

AEP Ref: 1971.01
Date: 16 December 2020

EDEN ESTATES PTY LTD

ATTENTION: TREVOR JENSEN

Via Email: trevor@harrington.com.au

Dear Trevor,

**RE: ECOLOGICAL ADVICES – GATEWAY PROCESS
SEVERAL LOTS – LAND OFF NEWCASTLE LINK ROAD – WALLSEND, NSW**

Anderson Environment & Planning (AEP) herewith provide ecological advices relating to a Planning Proposal informing the Gateway Process for the proposed rezoning of land located on either side of the Newcastle Link Road, in Wallsend / Elermore Vale / Edgeworth / Cameron Park / Glendale. The extent of the subject site is shown in **Figure 20201203/A**.

The site is subject to a proposed Biodiversity Certification process and as such AEP has been surveying the site regularly since January 2020, as per the Biodiversity Assessment Method (BAM) defined in the *Biodiversity Conservation Act 2016* (BC Act).

Current Proposal:

It is our understanding that the site is proposed to be utilised for development, and to achieve such development a rezoning is sought.

Whilst no specific plan of proposal is available at this point, a Structure Plan highlighting possible areas of development and residue lands suggests that part of the native vegetation within the site will be removed.

Existing Site Condition:

The site contains native vegetation in various conditions, as detailed further in this letter. Disturbed areas occur mainly in the north and north-east.

There are a number of power easements through the site. The site has previously been associated with the mining operations of New Wallsend No. 2 Colliery. There are also a number of man-made dams throughout the site.

Evidence of use for rubbish dumping (including car wrecks) and trail biking practice is extensive through much of the site. It was also noted that sections of the site have been subject to recurrent bushfire events.

Consultation to Date:

Engagement has occurred so far with the following parties:

- NSW Department of Planning, Industry and Environment (DPIE) – State planning and biodiversity authority
- Lake Macquarie City Council – planning authority (west and south of the site)
- Newcastle City Council – planning authority (remainder of the land)

Consultation confirmed that Biodiversity Certification as per the provisions of the BC Act is a suitable process for this site.

Biodiversity Certification process:

The Biodiversity Certification process identifies areas that can be developed and quantifies the offsets required as well as the impact avoidance and minimisation strategies. Once certified, future site-specific development applications in certified areas will not require dedicated ecological assessment.

Assessment of impacts is carried out using the BAM, with the hierarchy of Avoid, Minimise and Offset being applied, with residual impacts being offset under the Biodiversity Offsets Scheme (BOS). As a result of this process, credits may be retired on the market, a payment may be made into the Biodiversity Conservation Fund and / or credits may be generated on a Biodiversity Stewardship Site for subsequent retirement.

Therefore, the following works are required:

- Identification and mapping of vegetation communities;
- Survey for threatened species as determined by the BAM Calculator and in accordance with relevant State survey guidelines;
- Production of Biodiversity Certification Assessment Report which will include an assessment compliant with the BAM, including a Biodiversity Assessment and an Impact Assessment;
- Production of Biodiversity Stewardship Site Assessment Report to highlight the potential gains in Biodiversity Values to be obtained from residue lands.

The following sections summarise the current status of the first two steps as at end November 2020, to support a request to commence the rezoning process, ahead of the final survey and biodiversity assessment.

Vegetation Assessment Results:

To date, a combined 75 BAM Plots have been executed by AEP and Eastcoast Flora Survey (Dr Stephen Bell), in order to inform the mapping of vegetation on site. Additional BAM Plots are scheduled in order to comply with the BAM requirements. **Figure 20201215/A** displays the plots executed so far, and details the location of vegetation communities identified by Eastcoast Flora Survey (Bell, 2020).

Table 1 summarises the Plant Community Types (PCT) identified on site and entered in the BAM Calculator when considered likely to be impacted by the proposed development.

