From: Redacted
Sent: Wednesday, 14 August 2024 8:43 AM
To: Joanne Dunkerley
Subject: Eden Estates Link Road - Ecology Response
Attachments: 240813 1971.04 AEP Eden LMCC response 2024-08-13.pdf

Hi Joanne,

With reference to the comments on ecology received on 22 March 2024 please find attached AEP's response.
Apologies for the delay. Please don't hesitate to reach out if you wish to discuss.

Regards,

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Manager - Land Projects

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BIODIVERSITY | BUSHFIRE | ARBORICULTURE

NEWCASTLE SYDNEY

AEP Ref: 1971.04

To: Eden Estates (Newcastle) Pty Ltd

Attention: Redacted

Via Email to: Redacted

13 August 2024

Dear Redacted

Re: Ecological advice in response to Lake Macquarie City Council request for information
Planning Proposal – Multiple Lots in Wallsend, Edgeworth and Glendale

As requested, Anderson Environment & Planning (AEP) herewith provide ecological advices in response to Lake Macquarie City Council's queries (email entitled "Biodiversity issues", dated 19 March 2024) in relation to flora and fauna survey effort and methodology undertaken in association with the Planning Proposal and Biodiversity Certification over lands along the Link Road, west of Newcastle.

Forest Owl survey methodology

- The *Interim Lake Macquarie Large Forest Owl Planning and Management Guidelines 2014* (LMCC, 2014) were afforded consideration and informed the survey effort undertaken for Masked Owl, Sooty Owl, Powerful Owl and Barking Owl, in addition to survey methods defined by the BioNet Atlas Threatened Biodiversity Data Collection (TBDC) and the most recent State-level applicable guidelines, namely the *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities – Working Draft – November 2004* (NSW Department of Environment and Conservation, 2004).
- AEP undertook a total of **6,100 hours** of songmeter recording in season. Based on songmeter recording results including type, timing and frequency of call, further specific targeted works including call playback, pellet, roost and nest tree searches were carried out in areas of notable songmeter activity. This led to the identification of three (3) active Powerful Owl nests as presented in the Biodiversity Certification Assessment Report (BCAR) (AEP, 2022).
- Ground search focus areas were identified following the analysis of songmeter data and triangulation of identified calls. This method proved to highly effective in enabling AEP to determine the likely location of a nest, and subsequently find and confirm each nest.
- Masked Owl calls were also recorded by songmeter, albeit in much lower call numbers than for Powerful Owl. The above method was also applied to determine potential breeding activity for Masked Owl on site. However, no evidence of active nesting and breeding by Masked Owl was determined on site despite the exhaustive effort employed.
- As such, the extensive survey effort and data analysis undertaken by AEP, managed by bird specialists Ian Benson and Craig Anderson, is deemed to sufficient to determine the presence or absence of breeding activity by Forest Owls on site.
- Powerful Owl is not a candidate for Serious and Irreversible Impacts as determined in the TBDC.

Other species

- An itemised response is provided in **Attachment A**.
- It is not deemed necessary to undertake SAII assessments for species that are not listed as Candidates for SAII in the TBDC. If Council is of the opinion that additional threatened entities occurring in the LGA do qualify for SAII listing, then we believe that Council should provide sufficient evidence to BCD to have these entities considered for addition to the state SAII list.

  As per the NSW Government Environment and Heritage advice published online (https://www2.environment.nsw.gov.au/topics/animals-and-plants/biodiversity-offsets-scheme/clear-and-develop-land/serious-irreversible-impacts#serious-and-irreversible-impact-nominations), nominations for SAII entities may be made via the following process (extract):

  If comprehensive data clearly demonstrates inaccuracies or omissions in the list of entities, we welcome nominations to update it. Anyone with such information can nominate to add or remove an entity and edit the relevant principles.

  Once the public display period has closed, the department will:

  - *review all nominations*
  - *review any feedback received during the public display phase*
  - *either accept or reject the nominations.*
- To arbitrarily put onus on proponents to undertake SAII assessment for non-listed species, including species such as Powerful Owl which in our opinion is totally unjustified, is not a fair or reasonable approach to biodiversity assessment.

Applied Methodology

- AEP is of the firm opinion that the type, intensity, extent and duration of ecological field investigations and surveys undertaken over the Eden Estates land is at a level that meets (and in many areas exceeds) relevant survey guidelines. The dataset gathered and the information provided to relevant authorities is in our opinion more than sufficient to enable the production of a complying BCAR document that provides sufficient information for relevant authorities to undertake a detailed and complete assessment of biodiversity matters relevant to the site, enabling meaningful input to finalisation of an appropriate development / conservation footprint, and thereafter assessment and determination of the Planning Proposal and Biodiversity Certification process.

