation Types) as mapped and provided to the NSW RFS by the Department of Planning, Industry and Environment;
k. N/A;
3. Mangroves and saltmarsh may not be cleared. Mangroves and coastal saltmarsh are as described in NSW Department of Primary Industries Primefact 746 May 2008 – Mangroves, and Primefact 1256 March 2013 – Coastal saltmarsh.

*Other items that **can not be cleared/disturbed** under Sections 6.5, 6.6, 6.7, 6.8, & 6.9 include:*

1. *Tree removal is not permitted on slopes greater than 18 degrees except in accordance with conditions identified in a geotechnical engineer assessment report undertaken for that purpose.*

2. *Pruning of trees is only permitted on slopes greater than 18 degrees provided at least 75 per cent of the original canopy cover is retained, except in accordance with conditions identified in a geotechnical engineer assessment report undertaken for that purpose.*
3. ***Any areas mapped as protected riparian land in the Biodiversity Values Map are excluded from the Rural Boundary Clearing Code.***
4. *The clearing must not cause stream bank instability and any process that results in declining water quality for any lakes or rivers.*
5. *An Aboriginal Place as mapped and provided to the NSW RFS by Heritage NSW.*
6. *Landowners have a duty of care to avoid harm to Aboriginal heritage when clearing vegetation*
7. *Aboriginal heritage: culturally modified trees (also known as 'Aboriginal scarred trees'), as mapped and provided to the NSW RFS by the Department of Planning, Industry and Environment.*
8. *No clearing may be undertaken of vegetation that is protected by the relevant heritage listing being NSW State heritage as mapped and provided to the NSW RFS by the Department of Planning, Industry and Environment; and local heritage as mapped by councils and provided to the NSW RFS by the Department of Planning, Industry and Environment.*
9. *Protection of vegetation to which a legal obligation exists. Clearing under this Code cannot be inconsistent with any of the following:*
    a. *a condition of development consent or approval under the Environmental Planning and Assessment Act 1979 that identifies and requires the retention and management of vegetation for conservation purposes.*
    b. *an instrument under Section 88B of the Conveyancing Act 1919 that identifies and requires the retention and management of vegetation for conservation purposes.*
    c. *Landowners have a duty of care to avoid cruelty and harm to native, introduced or domestic animals when clearing trees and vegetation.*

Therefore no native vegetation is allowed to be removed within the riparian zone of Cedar Creek under this code.

The existing/proposed boundary fences are already constructed, and no clearing proposed to erect them.

2.3 LOCAL

The relevant local government is Muswellbrook Shire Council, under the Singleton LEP 2009. The land is zoned RU1, minimum lot size 40Ha. Environmental reporting is required on land where any development, and particularly any native vegetation removal, is proposed, which this report addresses.

2.3.1 DRAFT LOCAL ENVIRONMENTAL PLANNING INSTRUMENTS

No other draft planning instruments have been identified.

3.0 SITE ASSESSMENT

3.1 DISTURBANCE HISTORY

The development site has a variety of disturbance processes occurring including:

- Past clearing historically (considered lawful as pre 1990) of the proposed subdivision fence line, building envelope site and Asset Protection Zones & access road;
- Weed/introduced pasture grass cover over parts of the development areas,
- Cattle grazing;
- Past logging /clearing/underscrubbing operations over nearly the entire existing lot (being a historic cattle grazing property);
- Feral animals–almost certainly domestic & wild dogs, foxes, rats/mice, & cats present.
- Access roads are located over cleared disturbed non native vegetation. They do cross some minor creek lines, which are denuded of all native vegetation including their riparian zones.

Land surrounding the study area is predominantly cleared & grazed agricultural land.

3.2 CONNECTIVITY

Native vegetation occurs over the subject site, although it is part cleared, and grazed over its entirety. Some remnant vegetation remaining over the hills, including some large & ecologically significant old growth hollow bearing trees which also occur near the proposed building envelope, but are unaffected by the proposal being over 50m away.

The subject site has wildlife connectivity along its western area. It allows wildlife connectivity north-south, and also partly along Cedar Creek riparian zone areas, across and through the subject site.

The proposal is not anticipated to affect wildlife corridor connectivity over the subject property with retention of all vegetation outside of the development area.

3.3 WATER COURSES

Two first order streams are affected directly by the proposal, due to the property access road passing over them to the proposed BE.

There is an existing creek crossing to the existing dwelling over proposed Lot 382. A concrete causeway is present.

Other first and second order streams present, including Cedar Creek which is a fourth order stream with part riparian zone, unaffected by this proposal.

3.4 SOILS, GEOLOGY AND TOPOGRAPHY

Soils occur on the property as a result of parent material, geology, slope, landscape position, land use, aspect, time, and to a lesser degree vegetation and climate. The soil landscapes have been mapped for this area by NSW Government (Central Eastern NSW Soil Landscapes) and are shown in Figure 15. Soil landscapes are mapped using a combination of slope, soil type, and terrain to give a broad picture of major soil groups occurring over the landscape. The soil landscape mapped over the site is:

The soil-landscape over the subject site is mapped by Central Eastern NSW Soil Landscapes / Kovac and Lawrie 1985 as:

LIDDELL SOIL LANDSCAPE

This soil landscape covers undulating low hills and undulating hills in the Liddell Power Station area. The main soils are Yellow Soloths on slopes with some Yellow Solodic Soils, on concave slopes. There are Earthy and Siliceous Sands on mid to lower slopes where the parent material is more sandy. There are some Red Soloths, Red Solodic Soils and Red Podzolic Soils.

An open-woodland of narrow-leaved red ironbark, yellow box, white box and spotted gum with some Blakely's red gum, rough-barked apple and kurrajong. Bull oak and swamp oak are also common. There is some smooth-barked apple.

Geology: Singleton Coal Measures
Lithic sandstone, shale, mudstone, conglomerate, siltstone and coal seams.

Minor to severe sheet erosion is common, with some minor rill erosion. Moderate gully erosion (to 1.5m) in drainage line where salting may be a feature.

ROSEVALE SOIL LANDSCAPE

This soil landscape covers rolling hills to the north of Glennies Creek Dam. The main soils are red and brown podzolic soils on the upper to lower slopes and on the steeper sections of footslopes of the Isismurra and Woolooma Formations. Euchrozems occur on upper slopes and Yellow Soloths on midslopes on dacitic ignimbrite. There are Chocolate Soils on slopes of Woolooma Formation, shallow clays and sands (Lithosols) on upper slopes and Brown Earths on mid to lower slopes of the Isismurra Formation. Rock outcrop is common in some areas.

A woodland community of yellow box, silvertop stringybark, manna gum, white box and grey gum. Forest oak and broad-leaved red ironbark may occur. Largely cleared for unimproved and improved pasture.

Geology : Lithic sandstone, conglomerate, siltstone, shale, dacitic ignimbrites, mudstone, tuff and limestone. Isismurra Formation including Native Dog Member, and Woolooma Formation.

4.0 FLORA SURVEY RESULTS

4.1: METHODOLOGY AND LIMITATIONS

Vegetation was assessed on site by transect (after Cropper 1993, and NSW DPE *NSW Guide to surveying Threatened Plants*, 2020) over the development site and surrounds according to Muswellbrook Shire Council Flora & Fauna Survey Guidelines. All transects, quadrats, and any hollow bearing trees or threatened species were recorded by a Garmin handheld GPS Map65 unit, generally accurate to within 6m depending on canopy cover (reading +/- 6m accuracy at time of survey).

One quadrat was undertaken in this case as only one main vegetation community present over development site, and transects covered the entire development site and surrounds. Special attention was paid to any potential threatened species. This has enabled identification and assessment of most flora species on the development site & immediate surrounds. The survey is limited by:

- Non flowering of cryptic orchid/grass/other species at time of survey as described above making identification impossible/problematic.

To help overcome these limitations surveys are carried out where feasible during known flowering seasons, and if this cannot occur and habitat requirements are suitable for a species to be present then an additional targeted survey will be recommended if impact is expected. Any plants that were not readily identifiable in the field were sampled and analysed in the office. Potential threatened species if not known are sent to NSW Herbarium for identification /ratification, and NSW DPE informed of locations for recording on the NSW Bionet database as per NSW DPE scientific licence requirements. This was not required in this instance.