Table 1 - Plant Community Types and Conditions

PCT Number	PCT Name	Condition	Abbreviation on Figure 20201203/A
1539	Grey Myrtle sheltered gully dry rainforest in gullies of the Sydney Basin	Good	G
1543	Rusty Fig - Native Quince - Native Olive dry rainforest of the Central Hunter Valley	Good	G
1573	Sydney Blue Gum - Lilly Pilly mesic tall open forest of coastal ranges and tablelands escarpment	Good	G
1584	White Mahogany - Spotted Gum - Grey Myrtle semi-mesic shrubby open forest, central coast & lower Hunter Valley	Disturbed - regrowth (low, unstructured)	DiRLU
1584	White Mahogany - Spotted Gum - Grey Myrtle semi-mesic shrubby open forest, central coast & lower Hunter Valley	Disturbed - regrowth (tall, structured)	DiRTS
1584	White Mahogany - Spotted Gum - Grey Myrtle semi-mesic shrubby open forest, central coast & lower Hunter Valley	Good	G
1588	Grey Ironbark-Broad-leaved Mahogany-Forest Red Gum shrubby open forest, Coastal Lowlands, Central Coast	Good	G
1588	Grey Ironbark-Broad-leaved Mahogany-Forest Red Gum shrubby open forest, Coastal Lowlands, Central Coast	Disturbed - regrowth (low, unstructured)	DiRLU
1588	Grey Ironbark-Broad-leaved Mahogany-Forest Red Gum shrubby open forest, Coastal Lowlands, Central Coast	Disturbed - regrowth (tall, structured)	DiRTS
1588	Grey Ironbark-Broad-leaved Mahogany-Forest Red Gum shrubby open forest, Coastal Lowlands, Central Coast	Disturbed - underscrubbed	DiUS
1592	Spotted Gum - Red Ironbark - Grey Gum shrub - grass open forest of the Lower Hunter	Disturbed - regrowth (low, unstructured)	DiRLU
1592	Spotted Gum - Red Ironbark - Grey Gum shrub - grass open forest of the Lower Hunter	Disturbed - regrowth (tall, structured)	DiRTS

PCT Number	PCT Name	Condition	Abbreviation on Figure 20201203/A
1592	Spotted Gum - Red Ironbark - Grey Gum shrub - grass open forest of the Lower Hunter	Good	G
1619	Smooth-barked Apple - Red Bloodwood - Brown Stringybark - Hairpin Banksia heathy open forest of coastal lowlands	Good	G
1619	Smooth-barked Apple - Red Bloodwood - Brown Stringybark - Hairpin Banksia heathy open forest of coastal lowlands	Disturbed - regrowth (low, unstructured)	DiRLU
1619	Smooth-barked Apple - Red Bloodwood - Brown Stringybark - Hairpin Banksia heathy open forest of coastal lowlands	Disturbed - regrowth (tall, structured)	DiRTS
1619	Smooth-barked Apple - Red Bloodwood - Brown Stringybark - Hairpin Banksia heathy open forest of coastal lowlands	Disturbed - underscrubbed	DiUS
1621	Smooth-barked Apple open forest on coastal lowlands of the Central Coast	Good	G
1621	Smooth-barked Apple open forest on coastal lowlands of the Central Coast	Disturbed - regrowth (tall, structured)	DiRTS
1621	Smooth-barked Apple open forest on coastal lowlands of the Central Coast	Good (Riparian Peppermint Paperbark Forest)	RPPF
1737	Typha rushland	Good	G
N/A	Other	Disturbed - exotic dominance	E
N/A	Other	Disturbed - rehabilitation/plantation	R/P