We trust this information meets Eden Estates (Newcastle) Pty Ltd and LMCC requirements. Should you require any further details or clarification, please contact the writer.

Kind regards,

Redacted

Managing Director

Redacted

Anderson Environment & Planning

Attachment A - Response to survey methodology queries

Species/ Ecological Attribute	Further Information Required	Other Legislative Considerations	AEP Comments
Masked Owl	Information provided does not meet requirements as outlined in BOS Update -24 (29 January 2024). The species was recorded onsite confirming presence. Additional population data is required. Nocturnal Birds stag watch survey requirements apply as per 4.4.5 Fauna Survey Methods (Page 53 & 56) LMCC Flora and Fauna Survey Guidelines 2012. Undertake further survey of tree hollows to assess impact. Many potential roosting and nesting hollows occur which require further investigation. Indicate whether any trees with suitable hollows were stag watched during the LMCC Guideline suitable period. Table 5 does not provide details on stag watching. Masked Owls have been known to skip breeding periods and are difficult to locate outside of breeding periods. Their call is also not consistently loud and distinctive as the Powerful Owl and if recorded with other species could be difficult to distinguish. The song meter recording radius does not appear to take into consideration topography and is indicated to be 1.4km if measured off the figure in the BCAR. It is possible that any recording lower than a ridge top is only getting calls from that valley and that the radius is insufficient. Engage an owl specialist to review and advise. Assessing impact requires information on: Area of clearing, area protected, and impact on one pair? Extent of sub-regional population and impact Potential for serious and irreversible impacts (SAII) The following questions remain: How much area/ habitat/ types of habitat is needed to remain to maintain a pair? How many suitable hollows are there, and distribution? Current data not adequate Information regarding the pair in relation to wider population. Impacts of loss of the breeding pair onsite. Should breeding site be located?	Consider BOS updated owl survey guidelines and impacts to development. Local SAII candidate species assessment Assessment in accordance with LMCC Large Forest Owl Planning and Management Guidelines.	Survey effort: • Call playback: 89.25h • Spotlighting/Stag-watching: 111.25h • Songmeter: 384 nights or 4913h HBT search: 208.5h (inc. out of seasonsearches) Note that on-ground survey effort was guided and focussed on areas determined by habitat assessment, hollow bearing tree surveys, and songmeter data analysis. If breeding activity occurs on site, the sensitivity of a songmeter is deemed to be sufficient to detect Masked Owl activity. No evidence was recorded on songmeters regarding call timing, frequency or pattern that was considered potentially consistent with breeding behaviour or active nesting. Regardless, on ground works were carried out targeting any Forest Owl breeding activity. Masked Owl call is loud and generally distinctive, although at times there are other species that can make similar screeching vocalisations. It is documented that they do not call for regular, extended periods like Powerful Owl, when close to a nest site, generally vocalising at least once in the evening and once in the morning. When at a breeding site, they tend to exhibit their tritter call which was not recorded on the site. This irregular calling behaviour is why SongMeters are best suited to survey for this species, followed up by focussed on ground works AEP have suitable expertise in forest owl surveys and habitat identification and have identified numerous nesting sites for Forest Owls in the Lower Hunter. It is understood that there are no Savings and Transitional Arrangements available for the updated Forest Owl changes. As such when the BCAR is revised for the updated Subject Site and other changes the BCAR will be updated to include a species polygon for Masked Owl, regardless of the apparent absence of any breeding on site. Within the new updated methodology, there is no requirement to identify actual breeding sites. As per the methodology, suitable hollows (i.e. greater than 20cm opening and above 4m in height) have been identified and mapped.
Powerful Owl	Information provided does not meet requirements as outlined in BOS Update -24 (29 January 2024). Three nest trees have been identified onsite. Additional population data is required. Assessing impact requires information on: Area of clearing, area protected, and impact on three pairs? Extent of sub-regional population and impact Potential for serious and irreversible impacts (SAII) cumulative impacts of the proposed land uses on large forest owl habitat. The following questions remain: How much area/ habitat/ types of habitat is needed to remain to maintain a pair? How many suitable hollows are there, and distribution? Current data not adequate Information regarding the pair in relation to wider population.	Consider BOS updated owl survey guidelines and impacts to development. Local SAII candidate species assessment Assessment in accordance with LMCC Large Forest Owl Planning and Management Guidelines	The (draft) BCAR was completed and provided to relevant bodies for comment in September 2022 and the determination of the Powerful Owl Species Polygon was done in compliance with the definition of the species polygon in force at time of lodgement. The 2024 BOS update is only relevant once the BCAR is formally submitted. Regardless, establishing the location of breeding hollows, as conducted by AEP in 2022, is in excess of the 2024 BOS update to the definition of the species polygon and related minimum recommended survey effort. Species is not a listed candidate for SAII on the state SAII Register. However, LMCC have identified the species as requiring SAII assessment; no specific justification has been provided for this request.