Table 3: Flora & fauna survey effort

Type of survey	Survey dates	Weather conditions	Survey outline	Survey Effort
Flora transect	31st May, 2023. 10am-1pm	21^{0}C, sunny, moderate NW wind, moderate humidity.	Systematic flora survey, and targeted threatened species surveys over development site, including meander transect.	3hrs
Diurnal fauna, birds, searches	31st May, 2023. 10am-1pm	21^{0}C, sunny, moderate NW wind, moderate humidity.	Opportunistic and targeted searches for fauna, including searches for scat, tracks, hollows and nests. Listening for any amphibian calling or observations of any tadpoles or fish within creeks. Targeted surveys using binoculars, auditory surveys, scats/owl pellets, and searches for feathers and nests. Koala scat search around base of Grey Gums/other feed trees.	3hrs

5.2: RESULTS

In summary:-

- 24 flora species were recorded over and immediately around the development site (Appendix 1), comprising 9 native flora species, no threatened species, no ROTAP species, and 15 weed species including 3 declared priority weeds.
- Study area has low flora biodiversity, with two native vegetation community present over the development area being *Central Hunter Ironbark Spotted Gum Grey Box Forest* – Fig. 6 which is equivalent to a NSW listed Endangered Ecological Community.
- *Central Hunter Ironbark Spotted Gum Grey Box Forest* is also equivalent to a nationally protected EPBC Act listed Critically Endangered Ecological Community being *Central Hunter Valley eucalypt forest and woodland.* Vegetation >50m to the south of the building envelope is considered to form part of this community. It is not impacted by the proposal (assuming all safeguards enacted) and is not further assessed.
- River Oak is also present over the riparian zone of Cedar Creek. This is equivalent to a NSW listed Endangered Ecological Community being River Flat Eucalypt Forest Endangered Ecological Community. It is not an EPBC Federal listed Endangered Ecological Community in this area. It is not impacted, and not further assessed.
- The State Vegetation Type Map, 2022 is shown in Fig 6a & 6b. The State Vegetation Type Map, 2022 is considered inaccurate in this case, with no Swamp Oak or Yellow Box present.
- The Upper Hunter Vegetation Type Map, 2022 is shown in Fig 6c & 6d. It is considered accurate in this case.
- Derived grassland dominated by natives such as Three Awn Grass and Native Lovegrass is present over the building envelope and surrounding paddocks, considered native and >50 % cover, and classed as Category 1 land. It was most likely *Central Hunter Ironbark Spotted Gum Grey Box Forest* pre historical clearing.
- High weed presence, with exotic grasses and weeds over the majority of cleared areas.
- Note all trees can be retained over the site including all Asset Protection Zones/development areas.

Central Hunter Ironbark Spotted Gum Grey Box Forest occurs over part of the site, and is mapped (Fig 6c) where native tree cover and/or native understorey >50% cover occurs. Unmapped areas are weedy, >50% exotic groundstorey, with no native tree cover, and assessed as non native vegetation.

Floristics are shown in Table 3.

Table 4: Floristics for Quadrat.

Canopy cover	Tree species dominating & tree height	Mid storey	Shrub and ground storey	Hollows / Fallen logs/caves	Other
0%	-	Cleared-N/A	Grazed paddock, with some natural understorey dominated by native grasses approx. >50% groundcover	No. HBT's off the development site.	Heavily grazed paddock. Some rocks present, shallow soils.

NSW listed Endangered Ecological Community - *Central Hunter Ironbark—Spotted Gum—Grey Box Forest in the New South Wales North Coast and Sydney Basin Bioregions.*

This community was located over those areas of the site as shown in Figure 6c & 6d (termed Narrow leaved ironbark Grey Box Spotted Gum Woodland over Fig's 6c & 6d). It had Spotted Gum remnant trees present, and a part native grass understorey. All mid and shrub storey was missing, being heavily grazed.

The entire property had cattle grazing actively over the proposed development site and surrounds over the subject site.

This community is described by the Scientific Committee, 2010 as:

- *Central Hunter Ironbark-Spotted Gum-Grey Box Forest occurs in the central Hunter Valley mainly between Maitland and Muswellbrook. It has been recorded from Singleton, Cessnock and Muswellbrook LGAs but may occur elsewhere within the North Coast and Sydney Basin Bioregions.*
- *Central Hunter Ironbark-Spotted Gum-Grey Box Forest occupies undulating country including low rises and slopes, occurring on all aspects. It may also occur on alluvial and colluvial soils in valleys.*
- *It mostly occurs on clayey soils found on Permian sediments.*
- *Central Hunter Ironbark - Spotted Gum - Grey Box Forest occupies an area of less than 2000 km^2 based on 2 x 2 km grid cells, the scale of assessment recommended for species by IUCN (2008). It has been mapped as being recorded in Bellfield National Park and in the Singleton Military Area.*
- *Land clearing, primarily for agriculture has led to a large reduction in geographic distribution of the community. The mapped area of the community is approximately 18,300 ha which is estimated to be 29% of the pre-European distribution (Peake 2006). Mapped occurrences of the community include 34 remnants greater than 100 ha and more than 1000 small remnants less than 10 ha indicating a high level of fragmentation (Peake 2006).*
- *Central Hunter Ironbark-Spotted Gum-Grey Box Forest has been subject to intensive livestock grazing and clearing which has made it vulnerable to weed invasions. The community has been invaded by a range of woody and herbaceous weed species including Olea europaea subsp. cuspidata (African Olive), Lantana camara (Lantana), Hyparrhenia hirta (Coolatai Grass), and Sporobolus africanus (Giant Parramatta Grass) (Peake 2006). Lantana (Lantana camara) has been demonstrated to increase following disturbances associated with fire or grazing (Gentle and Duggin 1997a). Lantana (Lantana camara) poses a threat through structural alteration, invasion and allelopathic suppression of tree seedlings (Gentle and Duggin 1997b).*

EPBC/National listed Critically Endangered Ecological Community - *Central Hunter Valley eucalypt forest and woodland.*

This community was located over those areas of the site as shown in Figure 6c & 6d (termed Narrow leaved ironbark Grey Box Spotted Gum Woodland over Fig's 6c & 6d). It had Spotted Gum remnant trees present, and a part native grass understorey. All mid and shrub storey was missing, being heavily grazed.

There is *Corymbia maculata* present on site, however the other determinant species (*Eucalyptus acmenoides & Allocasuarina torulosa*) are not present being cleared. An analysis of the guide entitled *Central Hunter Valley eucalypt forest and woodland: a nationally-protected ecological community*, Commonwealth of Australia 2016 states.

"The Central Hunter Valley eucalypt forest and woodland ecological community was listed in May 2015 as critically endangered under Australia's national environment law, the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

The national Threatened Species Scientific Committee found that the ecological community is highly threatened. Its extent has declined severely—by more than 70 per cent—resulting in a highly fragmented and restricted distribution, the loss of many animals and the subsequent loss of ecosystem function.

The Central Hunter Valley eucalypt forest and woodland ecological community is an open forest or woodland—typically with a tree canopy dominated by eucalypt species; an open to sparse mid-layer of shrubs; and a ground layer of native grasses, forbs and small shrubs. The composition of a particular

area (patch) of the ecological community is influenced by its size, recent rainfall, drought conditions and by its disturbance history (e.g. clearing, grazing and fire).

The ecological community can be identified by the following general landscape, soil and vegetation features:

- *Typically occurs on lower hillslopes and low ridges, or valley floors in undulating country; on soils derived from finer grained sedimentary rocks.*
- *Soils typically have a high clay content and are medium in fertility, relative to nearby deep alluvial loam soils—which are more fertile—and to the skeletal soils of the bordering escarpment landscape—which is made up of less fertile, coarser–grained and sandier soils.*
- *Does not occur on alluvial flats, river terraces, windblown sands, Triassic sediments, or escarpments.*

Vegetation

- *The woodland or forest canopy is dominated[1] by one or more of the following four eucalypt species:*
    - *Narrow-leaved ironbark (Eucalyptus crebra), spotted gum (Corymbia maculata (syn. Eucalyptus maculata)), slaty gum (Eucalyptus dawsonii) and grey box (Eucalyptus moluccana).Under certain circumstances a fifth species, Allocasuarina luehmannii (bulloak or buloke), may be part of the mix of dominants—i.e. in sites previously dominated by one or more of the four eucalypt species[2].*
- *A number of other tree species may be sub-dominant or locally dominant within a limited area of a patch. These include rough-barked apple (Angophora floribunda), Blakely's red gum (Eucalyptus blakelyi), slaty red gum (Eucalyptus glaucina) and forest red gum (Eucalyptus tereticornis).*
- *Other characteristic canopy species include kurrajong (Brachychiton populneus subsp. populneus), black cypress-pine (Callitris endlicheri) and cooba (Acacia salicina). White box (Eucalyptus albens) and grey gum (Eucalyptus punctata) are also often present.*
- *Older regrowth/remnants, with mature hollow bearing trees, are particularly important for the range of habitats and resources they provide to animal species in the ecological community.*
- *A sparse sub-canopy layer may be present; typically with young eucalypts of upper canopy species, along with other species such as wattles (Acacia species).*
- *Three tree species: forest oak (Allocasuarina torulosa)—also known as forest sheoak, rose oak or rose she-oak; white mahogany (Eucalyptus acmenoides); and red ironbark (Eucalyptus fibrosa)—also referred to as broad-leaved ironbark, are all largely absent from the canopy of a patch (i.e. no more than two trees per hectare, on average across a patch—of each of the three species).*
- *An open-to-sparse mid-layer of shrubs such as wattles (Acacia species) and native blackthorn (Bursaria spinosa subsp. spinosa) may be present.*
- *A ground layer is present, although it may vary in development and composition, as a sparse-to-thick layer of native grasses and/or other predominantly native groundcover (small shrubs and ferns, daisies, lilies, orchids and other flowers).*

It is therefore considered this Endangered Ecological Community is present, however as no impact proposed an Assessment of Significance has not been undertaken/is not required.

5.0 FAUNA AND HABITAT SURVEY

5.1: METHODOLOGY LIMITATIONS

A fauna survey was conducted for birds (voice- recorded where necessary for identification, and visual by binoculars), amphibians (voice, recorded where necessary for identification), mammals (visual, scats, tree scratch marks, burrows, footprints), and reptiles (visual) on the day of survey.

No trapping, hair sampling, pit fall traps, owl or anabat call detection, or spotlighting occurred. Hollow bearing habitat trees were recorded, but are well away from the development sites and unaffected by the proposal.

This reduced fauna survey effort was considered satisfactory given relatively small area of clearing, and no requirements to do so under the BC Act.