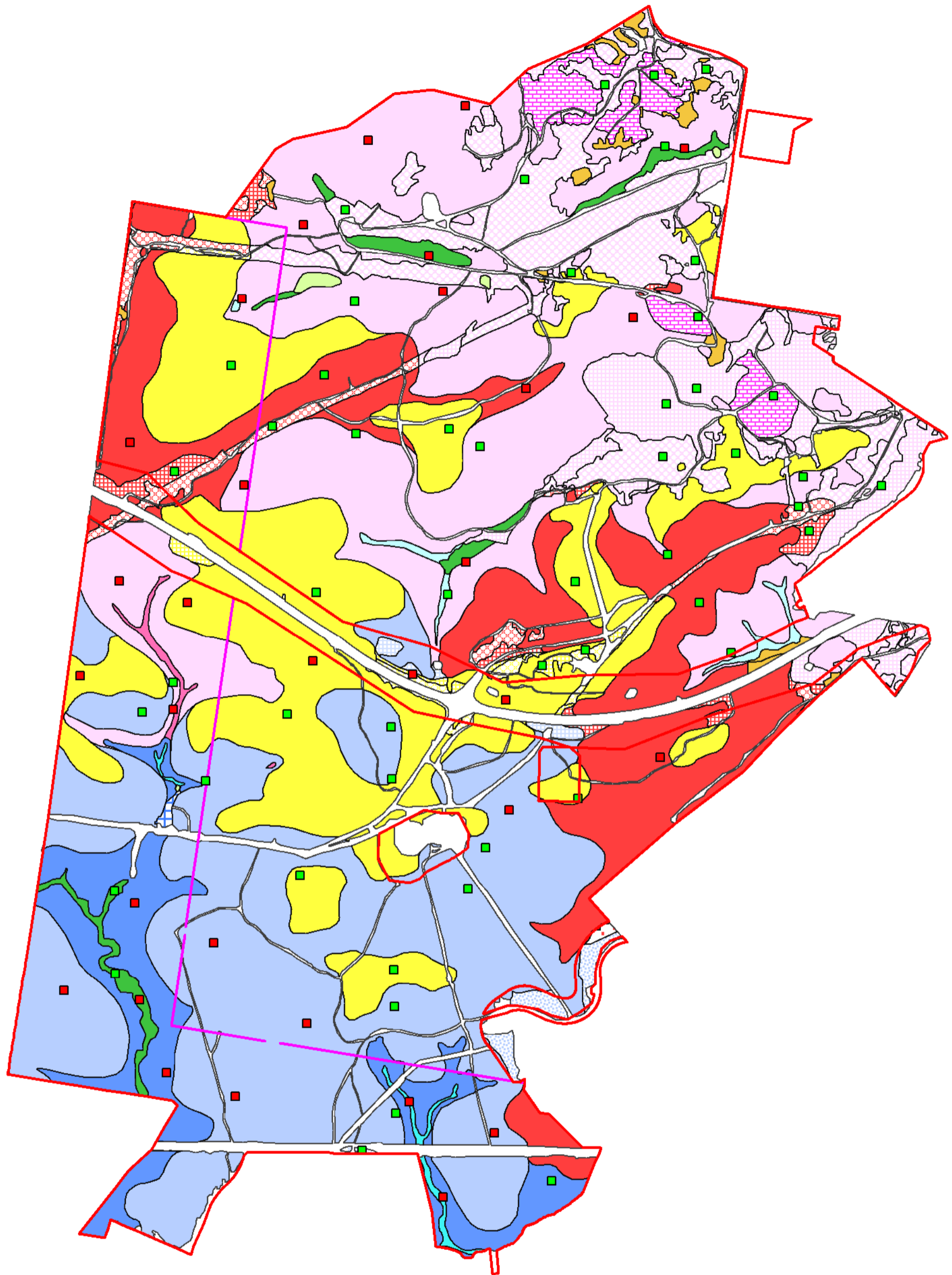
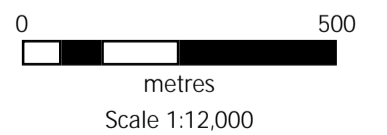