Species/ Ecological Attribute	Further Information Required	Other Legislative Considerations	AEP Comments
	Impacts of loss of the breeding pair onsite. Should breeding site be located?		The species is best described as secure within Lake Macquarie with most suitable habitat occupied by breeding pairs. Whilst a good "umbrella" species for protection of its habitat protecting the habitat of other threatened species habitat, there is no basis for the species being considered for an SAII candidate as discussed above in the associated cover letter. Forest Owl habitat consideration: The Threatened Biodiversity Data Collection suggests that a minimum of 400ha is required to support one breeding territory for Powerful Owls, however local patches in the order of 150ha in established suburbs have been known to support a breeding territory. Therefore, to support the likely three breeding territories, a minimum 450ha of vegetation is required to be maintained within the locality (both onsite and offsite) to avoid impacting upon the viability of these breeding territories. Figure A attached shows the extent of suitable habitat within 2km of each nest. Such suitable habitat, including proposed conservation lands within the Subject Site, is well in excess of the required minimum of 450ha. Suitability and number of hollows: The location, number and size of hollows identified on site by AEP are all documented in the BCAR. There is no reason the breeding pairs should be lost considering their respective breeding hollows are being retained with suitable buffers, and so is a significant extent of foraging habitat within 2km. Three (3) breeding sites have been located. Refer to BCAR.
Barking Owl	BAM assessment does not meet requirements as outlined in BOS owl survey Update -24 (29 January 2024). This species does not appear to be present, although may incur credits if records nearby. More survey could be undertaken to discount presence, and reduce biodiversity offset requirement.	Consider BOS updated owl survey guidelines and impacts to development. Assessment in accordance with LMCC Large Forest Owl Planning and Management Guidelines.	As above, 2024 BOS update will not apply to an updated BCAR to be submitted. Surveys undertaken are compliant and it was not found on site.
Sooty Owl	BAM assessment does not meet requirements as outlined in BOS owl survey Update -24 (29 January 2024). This species does not appear to be present, although may incur credits if records nearby. More survey could be undertaken to discount presence, and reduce biodiversity offset requirement.	Consider BOS updated owl survey guidelines and impacts to development. Assessment in accordance with LMCC Large Forest Owl Planning and Management Guidelines.	As above, 2024 BOS update will not apply to an updated BCAR to be submitted. Surveys undertaken are compliant and it was not found on site. AEP are aware of records that are not shown in Bionet. There are records from circa 2010 in the upper reaches of Brush Creek and more unpublished records of a pair in this territory circa 2023. However, comprehensive surveys undertaken did not identify the species utilising the subject site.
Glossy black Cockatoo	Additional survey is required to discount breeding. Stag watching all hollows of suitable size in impact footprint during breeding season is required and evidence of this submitted. This is the same requirement for large forest Owls and can be combined if breeding seasons overlap. Information required as to whether there is a resident population, and whether the site is utilised by visits from nearby populations. Need to check records and populations in the vicinity of the site to assess the context of the site, and its importance in terms of larger regional population.	Consider LMCC Biodiversity Planning Guidelines relating to reduction in threatened species populations	Despite extensive bird survey across the entire site, the species was only identified within a small area in west of the site as well as briefly observed foraging in the north-eastern easement north of the Link Road roundabout. The observation of these species utilising the site was in the context of extensive and wide-spread bushfires and the species highly likely to be briefly using the site as a refuge.