In addition to on site fauna survey, habitat assessment, and research using Bionet records, and other records where available have been used to determine possible occurrence of threatened species. If suitable habitat is present, and Wildlife Atlas- Bionet records occur in the local area, an assumption has been made that potential threatened fauna species listed in Appendix 3 Bionet search may occur.

Several factors limit the ability of surveys such as this ecological investigation to fully determine the occurrence of all species of fauna which may utilise the subject site. Surveys undertaken over a short time period are unlikely to document the full inventory of fauna species which may occur in the study area.

In the case of highly mobile fauna such as birds and bats, many species may utilise the site only temporarily as a component of their larger foraging range, or may occur in the study area or locality during particular periods of the year, such as their seasonal migratory path.

5.2: SURVEY RESULTS

Survey was undertaken as shown in Table 3. Transect location is shown in Figure 7.

A limited number of birds and other fauna were recorded over or near the subject site. In this case one threatened species was recorded (Appendix 2). The survey covered lands over the development site & nearby surrounds only, including parts of proposed subdivision fence line.

In summary:

- A very limited range of native birds and common mammals including Kangaroo were recorded over the site. No threatened fauna recorded, but habitat presence for some selected species such as Grey crowned Babbler off the development site & unaffected by the proposal is present.
- No breeding nests for White Breasted Sea Eagle, or Wedge Tailed eagle were recorded within 200m of any proposed BE.

- The site proposed clearing / habitat loss is limited to 0Ha over Category 2 land, and around 2Ha over Category 1 derived native Grassland over the development site including access roads, building envelopes which incorporates Asset Protection Zone and dwelling, and excluding boundary fence as already cleared/no impact. This clearing is limited to understorey only, with no trees affected. The proposed building envelope is already completely cleared of trees, shrubs, vines, etc, with grazed>50% native groundcover. All remnant scattered trees to be retained.
- The proposal is not anticipated to affect wildlife corridor connectivity over the site with retention of all vegetation outside of development area.
- Hollow bearing trees are present over proposed Lot 381 within 100m of the BE (Fig 8), with a variety of hollow sizes including larger hollows, with little understorey remaining around the trees. No HBT's are impacted by the proposal.
- SEPP koala feed trees not present, with no feed trees affected by the proposal.
- The development site offers no suitable foraging or shelter habitat, and no hollows for hollow dependant fauna, with no habitat presence for any threatened fauna species.
- It is considered a 5 Part Test is not required for any species, or Endangered Ecological Community in this case as no impact.
- The development site has no hollow fallen logs, no rocks & caves present, and does have a large dams & creeks present. Most creeks are denuded of riparian vegetation, except Cedar Creek. All access roads are located over already cleared creek lines/land, with no habitat presence for amphibians.

From this assessment and Wildlife Atlas records there is potential habitat over the subject site for:

- Bats :-Suitable foraging habitat present. Bats can exist quite well in scattered paddock trees/remnant patches of bushland with flyways present through the forest, and microbats such as Eastern Bentwing Bat and Little Bent Wing Bat and larger Grey Head Flying Fox are likely to forage over the site from time to time. Hollows/crevices were recorded off the development site for roosting. The proposed development will have no impact on bats and they are not tested further within the 5 Part Test.

  Birds, including owls:- Suitable foraging habitat over the site, including winter flowering gums such as Spotted Gum, hollows present for nesting/roosting for birds recorded, but not over the development sites. There is habitat present off the development site for Owls, & some other listed Forest birds (ie most raptors, Varied Sitella, Little lorikeet, Grey Crowned Babbler, Speckled Warbler), which could utilise this area from time to time for foraging.

  No impact anticipated over these birds due to retention of all trees, tree hollows and foraging habitat. They are not therefore tested within the 5 Part Test.

- Reptiles/amphibians:-

  There is marginal/no habitat present for amphibians, with no habitat present over the development site, and they are therefore not tested.

There is habitat present for threatened reptiles outside the proposed development site. No threatened reptile species are listed on Bionet, and impact is negligible due to no/negligible clearing over the development site. They are not tested within the 5 Part Test.

- Mammals:-

  Habitat is considered marginal for mammal species including Koala, and Spotted Tailed Quoll, with negligible impact from no native vegetation removal and possible minor indirect impacts. Habitat is not present for Brush Tailed Phascogale due to understorey removal over the entire development site.

  They are not tested within the 5 Part Test.

Table 5: Hollow bearing habitat tree details within 100m of BE. All to be retained

Tree Species	Common name	Number – see Figure 8	Hollow details	Other
Corymbia maculata	Spotted Gum	1	1F, 1M, 1S	No impact- to be retained
		2	2s	No impact- to be retained
		3	1M	No impact- to be retained
		4	1M	No impact- to be retained
		5	1L	No impact- to be retained
				Other unrecorded trees >100m away
TOTAL		**5**		

Hollow sizes:

Small (S) <15cm
Medium (M)- 15-30cm diameter
Large (L)- >30cm diameter
Fissure (F) -crack in trunk suitable for microbats
Spout (SP)

Figure 11: Transitional Native Vegetation Regulatory Map (from www.lmbc.nsw.gov.au/Maps/index.html?viewer=NVRMap)

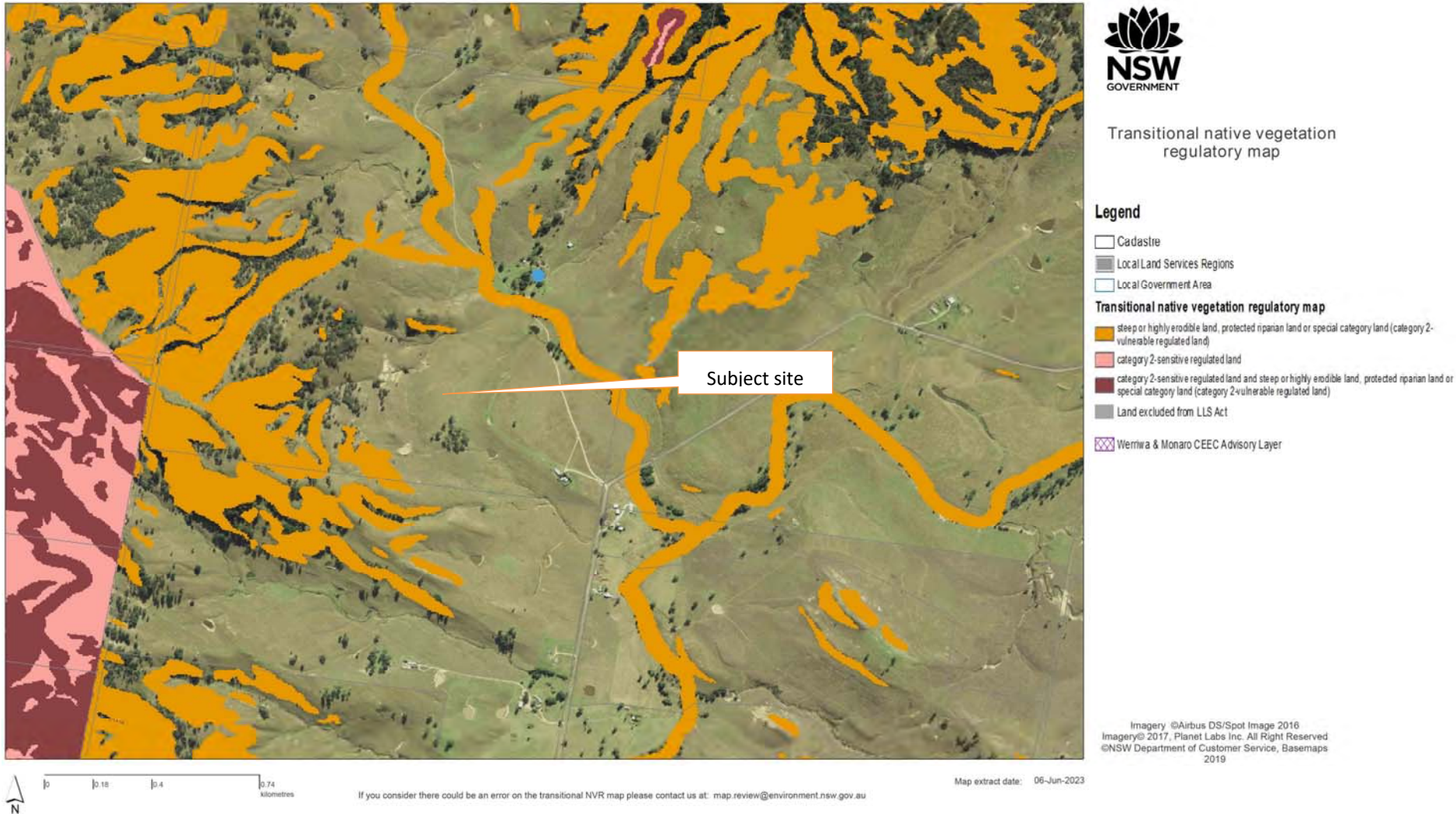


Figure 12a: 1990 historic aerial photography of subject site (from portal.spatial.nsw.gov.au/portal/apps/webappviewer)

Figure 12b: 1990 historic aerial photography of subject site (from portal.spatial.nsw.gov.au/portal/apps/webappviewer)

Figure 13: Category 2 mapped land (mapped by PEAK LM after site inspection)