Figure 20201203/A - Vegetation Communities

Legend

Subject Site	PCT 1539 - G	PCT 1584 - G	PCT 1588 - Good	PCT 1619 - DiRTS
LGA Boundary	PCT 1543 - G	PCT 1584 - DiRTS	PCT 1588 - DiRLU	PCT 1619 - DiUS
BAM Plots (East Coast Flora Survey Ltd)	PCT 1573 - G	PCT 1584 - DiRLU	PCT 1588 - DiRTS	PCT 1621 - Good
BAM Plots (AEP)	PCT 1737 - G	PCT 1592 - Good	PCT 1588 - DiUS	PCT 1621 - RPPF
	R/P	PCT 1592 - DiRLU	PCT 1619 - Good	PCT 1621 - DiRTS
	Exotic dominance	PCT 1592 - DiRTS	PCT 1619 - DiRLU	



Threatened Species Survey Results

Tables 2 and 3 summarise the status of threatened species searches to date and findings, and Figure 20201203/B displays the location of threatened species as identified to date.

Table 2 – Threatened Fauna Survey Results

Scientific Name	Common Name	Species at Risk of SAIL Y/N	Recommended Survey Period	Species Surveyed to Date	Identified within the Subject Site Y/N
<i>Burhinus grallarius</i>	Bush Stone-curlew	N	All year	Y	N
<i>Callocephalon fimbriatum</i>	Gang-gang Cockatoo	N	Oct-Jan	Y	N
<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	N	Apr-Aug	Y	Y (foraging)
<i>Cercartetus nanus</i>	Eastern Pygmy-possum	N	Oct-Mar	N	-
<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	Y (breeding)	Nov-Jan	Y	N ¹
<i>Crinia tinnula</i>	Wallum Froglet	N	All year	N	-
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	N	Jul-Dec	Y	N
<i>Hieraaetus morphnoides</i>	Little Eagle	N	Aug-Oct	Y	Y (no breeding recorded)
<i>Hoplocephalus bitorquatus</i>	Pale-headed Snake	N	Nov-Mar	N	-
<i>Lathamus discolor</i>	Swift Parrot	Y	<i>Species map</i>	Y	N
<i>Litoria aurea</i>	Green and Golden Bell Frog	N	Nov-Mar	N	-
<i>Litoria brevipalmata</i>	Green-thighed Frog	N	Oct-Mar	N	-
<i>Lophoictinia isura</i>	Square-tailed Kite	N	Sep-Jan	Y	Y (no breeding recorded)
<i>Miniopterus australis</i>	Little Bent-winged Bat	Y (breeding)	Dec-Feb	Y	Y (foraging)
<i>Miniopterus orianae oceanensis</i>	Large Bent-winged Bat	Y (breeding)	Dec-Feb	Y	Y (foraging)
<i>Myotis macropus</i>	Southern Myotis	N	Oct-Mar	Y	Y
<i>Ninox connivens</i>	Barking Owl	N	May-Dec	Y	N
<i>Ninox strenua</i>	Powerful Owl	N	May-Aug	Y	Y (nesting)
<i>Pandion cristatus</i>	Eastern Osprey	N	Apr-Nov	Y	N
<i>Petalura gigantea</i>	Giant Dragonfly	Y	Dec-Jan	N	-
<i>Petaurus norfolcensis</i>	Squirrel Glider	N	All year	Y	Y
<i>Phascogale tapoatafa</i>	Brush-tailed Phascogale	N	Dec-Jun	Y	N
<i>Phascolarctos cinereus</i>	Koala	N	All year	Y	N
<i>Planigale maculata</i>	Common Planigale	N	All year	Y	N
<i>Pseudophryne australis</i>	Red-crowned Toadlet	N	All year	Y	N

Scientific Name	Common Name	Species at Risk of SAI Y/N	Recommended Survey Period	Species Surveyed to Date	Identified within the Subject Site Y/N
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	N	Oct-Dec	Y	Y (no camp recorded)
<i>Turnix maculosus</i>	Red-backed Button-quail	N	All year	Y	N
<i>Tyto novaehollandiae</i>	Masked Owl	N	May-Aug	Y	Y (no breeding recorded)
<i>Uperoleia mahonyi</i>	Mahony's Toadlet	N	Oct-Mar	N	N
<i>Vespadelus troughtoni</i>	Eastern Cave Bat	Y	Nov-Jan	Y	N

¹ One individual call recorded out of survey season. Seasonal Anabat survey underway at time of writing. Harp trapping in December 2020 as per survey guidelines targeting this species did not reveal the presence of a roosting or breeding cave on site.