Species/ Ecological Attribute	Further Information Required	Other Legislative Considerations	AEP Comments
			Despite extensive searches and observing in the area of high activity /presence during the survey period, no evidence of breeding was noted on site.
Little Lorikeet	Survey adequate and in accordance with guidelines. Reasonable conclusions in information provided to date.	Not applicable	
Little Eagle	Survey adequate and in accordance with guidelines. Reasonable conclusions in information provided to date.	Not applicable	
Square-tailed Kite	Survey adequate and in accordance with guidelines. Reasonable conclusions in information provided to date.	Not applicable	
Swift Parrot (*Lathamus discolour*)	Assumed present based on PCTs This species would pass through the land on occasions, although risk of detection is extremely low Information on regional context required Serious and irreversible impacts must be considered and reviewed	EPBC Act listed species of high significance Review of Swift Parrot habitat mapping and LMCC report	The site is not mapped as containing important habitat. The PCTs on site associated Swift Parrot as an ecosystem credit, it is not assumed present and no survey is required. Notwithstanding the above, it was not detected on site despite extensive person hours on site during the appropriate season. Given the amount of habitat proposed to be retained on the site as part of the proposal, there is ample resources remaining for any seasonal visits by this highly mobile species.
Koala	SEPP Biodiversity and Conservation 2021 assessment of potential and core koala habitat required. Information on feed trees required, and compliance with SEPP requirements. Koala (*Phascolarctos cinereus*) surveys are not in accordance with Biodiversity Assessment Method Survey Guide and survey data is unreliable. Survey guidelines state that passive acoustic surveys are to be undertaken Sept – Dec but were undertaken Mar–Sep. Spotlight surveys do not meet the minimum requirements. Justification for the use of SAT and spotlighting techniques are required given the limitation of these methods in sites with dense ground cover and steeply sloping land and gullies as per the BAM guidelines. Need to determine potential for occurrence with high (near 100%) reliability Drone survey should be undertaken consistent with current best practice. Genetic data on koalas should be collected to determine populations and viability, and area of koala habitat. Serious and irreversible impacts need to be considered, including evaluation of genetic data for metapopulation.	SEPP Biodiversity and Conservation 2021 EPBC Act significance assessment, consistency with national recovery plan, and national survey requirements NSW Koala Strategy 2022	With regards to the SEPP, the site is not mapped as containing important habitat. Therefore, it is not assumed present and no survey is required. Notwithstanding the above, it was not detected on site. However, survey was still required to satisfy the BAM. Passive acoustic survey: Incorrect interpretation of the BCAR. Passive acoustic recording for Koala was undertaken over 2,110 hours between September and November 2020. Refer BCAR – Appendix D – Table 3. Survey effort is in excess of requirements of the *Koala (Phascolarctos cinereus) Biodiversity Assessment Method Survey Guide* (DPE 2022): *"The minimum survey effort to detect koala presence on the subject land requires the total effort for two standard survey methods to be met. A scat detection method, which may indicate past occupancy, must be paired with a non-scat detection method (…)."* AEP also undertook SAT surveys, spotlighting and passive acoustic recording. It should also be noted that on other sites, AEP has been able to detect Koala on motion-sensing camera traps. While this is not a method listed in the BAM guideline, extensive camera trapping undertaken on site also failed to detect the species. Genetic data could not be collected given the species was not detected on site. Koala is not listed as a candidate for SAII.
Squirrel Glider	Additional population data required. Address LMCC Squirrel Glider Planning and Management Guidelines, with population and genetic data. Need to consider long term Squirrel Glider population viability and LGA wide context and habitat connectivity.	Local SAII candidate species assessment Address LMCC Squirrel Glider Planning and Management Guidelines	Squirrel Glider is not listed a candidate for SAII. It should be noted that in the Guidelines, the identified populations of Squirrel Glider in the LMCC LGA do not include any known population on or near the site (See Map 7). However, it is acknowledged that the site