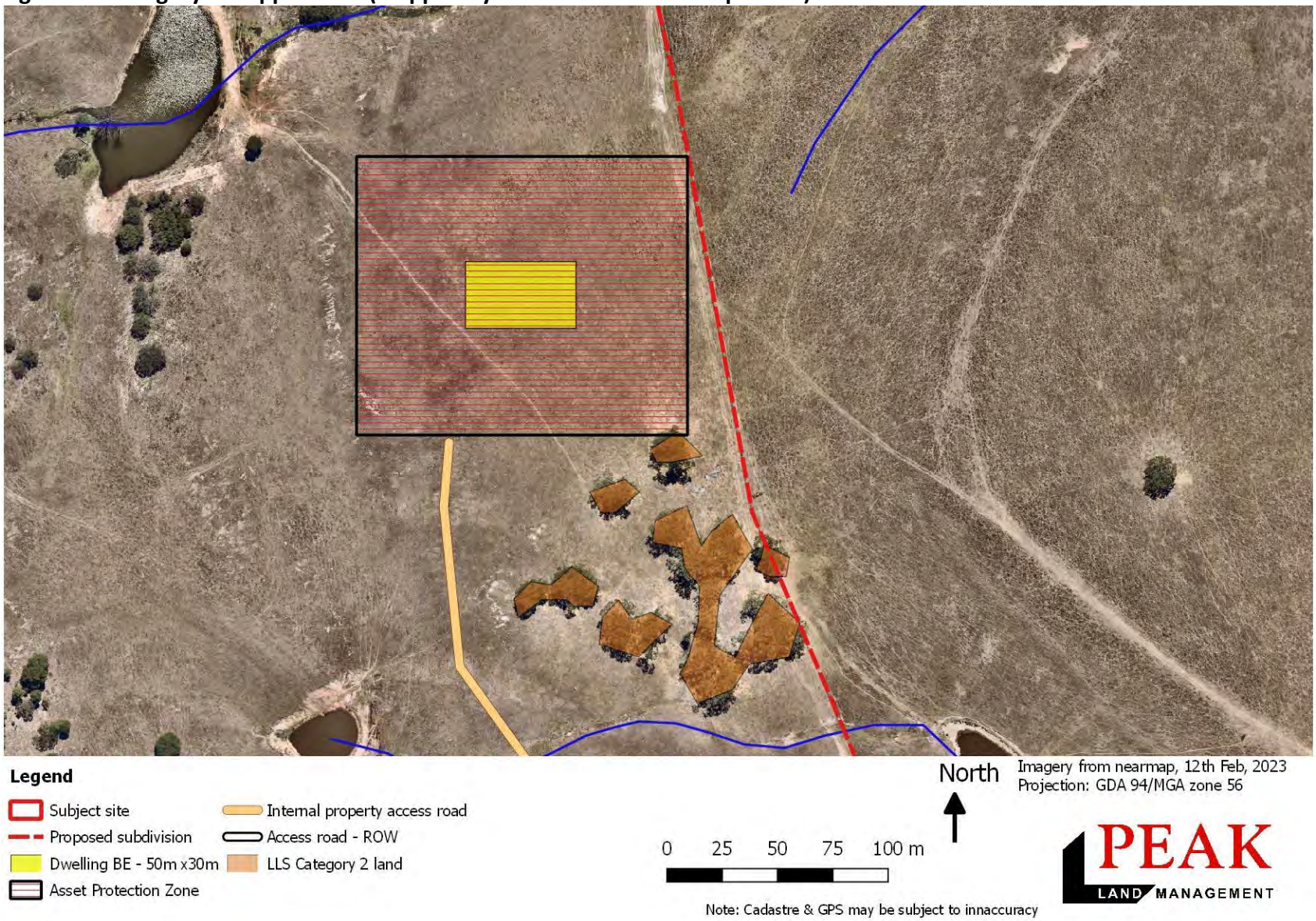


Figure 14: Impact area over Category 1 and 2 mapped land

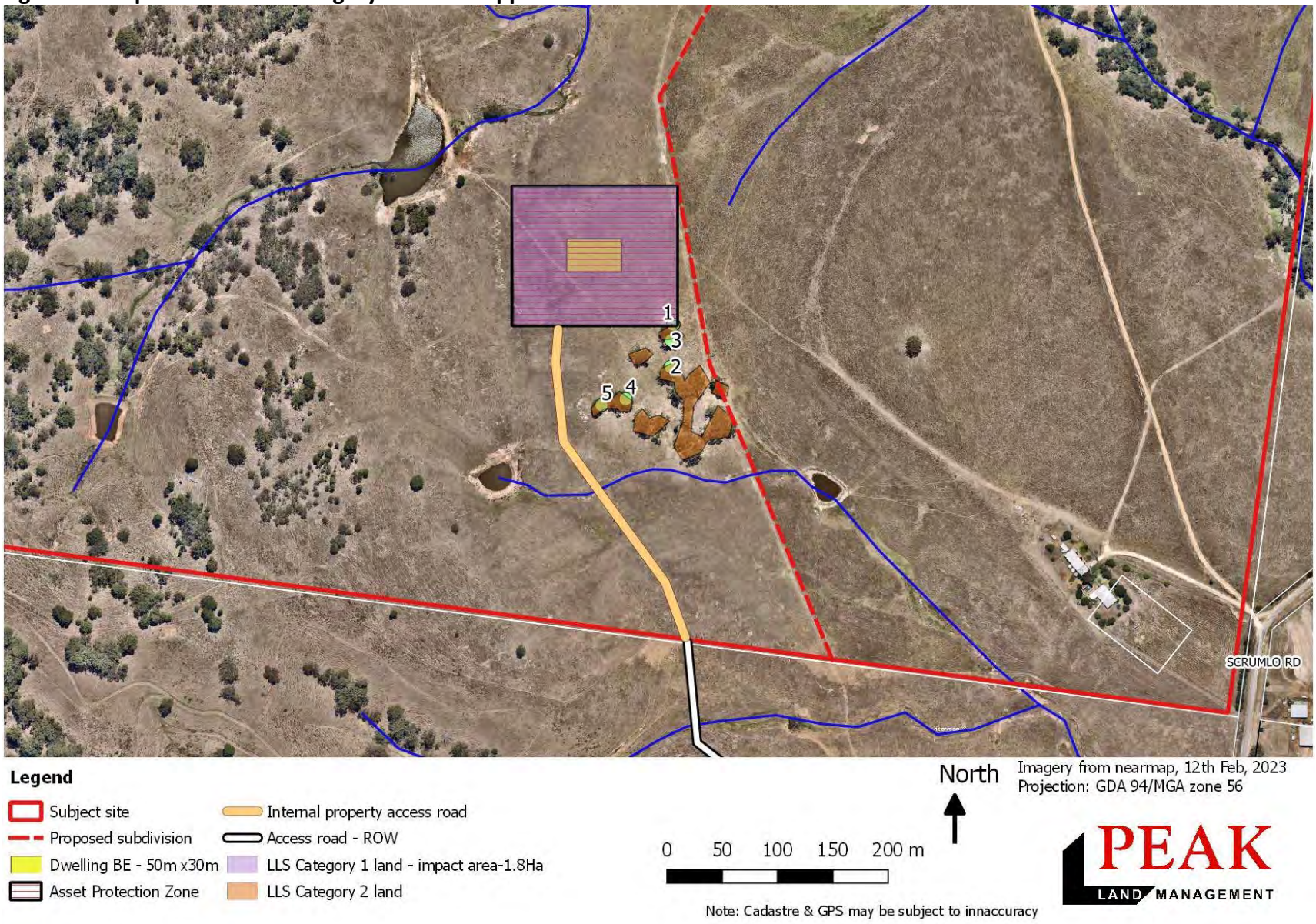


Figure 15: BAM mapped important areas (from NSW DPE, 2022).