Table 3 – Threatened Flora Survey Results

Scientific Name	Common Name	Species at Risk of SAI Y/N	Recommended Survey Period	Species Surveyed	Identified within the Subject Site Y/N
<i>Acacia bynoeana</i>	Bynoe's Wattle	N	All year	Y	N
<i>Angophora inopina</i>	Charmhaven Apple	N	All year	Y	N
<i>Astrotricha crassifolia</i>	Thick-leaf Star-hair	Y	Jul-Dec	Y	N
<i>Caladenia tessellata</i>	Thick Lip Spider Orchid*	Y	Sep-Oct	Y	N
<i>Callistemon linearifolius</i>	Netted Bottle Brush	N	Oct-Jan	Y (out of season – seasonal survey underway)	Y
<i>Corunastylis sp. Charmhaven (NSW896673)</i>		Y	Nov-Apr	Seasonal survey underway	-
<i>Cryptostylis hunteriana</i>	Leafless Tongue Orchid	N	Nov-Jan	Seasonal survey underway	-
<i>Cymbidium canaliculatum - endangered population</i>		N	All year	Y	N
<i>Cynanchum elegans</i>	White-flowered Wax Plant	N	All year	Y	N
<i>Diuris praecox</i>	Rough Doubletail	N	Aug	Y	N
<i>Eucalyptus glaucina</i>	Slaty Red Gum	N	All year	Y	Y
<i>Eucalyptus parramattensis subsp. decadens</i>		N	All year	Y	N
<i>Genoplesium insigne</i>	Variable Midge Orchid	Y	Sep-Nov	Y	N
<i>Grevillea parviflora subsp. parviflora</i>	Small-flower Grevillea	N	Aug-Nov	Y	Y
<i>Maundia triglochoides</i>		N	Nov-Mar	Seasonal survey underway	-
<i>Melaleuca biconvexa</i>	Biconvex Paperbark	N	All year	Y	N

Scientific Name	Common Name	Species at Risk of SAI Y/N	Recommended Survey Period	Species Surveyed	Identified within the Subject Site Y/N
<i>Melaleuca biconvexa</i>	Biconvex Paperbark	N	All year	Y	N
<i>Melaleuca groveana</i>	Grove's Paperbark	N	All year	Y	N
<i>Persicaria elatior</i>	Tall Knotweed	N	Dec-May	Y	N
<i>Rhizanthella slateri</i>	Eastern Australian Underground Orchid	Y	Sep-Nov	Y	N
<i>Rhodamnia rubescens</i>	Scrub Turpentine	Y	All year	Y	Y
<i>Rhodomyrtus psidioides</i>	Native guava	Y	All year	Y	N
<i>Rutidosis heterogama</i>	Heath Wrinklewort	N	All year	Y	N
<i>Senna acclinis</i>	Rainforest Cassia	N	All year	Y	N
<i>Tetradlea glandulosa</i>		N	Aug-Nov	Y	N
<i>Tetradlea juncea</i>	Black-eyed Susan	N	Sep-Oct	Y	Y
<i>Zannichellia palustris</i>		N	Oct-Jan	Seasonal survey underway	-

As highlighted above, the following threatened species were identified on site and may incur Offset Credits. The generation of Offset Credits is design-dependant, i.e. such credits are incurred only where the clearing of credit species habitat is unavoidable as a result of the development:

- **Glossy Black Cockatoo:** foraging in the south-west. Potential breeding habitat (large tree hollows on site, but no breeding recorded despite targeted searches);
- **Large-eared Pied-bat:** one call identified using a bat echolocation call detector to date, out of survey period. Further seasonal Anabat surveying underway at time of writing. Harp trapping carried out in December 2020 by Dr. Anna McConville (Echo Ecology) concluded that the site is not used for roosting or breeding purposes;
- **Southern Myotis:** identified on site – Species Credits incurred if development intersects relevant species polygon(s). **Figure 2** displays the location of suitable waterbodies and related species polygons;
- **Squirrel Glider:** identified on site using motion-sensing camera traps – Species Credits incurred;
- **Powerful Owl:** identified in various locations, with two nests located in the north – known nest locations likely to be avoided within the future development. Species Credits incurred if development intersects relevant species polygon(s);
- ***Callistemon linearifolius*:** identified on site outside recommended survey period – seasonal surveying currently underway – Species Credits incurred if development intersects relevant species polygon(s);
- ***Grevillea parviflora* subsp. *parviflora*:** identified on site – Species Credits incurred if development intersects relevant species polygon(s);

- ***Rhodamnia rubescens***: identified on site – majority of individuals are being retained. Species Credits incurred if development intersects relevant species polygon(s). Serious and Irreversible Impact Assessment required.
- ***Tetratheca juncea***: identified in the southern half of the site – Species Credits incurred.