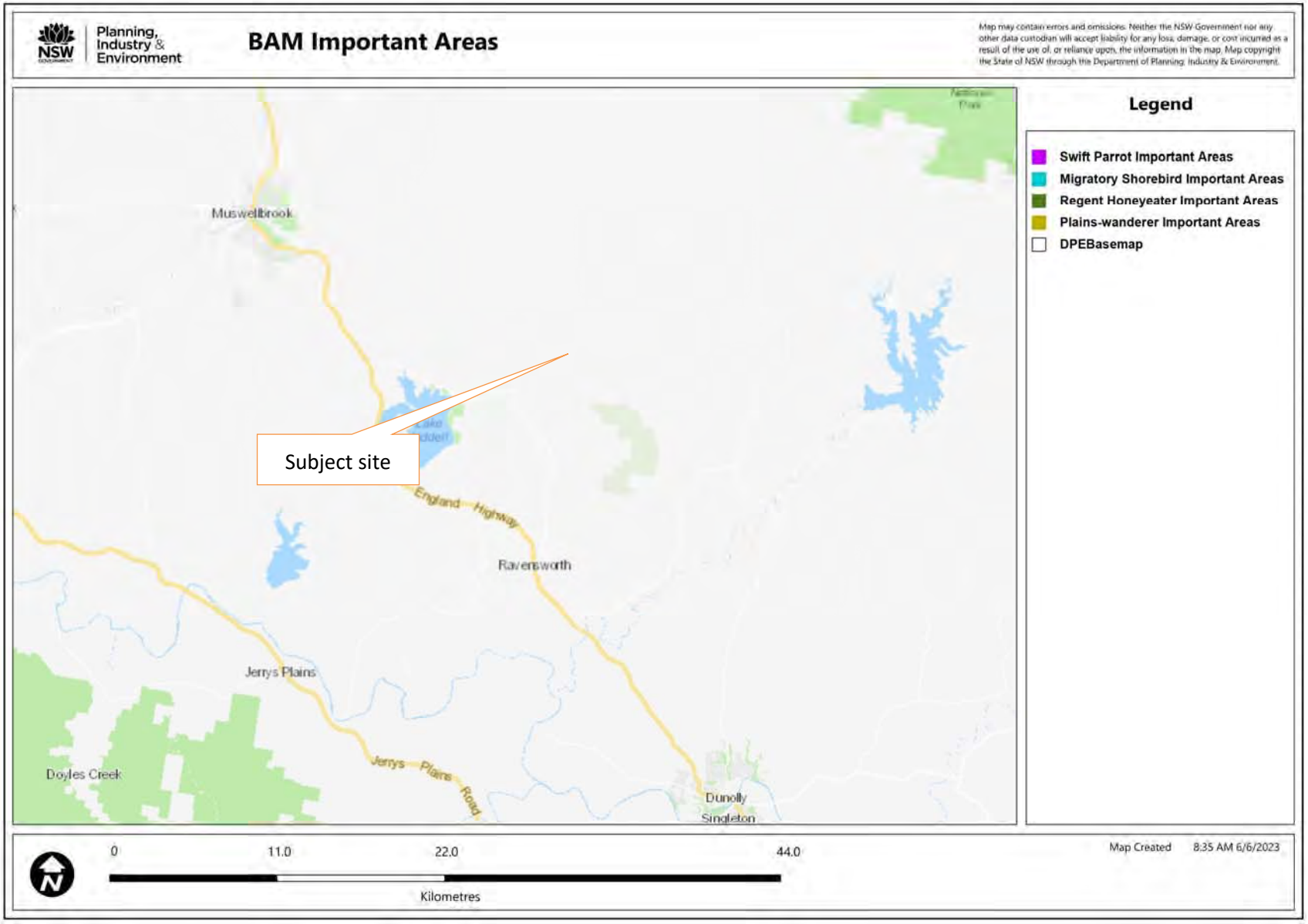


Figure 16a: EPBC listed Central Hunter Valley eucalypt forest and woodland map: a nationally-protected ecological community, Commonwealth of Australia 2016

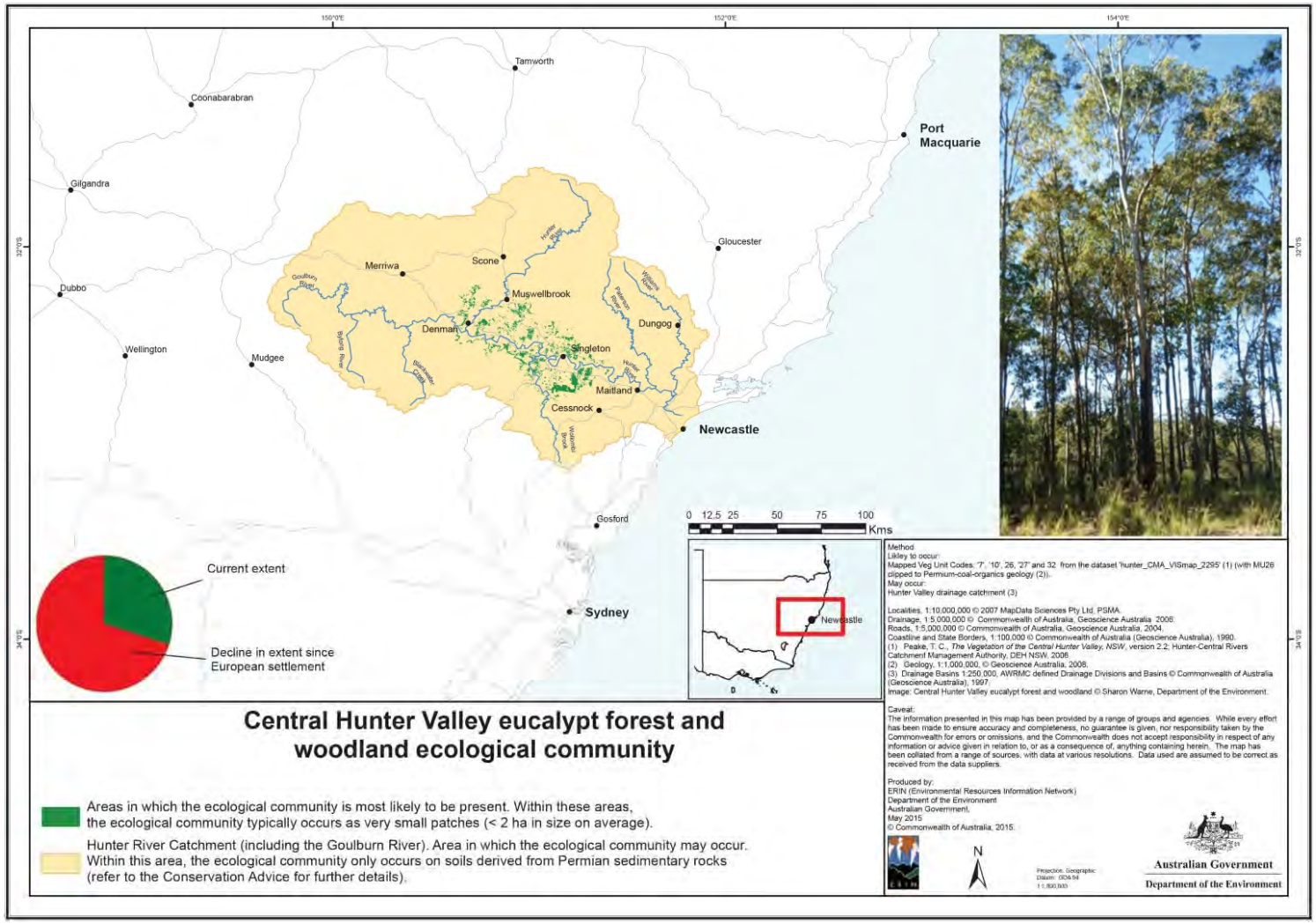
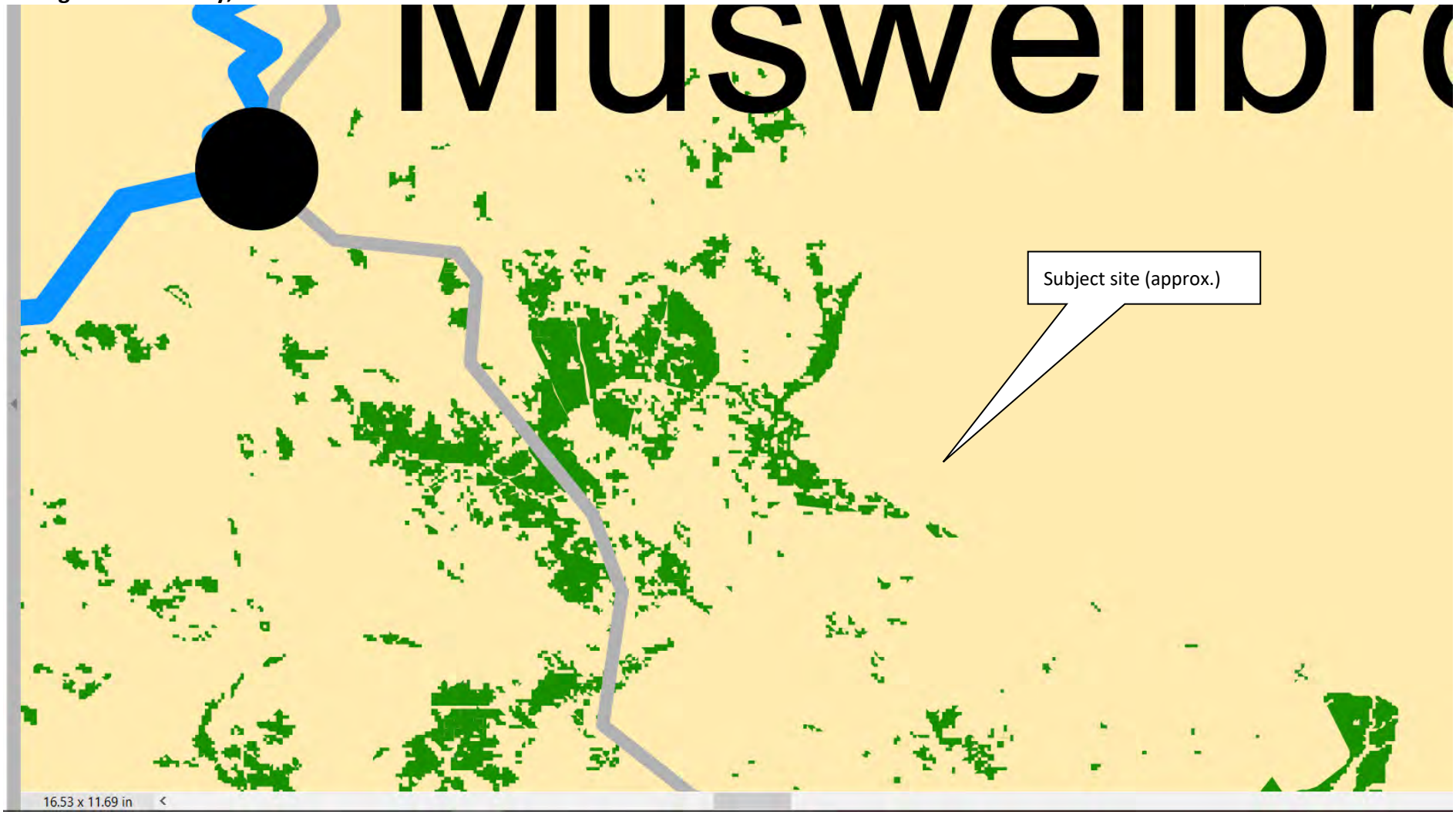


Figure 16b: Enlarged view of subject site in relation to Central Hunter Valley eucalypt forest and woodland map: a nationally-protected ecological community, Commonwealth of Australia 2016



6.0 ASSESSMENT OF SIGNIFICANCE

A consideration of threatened species potentially occurring on this site which have been gazetted within the *BC Act 2016* was conducted by a search of the NSW Office of Environment and Heritage Atlas (100km^2 or greater area surrounding subject site) which is shown in Appendix 1. Each species/ population/ ecological community is considered for its potential to occur upon the site and the likely level of impact as a result of the proposal. Table 6 shows likely impact for each fauna and flora species. All species regarded as having potential to be impacted upon in any more than a very low way have been subject to a 5 Part Test of Significance. Species which would obviously not occur on the site due to incorrect habitat requirements, or be impacted negligibly by any works, have not been listed below, or tested (as outlined in Section 4 & 5 of this report).