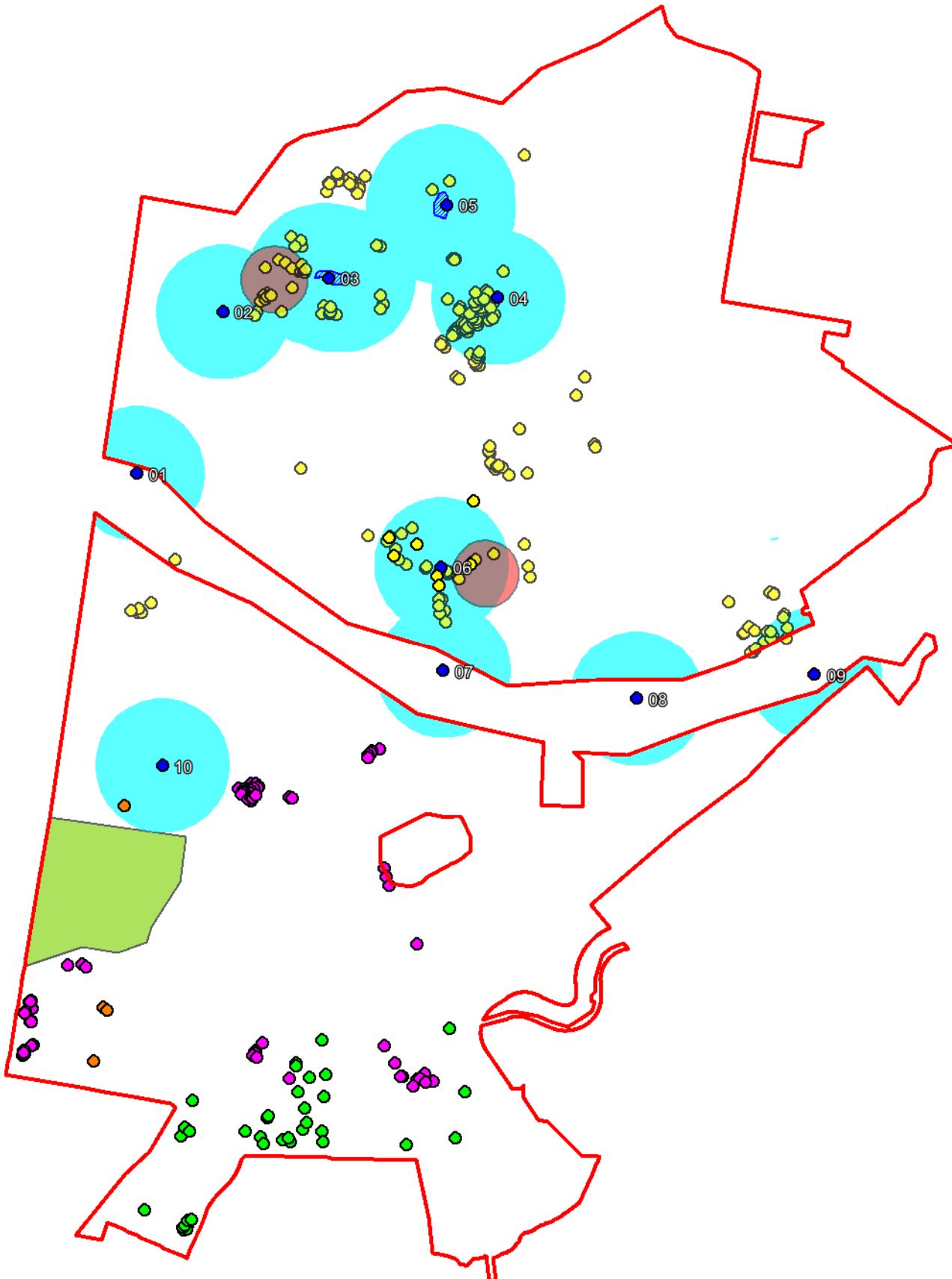



Figure 20201215/B - Draft species polygon mapping based on surveys to date

<p>Legend</p> <ul style="list-style-type: none"> Subject Site Powerful Owl polygon Southern Myotis polygon Glossy Black-Cockatoo polygon Myotis macropus-suitable waterbody ● Myotis macropus-suitable waterbody waypoint ● Tetratheca juncea ● Rhodamnia rubescens ● Grevillea parviflora subsp. parviflora ● Callistemon linearifolius 		<p>0 750</p> <p>metres</p> <p>Scale 1:17,000</p> 
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Location: Newcastle Link Road, Wallsend, NSW | Client: Eden Estates Pty Ltd | 15 December 2020
 AEP Ref: 1971.01

Disclaimer: Boundaries are not survey accurate. Do not scale off this plan. While all reasonable care has been taken to ensure the information shown on this map is up to date and accurate, no guarantee is given that the information portrayed is free from error or omission. Please verify the accuracy of all information prior to use.



Schedule of Works to Completion

As stated above and summarised in **Table 4**, several surveys remain to be completed as per the recommended survey periods:

Table 4 – Schedule of Survey Works to End of Year

Month	Scientific Name	Common Name	Comments / Methodology
December	<i>Chalinolobus dwyeri</i>	Large-eared Pied Bat	Anabat surveying
	<i>Callistemon linearifolius</i>	Netted Bottlebrush	Flora transects
	<i>Corunastylis sp. Charmhaven</i>		Flora transects
	<i>Cryptostylis hunteriana</i>	Leafless Tongue Orchid	Flora transects
	<i>Maundia triglochinoidea</i>		Flora transects
	<i>Zannichellia palustris</i>		Flora transects
	<i>Crinia tinnula</i>	Wallum Froglet	Targeted Nocturnal Survey
	<i>Hoplocephalus bitorquatus</i>	Pale-headed Snake	Targeted Diurnal and Nocturnal Survey
	<i>Litoria aurea</i>	Green and Golden Bell Frog	Targeted Nocturnal Survey
	<i>Litoria brevipalmata</i>	Green-thighed Frog	Targeted Nocturnal Survey
	<i>Petalura gigantea</i>	Giant Dragonfly	Targeted Diurnal survey
<i>Uperoleia mahonyi</i>	Mahony's Toadlet	Targeted Nocturnal Survey	
January	<i>Phascogale tapoatafa*</i>	Brush-tailed Phascogale	Camera trapping / Habitat assessment

*Survey requirements subject to discussion with LMCC and NCC

Other works to be completed include the execution of additional BAM Plots, the production of the BCAR and BSSAR documents (inclusive of biodiversity assessment), as well as the completion and lodgement of the related BAM cases online.