Additionally a literature review of potentially occurring threatened species was conducted. Once each species particular habitat requirements were identified a field inspection occurred of the site to verify the likely impact. This was done by direct species observation during traverses around the site, assessment of likely habitat, and the suitability of the site for threatened species identified. It should be noted however that no trapping, hair sampling, owl /bat call playback/recording, spotlighting/night surveys occurred and therefore if suitable habitat is present, and Wildlife Atlas- Bionet records occur in the local area, an assumption has been made that they may occur, and a 5 Part Test completed if relevant.

Note: all recorded locations of threatened species are sourced from Office of Environment and Heritage Bionet database. Please note that often flora & fauna records and research are not complete, and therefore these are subjective ratings only and may change over time. They are put here as guide only for regulatory authorities, and the proponent to consider.

In this case due to proposed vegetation removal being very minor (no impact over any tree or shrub, 2Ha impact over derived native grasslands only which are currently grazed) no impact over an Endangered Ecological Community, a Five Part Test is not considered required for any threatened species or Endangered Ecological Community.

Indirect impacts such as increased human disturbance from noise, light spill, dogs, pollution, etc is possible and taken into account within the 5 Part Test.

Table 6: Listed relevant Key Threatening Processes (as listed under EPBC Act)

Key Threatening Processes Listings	Date of Gazette
Fire regimes that cause declines in biodiversity	21-Apr-2022
Aggressive exclusion of birds from potential woodland and forest habitat by over-abundant noisy miners (*Manorina melanocephala*)	09-May-2014
Novel biota and their impact on biodiversity	26-Feb-2013
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants	08-Jan-2010
Invasion of northern Australia by Gamba Grass and other introduced grasses	16-Sep-2009
Predation by exotic rats on Australian offshore islands of less than 1000 km^2 (100,000 ha)	29-Mar-2006
Loss of biodiversity and ecosystem integrity following invasion by the Yellow Crazy Ant (*Anoplolepis gracilipes*) on Christmas Island, Indian Ocean	12-Apr-2005
The biological effects, including lethal toxic ingestion, caused by Cane Toads (*Bufo marinus*)	12-Apr-2005
Injury and fatality to vertebrate marine life caused by ingestion of, or entanglement in, harmful marine debris	13-Aug-2003
The reduction in the biodiversity of Australian native fauna and flora due to the red imported fire ant, *Solenopsis invicta* (fire ant)	02-Apr-2003
Infection of amphibians with chytrid fungus resulting in chytridiomycosis	23-Jul-2002
Predation, Habitat Degradation, Competition and Disease Transmission by Feral Pigs	06-Aug-2001
Incidental catch (bycatch) of Sea Turtle during coastal otter-trawling operations within Australian waters north of 28 degrees South	04-Apr-2001
Land clearance	04-Apr-2001
Loss of climatic habitat caused by anthropogenic emissions of greenhouse gases	04-Apr-2001
Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species	04-Apr-2001

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Table 7: Key relevant threatening processes in NSW under Schedule 4, BC Act 2016.

Key threatening process
Aggressive exclusion of birds from woodland and forest habitat by abundant Noisy Miners, *Manorina melanocephala* (Latham, 1802)
Alteration of habitat following subsidence due to longwall mining
Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands (as described in the final determination of the Scientific Committee to list the threatening process)
Anthropogenic Climate Change
Bushrock removal (as described in the final determination of the Scientific Committee to list the threatening process)
Clearing of native vegetation (as defined and described in the final determination of the Scientific Committee to list the key threatening process)
Competition and grazing by the feral European Rabbit, *Oryctolagus cuniculus (L.)*
Competition and habitat degradation by Feral Goats, *Capra hircus* Linnaeus 1758
Competition from feral honey bees, *Apis mellifera* L.

Death or injury to marine species following capture in shark control programs on ocean beaches (as described in the final determination of the Scientific Committee to list the key threatening process)
Entanglement in or ingestion of anthropogenic debris in marine and estuarine environments (as described in the final determination of the Scientific Committee to list the key threatening process)
Forest eucalypt dieback associated with over-abundant psyllids and Bell Miners
Habitat degradation and loss by Feral Horses (brumbies, wild horses), *Equus caballus* Linnaeus 1758
Herbivory and environmental degradation caused by feral deer
High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition
Importation of Red Imported Fire Ants *Solenopsis invicta* Buren 1972
Infection by Psittacine Circoviral (beak and feather) Disease affecting endangered psittacine species and populations
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis
Infection of native plants by *Phytophthora cinnamomi*
Introduction and establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae
Introduction of the Large Earth Bumblebee *Bombus terrestris* (L.)
Invasion and establishment of exotic vines and scramblers
Invasion and establishment of Scotch Broom (*Cytisus scoparius*)
Invasion and establishment of the Cane Toad (*Bufo marinus*)
Invasion, establishment and spread of Lantana (*Lantana camara* L. *sens. lat*)
Invasion of native plant communities by African Olive *Olea europaea* subsp. *cuspidata* (Wall. ex G. Don) Cif.
Invasion of native plant communities by *Chrysanthemoides monilifera*
Invasion of native plant communities by exotic perennial grasses
Invasion of the Yellow Crazy Ant, *Anoplolepis gracilipes* (Fr. Smith) into NSW
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants
Loss of hollow-bearing trees
Loss or degradation (or both) of sites used for hill-topping by butterflies
Predation and hybridisation by Feral Dogs, *Canis lupus familiaris*
Predation by *Gambusia holbrooki* Girard, 1859 (Plague Minnow or Mosquito Fish) (as described in the final determination of the Scientific Committee to list the threatening process)
Predation by the European Red Fox *Vulpes vulpes* (Linnaeus, 1758)
Predation by the Feral Cat *Felis catus* (Linnaeus, 1758)
Predation by the Ship Rat *Rattus rattus* on Lord Howe Island
Predation, habitat degradation, competition and disease transmission by Feral Pigs, *Sus scrofa* Linnaeus 1758
Removal of dead wood and dead trees

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Table 8: Threatening processes listed under Schedule 6 *Fisheries Management Act 1994*

Schedule 6 Key threatening processes (Section 220C)
Degradation of native riparian vegetation along New South Wales water courses
Hook and line fishing in areas important for the survival of threatened fish species
Human-caused climate change
Installation and operation of instream structures and other mechanisms that alter natural flow regimes of rivers and streams
Introduction of fish to waters within a river catchment outside their natural range
Introduction of non-indigenous fish and marine vegetation to the coastal waters of New South Wales
Removal of large woody debris from New South Wales rivers and streams

Table 9: Legal status key

Key - ** Legal status (from NSW DPE, 2023 & Biodiversity Conservation Act, 2016):	
V	Vulnerable
E1	Endangered
E2	Endangered
CE	Critically Endangered
E4	Presumed Extinct
P	Protected (National Parks and Wildlife Act, 1974)
P13	Protected Plants (National Parks and Wildlife Act, 1974)
U	Unprotected

Table 10: Likely level of impact key used by PEAK LAND MANAGEMENT

Key - Likely level of impact
This is a subjective qualitative measure used by the consultant. It is determined by the relative impact on a species (ie whether a species will be put in danger of extinction, numbers of individuals likely to be affected directly or indirectly, current status of species) and takes into account factors such as amount of clearing proposed, and surrounding amount of suitable habitat for that species.
Ratings:
Nil (plant only): Not present as site conditions (ie soil/geology, climate, elevation, etc), and on site survey, verify it was not present, and could never be naturally present.
Negligible: No impact can be discerned, but is included as there is a minor chance of that species possibly using the site (using the precautionary principle). In some cases there may also be positive impacts such as more foraging feed available from clearing some understorey and promoting native grass growth, or establishment of more vegetation.
Very Low: Individuals unlikely to be affected directly, but could be affected indirectly, and if they are in a very minor way with no major effect likely on any individual.
Low: Recognises that individuals may be present on site (either permanently or infrequently) and affected in a small way such as loss of habitat, including foraging or nesting/denning resources. Suitable surrounding habitat is available to offset direct impact, but it is acknowledged that this may place an individual under more stress, and lead to possible death of individual(s).
Moderate: Individuals will be affected, with impact likely to cause stress and possible death to a local individual or group of individuals. Loss of habitat may lead to the significant impact on a small local population, with its possible demise. Possible significant impact.

High: Will cause the death directly of local individuals, and lead to the loss of habitat for that species to re-establish permanently. Will also lead to the death of a local population/family group, and increase the chance of local/complete extinction of the species. Significant impact.

7.0 ASSESSMENT OF SERIOUS AND IRREVERSIBLE IMPACTS

Under the BC Act 2016, a determination of whether an impact is serious and irreversible (SAII) must be made in accordance with the principles prescribed in section 6.7 of the BC Regulation.

The "*Guidance to assist a decision maker to determine a serious and irreversible impact*, 2017, sets out those potential SAII species and ecological communities (known as "potential SAII entities".

The principles for determining serious and irreversible impacts in the Biodiversity Conservation Regulation, 2017 are:

- *will cause a further decline of a species or ecological community that is currently observed, estimated, inferred or reasonably suspected to be in a rapid rate of decline, or*
- *will further reduce the population of a species or ecological community that is currently observed, estimated, inferred, or reasonably suspected to have a very small population size, or*
- *are impacts on the habitat of a species or area of ecological community that is currently observed, estimated, inferred or reasonably suspected to have a very limited geographic distribution, or*
- *are impacts on a species or ecological community is unlikely to respond to measures to improve habitat and vegetation integrity and is therefore irreplaceable.*

7.1: Potential SAII entities

In this case all potential SAII entities are derived from Appendix 2 of the Guide, and are within the Bionet search area as shown in Appendix 3 of this report. An Impact evaluation is shown in Table 11. Entities include:

- Regent Honeyeater
- Swift Parrot
- Little Bentwing Bat (breeding)
- Eastern Bentwing Bat (breeding).
- Large eared Pied Bat (breeding)
- Eastern Cave Bat (breeding)

Table 11: SAII impact evaluation

Potential SAII entities	Impact evaluation	Impact thresholds	Serious and irreversible impact?
Regent Honeyeater	Habitat present, no impact anticipated (winter flowering Spotted Gum present which are a feed tree).	Not within an NSW DPIE mapped Important Area (Fig .16)	No
Swift Parrot	Habitat present, no impact anticipated (winter flowering	Not within an	No

	Spotted Gum present which are a feed tree).	NSW DPIE mapped Important Area (Fig .16)	
Large eared Pied Bat (*Chalinolobus dwyeri*)	Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin Petrochelidon ariel, frequenting low to mid-elevation dry open forest and woodland close to these features. Females have been recorded raising young in maternity roosts (c. 20-40 females) from November through to January in roof domes in sandstone caves and overhangs. They remain loyal to the same cave over many years. Found in well-timbered areas containing gullies.	Species roosting or breeding habitat may be present locally, but unaffected by the proposal.	No
Eastern Cave Bat (*Vespadelus troughtoni)*	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. Very little is known about the biology of this uncommon species. 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.	Species roosting or breeding habitat may be present locally, but unaffected by the proposal.	No
Eastern Bentwing Bat (*Miniopterus schreibersii oceanensis*)	Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures. Form discrete populations centred on a maternity cave that is used annually in spring and summer for the birth and rearing of young. At other times of the year, populations disperse within about 300 km range of maternity caves. Cold caves are used for hibernation in southern Australia. Hunt in forested areas, catching moths and other flying insects above the tree tops.	Species roosting or breeding habitat may be present locally, but unaffected by the proposal.	No
Miniopterus australis Little Bentwing-bat (Breeding)	Moist eucalypt forest, rainforest, vine thicket, wet and dry sclerophyll forest, Melaleuca swamps, dense coastal forests and banksia scrub. Generally found in well-timbered areas. Little Bentwing-bats roost in caves, tunnels, tree hollows, abandoned mines, stormwater drains, culverts, bridges and sometimes buildings during the day, and at night forage for small insects beneath the canopy of densely vegetated habitats.	Species roosting or breeding habitat may be present locally, but unaffected by the proposal	No
Other species	Not listed within the Important Areas Map, and no habitat presence.		No

8.0 CONCLUSION AND RECOMMENDATIONS

The ecological investigations and assessment of impact have found that there is no significant impact on any threatened species, Endangered Ecological Community, critical habitat, or endangered populations by the proposed works on any NSW or nationally listed species under the *EP&BC Act 1999,* or *BC Act 2016* if the proposal adopts the recommendations of this report.

The following recommendations (in no order of importance) if adopted will improve the biodiversity outcomes for this proposal, and this report is based upon these recommendations being enacted:

- Where not affected by the proposal all native vegetation (including understorey and particularly hollow bearing habitat and other trees) outside of the nominated development site be retained in natural condition, and allowed to regenerate (albeit grazed as a cattle property).
- No go zones should be delineated around each development site, and ensure tool box education to all builders constructing the development so that no impact occurs off the development site.

It is the consultant's opinion that this application does not need referring to the Federal Department of Environment and Energy.

Report prepared by:

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PEAK LAND MANAGEMENT

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Environment Protection and Biodiversity Conservation Act 1999
Biodiversity Conservation Act 2016
Biodiversity Conservation Act Regulations 2017
National Parks and Wildlife Act 1974
Environmental Planning and Assessment Act (1979)
Water Management Act, 2000
Water Management Regulations Act, 2019
State Environmental Planning Policies- Koala, Coastal Management, Vegetation in Non-Rural Areas

Other Websites

The following websites have been viewed throughout the development of this report:

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http://imagery.maps.nsw.gov.au/
Nearmap
http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10604
http://www.bionet.nsw.gov.au/
www.deh.gov.au
http://www.environment.gov.au/epbc/pmst/index.html- & Protected Matters Search
http:www.frogsaustralia.net.au/frogs/
http://www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/noxweed/noxious
http://www.ehp.qld.gov.au/wildlife/koalas/koala-ecology.html#claws_for_climbing
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APPENDIX 1: FLORA SURVEY RESULTS

These species found over the development site and immediate surrounds within 50m of BE.

Scientific Name	Common Name	Quadrat	Transect
Trees:			
Allocasuarina cunninghamiana	River Oak		x
Angophora floribunda	Rough Barked Apple		Off site
Corymbia maculata	Spotted Gum		x
Shrubs and understorey:	Nil		
Grasses			
Aristida lignosa	Three Awn Grass	x	x
Bothriochloa decipiens	Redleg Grass	x	x
Cynodon dactyldon	Couch	x	x
Eragrostis elongata	Clustered Lovegrass	x	x
Eragrostis leptostachya	Paddock Lovegrass	x	x
Ferns:	Nil		
			x
Sedges and water plants			
Fimbristylis dichotoma	Common Fringe Sedge	x	
Vines and scramblers:	Nil		
Orchids/epiphytes:	Nil		
Weeds			
Axonopus affinis	Narrow leaf carpet grass	x	x
Cenchrus clandestinus	Kikuyu	x	x
Cirsium vulgare	Spear thistle	x	x
Conyza bonariensis	Fleabane	x	x
Gnaphalium sphaericum	Common cudweed		x
Gomphocarpus fruticosus	Narrow leaf cotton bush		x
Juncus cognatus		x	x
Melinis repens	Red Natal Grass		x
(4) Opuntia stricta	Prickly Pear		x
Paspalum dilatum	Paspalum	x	x
(P) Salix spps	Willow		x
Schinus areira	Peppercorn Tree		x
(P) Senecio madagascariensis	Fireweed		x
Sporobolus africanus	Parramatta Grass	x	x
Verbena bonariensis	Purple top		x
Native species total:	**9**		
Weed species total:	**15**		
TOTAL PLANTS:	**24**		

# Threatened species or/Endangered Population			
(P) Noxious priority weed (P) NSW DPI Class	3		
^ Planted native spps not indigenous to this locality			