Status of Potential Serious and Irreversible Impacts (SAII)

To date, the following potential SAII species have either been identified or are considered as possibly on site:

- Eastern Cave Bat:** identified as part of a species group using an echolocation call detector. Cannot be definitively differentiated from other *Vespadelus spp* using call detections. Harp trapping was undertaken in December 2020 by Dr Anna McConville (Echo Ecology) to target this species, and no Eastern Cave Bats were caught. Other *Vespadelus spp* were caught, which makes it likely that Eastern Cave Bat was not the species recorded by Anabat. No maternity cave was found on site. Therefore, SAII status does not apply;
- Large-eared Pied Bat:** SAII only applies if a maternity cave is identified on site. Single call identified using an echolocation call detector. Harp trapping was undertaken in December

2020 by Dr Anna McConville (Echo Ecology) and no Large-eared Pied Bats were caught. No maternity cave was found on site. Therefore, SAI status does not apply;

- ***Rhodamnia rubescens***: identified in various locations in the northern half of the site. Locations of such records are naturally protected by riparian buffers and natural topography (i.e. land too steep to develop). Mostly unaffected by the proposed development. In that case, SAI status unlikely to be invoked.

As SAI candidate species, the highest level of constraint is associated with these species and their habitat. The Urban Design team has been made aware of the findings to date on these species, and is working with AEP to ensure that impacts are minimal on these species (where present).

Avoid & Minimise Considerations and Structure Plan design process

The Urban Design team has been working collaboratively with AEP so as to inform the Structure Plan design, using and repeating an iterative process as follows:

- Execution of seasonal surveys (AEP);
- Production of constraints map based on survey results (AEP);
- Incorporation of map into Structure Plan design revision (Urbanco);
- Communication of revised Structure Plan to AEP (Urbanco).

Furthermore, the execution of a comprehensive mapping of vegetation communities by Eastcoast Flora Survey (Dr Stephen Bell) informed the identification of areas with lower biodiversity values which are likely to be more suitable for development. Such mapping guided AEP field survey efforts, by helping to identify areas with a high likelihood of occurrence of threatened species.

The outcome of this ongoing iterative process is a Structure Plan that has gone and will continue to go through various revisions. The latest iteration of the proposed Structure Plan has sought to avoid areas of high biodiversity constraints, i.e. where vegetation was assessed as being in good condition (using the Vegetation Integrity Score available in the BAM Calculator as an indicator and field assessment by Eastcoast Flora Survey) and where threatened species were identified. Such locations are primarily located along riparian corridors and in areas with steep terrain and escarpments. As an example, the creation of protected vegetated buffers and corridors in E2-zoned lands will further support habitat and mobility of threatened species, such as Powerful Owl and Squirrel Glider, and aid continued linkages through the landscape. It is expected that further consultation will take place until seasonal surveys are complete, to refine the proposed Structure Plan by taking into considerations areas of high ecological value. Thus, consultation will also be extended to the planning authorities as part of the biodiversity and impact assessment and production of BCAR reporting.

Residue Lands and Offsets considerations

Offsetting of residual impacts is proposed to occur both within the residue lands which will be set up as a Biodiversity Stewardship Site if suitable, as well as through credit purchase and retirement and/or other Stewardship Site(s) creation. Offsets are being sought as a priority at a local level, with conversation underway with owners of potentially suitable sites.

Summary:

Ecological assessments carried out to date reveal that the vegetation on site is mostly in good condition, with areas subject to disturbance located in the north and north-east. Fauna and flora species encountered so far are typical of the area, and the majority of threatened flora species encountered on site were located in areas that are likely to be retained or rehabilitated.

Further investigation is required to refine the Vegetation Integrity Score in several vegetation zones. Summer surveys will focus on frogs, snakes, birds, microbats and flora.

It is expected that all threatened species seasonal surveys will be completed by January 2020 (subject to suitable weather conditions).

We trust the initial information herewith is suitable for considerations at this point in the investigation process. Should you require any further details or clarification, please do not hesitate to contact the writer.

Yours faithfully,

ANDERSON ENVIRONMENT & PLANNING



CRAIG ANDERSON

DIRECTOR

Biodiversity Accredited Assessor BAAS: 17002