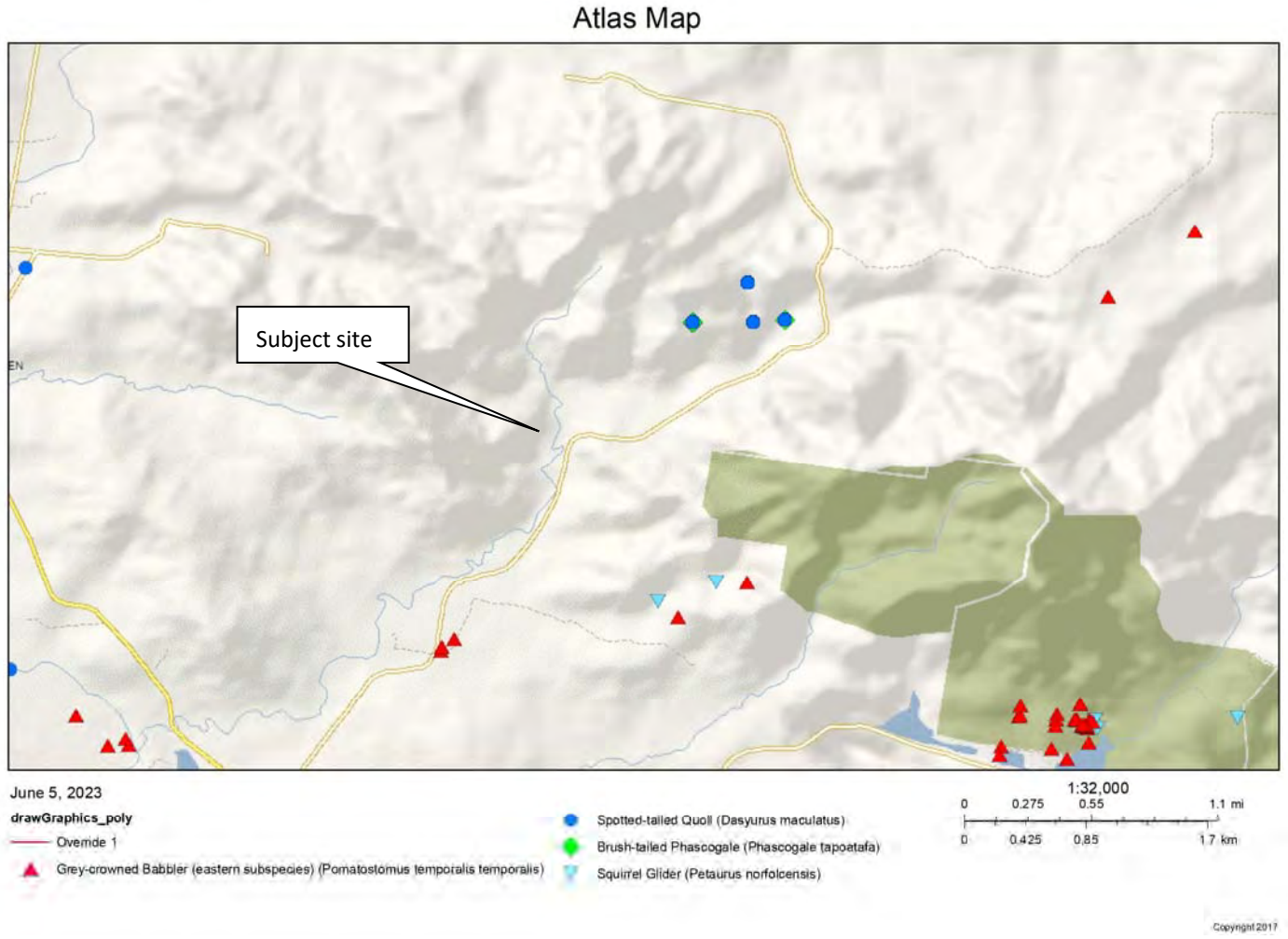
APPENDIX 2: FAUNA SURVEY RESULTS

COMMON NAME	
The following birds were observed, or heard either on or near the subject site, including flying overhead (common bird names from Pizzey & Knight, 1997):	
Magpie	Noisy Miner
Welcome Swallow	Australian Raven
Butcherbird	Black faced Cuckoo Shrike
Pee Wee	Eastern Rosella
Galah	Richards Pipit
Other fauna observed, or heard from calls/scats/footprints/scratch marks were:	
Eastern Grey Kangaroo	Dwarf Tree Frog- *Litoria fallax*
*Rabbit- scat	
# Threatened spps listed under EPBC Act	
+ Threatened spps listed under BC Act	
* Exotic species	

APPENDIX 3: THREATENED FLORA & FAUNA SPECIES SEARCH RESULT (Over a 100 square kilometre area – NSW & National EPBC Species – from Bionet).

Note: this does not mean these species are found on the site.

Search area and some key local species records. Koala and other threatened species Bionet search results.



Data from the 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°C; ^^ rounded to 0.01°C. Copyright the State of NSW through the Department of Planning, Industry and Environment. Search criteria : Licensed Report of all Valid Records of Threatened (listed on BC Act 2016) or Commonwealth listed Entities in selected area [North: -32.31 West: 151.03 East: 151.13 South: -32.41] recorded since 05 Jun 1990 until 05 Jun 2023 returned a total of 663 records of 39 species.
Report generated on 5/06/2023 5:08 PM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Animalia	Aves	Apodidae	0334	*Hirundapus caudacutus*		White-throated Needletail	P	V,C,J,K	3	
Animalia	Aves	Accipitridae	0218	*Circus assimilis*		Spotted Harrier	V,P		7	
Animalia	Aves	Accipitridae	0226	*Haliaeetus leucogaster*		White-bellied Sea-Eagle	V,P		18	
Animalia	Aves	Accipitridae	0225	*Hieraaetus morphnoides*		Little Eagle	V,P		5	
Animalia	Aves	Falconidae	0238	*Falco subniger*		Black Falcon	V,P		1	
Animalia	Aves	Psittacidae	0260	*Glossopsitta pusilla*		Little Lorikeet	V,P		20	
Animalia	Aves	Psittacidae	0309	*Lathamus discolor*		Swift Parrot	E1,P	CE	3	
Animalia	Aves	Psittacidae	0302	*Neophema pulchella*		Turquoise Parrot	V,P,3		1	
Animalia	Aves	Strigidae	0248	*Ninox strenua*		Powerful Owl	V,P,3		1	
Animalia	Aves	Tytonidae	0252	*Tyto longimembris*		Eastern Grass Owl	V,P,3		1	

Animalia	Aves	Tytonidae	0250	*Tyto novaehollandiae*	Masked Owl	V,P,3	11	
Animalia	Aves	Climacteridae	8127	*Climacteris picumnus victoriae*	Brown Treecreeper (eastern subspecies)	V,P	46	
Animalia	Aves	Acanthizidae	0504	*Chthonicola sagittata*	Speckled Warbler	V,P	52	
Animalia	Aves	Meliphagidae	0602	*Certhionyx variegatus*	Pied Honeyeater	V,P	1	
Animalia	Aves	Meliphagidae	8303	*Melithreptus gularis gularis*	Black-chinned Honeyeater (eastern subspecies)	V,P	4	
Animalia	Aves	Pomatostomidae	8388	*Pomatostomus temporalis temporalis*	Grey-crowned Babbler (eastern subspecies)	V,P	156	
Animalia	Aves	Neosittidae	0549	*Daphoenositta chrysoptera*	Varied Sittella	V,P	4	
Animalia	Aves	Artamidae	8519	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow	V,P	20	
Animalia	Aves	Petroicidae	8367	*Melanodryas cucullata cucullata*	Hooded Robin (south-eastern form)	V,P	10	
Animalia	Aves	Petroicidae	0380	*Petroica boodang*	Scarlet Robin	V,P	5	
Animalia	Aves	Petroicidae	0382	*Petroica phoenicea*	Flame Robin	V,P	1	

Animalia	Aves	Estrildidae	0652	*Stagonopleura guttata*	Diamond Firetail	V,P		14	
Animalia	Mammalia	Dasyuridae	1008	*Dasyurus maculatus*	Spotted-tailed Quoll	V,P	E	64	
Animalia	Mammalia	Dasyuridae	1017	*Phascogale tapoatafa*	Brush-tailed Phascogale	V,P		11	
Animalia	Mammalia	Petauridae	1137	*Petaurus norfolcensis*	Squirrel Glider	V,P		31	
Animalia	Mammalia	Pteropodidae	1280	*Pteropus poliocephalus*	Grey-headed Flying-fox	V,P	V	4	
Animalia	Mammalia	Molossidae	1329	*Micronomus norfolkensis*	Eastern Coastal Free-tailed Bat	V,P		107	
Animalia	Mammalia	Vespertilionidae	1353	*Chalinolobus dwyeri*	Large-eared Pied Bat	V,P	V	1	
Animalia	Mammalia	Vespertilionidae	1372	*Falsistrellus tasmaniensis*	Eastern False Pipistrelle	V,P		1	
Animalia	Mammalia	Vespertilionidae	1357	*Myotis macropus*	Southern Myotis	V,P		10	
Animalia	Mammalia	Vespertilionidae	1361	*Scoteanax rueppellii*	Greater Broad-nosed Bat	V,P		3	
Animalia	Mammalia	Vespertilionidae	1025	*Vespadelus troughtoni*	Eastern Cave Bat	V,P		4	

Animalia	Mammalia	Miniopteridae	3330	*Miniopterus orianae oceanensis*	Large Bent-winged Bat	V,P		15	
Animalia	Mammalia	Muridae	1455	*Pseudomys novaehollandiae*	New Holland Mouse	P	V	18	
Plantae	Flora	Asteraceae	9507	*Ozothamnus tesselatus*		V	V	2	
Plantae	Flora	Fabaceae (Mimosoideae)	3848	*Acacia pendula*	Acacia pendula population in the Hunter catchment	E2		5	
Plantae	Flora	Myrtaceae	6360	*Eucalyptus camaldulensis*	Eucalyptus camaldulensis population in the Hunter catchment	E2		1	
Plantae	Flora	Myrtaceae	4096	*Eucalyptus glaucina*	Slaty Red Gum	V	V	1	
Plantae	Flora	Orchidaceae	6399	*^^Cymbidium canaliculatum*	Cymbidium canaliculatum population in the Hunter Catchment	E2,P,2		1	

APPENDIX 4: SELECTED PHOTOS OF SITE

Subject site property access road from Scrumlo Road to proposed lot 382.

Proposed ROW property access road from Scrumlo Road to proposed lot 381 across Lot 38.

Proposed BE over Lot 381 looking north

Proposed Lot 381 BE – looking east

Proposed Lot 381 BE – looking south

Proposed Lot 381 BE – looking west

Proposed Lot 381 BE – looking north

Dams (one of four) located near proposed BE

Proposed ROW access road to Lot 381

Proposed Lot 382 existing property access road and concrete weir across creek to existing dwelling

Existing dwelling and sheds over proposed Lot 382

Looking north along proposed subdivision fence line

Proposed Lot 381 farm access road – looking south along proposed subdivision fence line

Scrumlo Rd

Hollow bearing habitat trees (Spotted Gum) to south of BE (all HBT's retained)