Species/ Ecological Attribute	Further Information Required	Other Legislative Considerations	AEP Comments
	Need to address mitigation measures such as corridors and road crossing treatments, etc.		may form part of an inter-LGA corridor, and likely more-so considering approved clearing to the west. A Squirrel Glider Management Plan will be prepared to accompany the Biodiversity Stewardship Site Assessment Report (see Table 9 of LMCC SGP&M Guidelines). More broadly, the Stewardship sites will incorporate the management requirements of the LMCC Guidelines to ensure the local Squirrel Glider population is supported (bushfire risk management, suitable fencing, habitat augmentation), and the clearing protocols within BCAR lands will incorporate Squirrel Glider specific measures to minimise impacts on individual animals.
alinolobus dwyeri Large-eared Pied Bat Little Bent-wing Bat *(Miniopterus australis)* Southern Myotis (*Myotis Macropus*) Eastern Freetailed bat (*Micronomus norfolkensis*) Large Bentwinged Bat (*Miniopterus orianae oceanensis*) Yellow-bellied Sheath-tailed Bat *Saccolaimus flaviventris* Greater Broad Nosed Bat *Scoteanax rueppellii* Vespadelus troughtoni Eastern Cave Bat *Pteropus poliocephalus* Grey-headed Flying-fox	Survey adequate and in accordance with guidelines. Impact on population is not clear and should be reviewed.	Update to NSW Government survey guidelines for BAM assessments is likely which include updated survey and assessment requirements	Survey effort is adequate. No specific guideline on discussing impact on population, other than the application of a Species Polygon where required. In compliance with the BAM compliant Species Polygons for Large-eared Pied Bat and Southern Myotis were determined and credits incurred.
Frog species Wallum Froglet Giant Burrowing Frog Green and Golden Bell Frog Green-thighed Frog Stuttering Frog Giant Barred Frog Red-crowned Toadlet Mahony's Toadlet	Surveys to be undertaken in accordance with NSW Survey Guide for Threatened Frogs. Suitable survey methodology has not been undertaken for several threatened frogs: Call playback is required for several species. It is unclear if survey were undertaken during/ after suitable rain events. Location of recorders is not adequate; recorders must be placed every 50 metres of suitable habitat. Acoustic detection not suitable for: Red-crowned toadlet Mahony's toadlet Giant Burrowing Frog Green-thighed Frog Impact assessment needs to be based on accurate stream and riparian area delineation.	Review LMCC Interim Technical Guidelines for Serious and Irreversible Impacts to determine potential for impact	See **Attachment B** summarising the survey effort and weather conditions for each species, as described against applicable guidelines. Note that additional frog surveys in excess of BAM requirements were undertaken at the request of Karen Thumm BCD. SAII candidate species: Stuttering Frog – not detected on site. Nearest record is a single observation from Sugarloaf State Conservation Area. Aural-visual survey effort exceeds guideline.
Giant Dragonfly	Major riparian corridors that are likely to provide suitable habitat for the species were surveyed mainly out of season, in November 2020. It is noted that such corridors will not be impacted by the proposal. Potential Serious and Irreversible Impact species. More consideration required	Review LMCC Interim Technical Guidelines for Serious and Irreversible Impacts to determine potential for impact	Revisions to the Structure Plan has led to the avoidance of areas of suitable habitat for the species.
Tetratheca juncea	Carry out surveys and make assessment in accordance with LMCC Planning and Management Guidelines. Seasonal survey requirement. Need to clarify. Unclear about the counting method – difficult to assess.	Local SAII candidate species assessment Assessment in accordance with LMCC *Tetratheca juncea* Planning and Management Guidelines	Survey within the LMCC LGA was undertaken using 50m belt transects and finer searches where the species was identified, as prescribed in the guidelines and federal conservation advice, as detailed in the *BCAR – Appendix C – Section 2.2 Tetratheca juncea survey methodology*.

Species/ Ecological Attribute	Further Information Required	Other Legislative Considerations	AEP Comments
		Matter of National Environmental Significance under the EPBC Act	Clumps were counted, as relevant within the provisions of the EPBC Act survey requirements.
Grevillea parviflora/humilis	*Grevillea parviflora* subsp *parviflora* – *Grevillea humilis* subsp *humilis* – does not appear to have been targeted and two more weeks of survey is required to do this. Seed set does not appear to have been documented. Genetic evaluation of species needed to confirm identification and importance of population. Genetic review will provide adequate certainty and improve determination of presence/ absence and significance of this population in the broader context.	Local SAII candidate species assessment Assessment in accordance with LMCC Interim *Grevillea parviflora* Planning and Management Guidelines	The species is not listed as candidate SAII. The specimen collected was determined to be *Grevillea humilis* subsp. *humilis* by the RBG, yet the client agreed to take a precautionary approach and describe it as *Grevillea parviflora* subsp. *parviflora*, and incur credits for any impact. This is a very conservative approach, yet LMCC are still requesting an SAII assessment for this non-SAII listed species?
Callistemon linearifolius	Survey adequate and in accordance with guidelines *Callistemon linearifolius* a total of 5151 specimens counted including 1390 or 27% located within the Development Footprint including the 30m buffer. Lack of connectivity to areas that are to be retained for conservation/ stewardship site (one isolated patch north of the Link Road, and the *Callistemon linearifolius* area).	Local SAII candidate species assessment Address LMCC Biodiversity planning principles and management Guidelines	The species is not listed as candidate SAII. Connectivity issues to areas of retained habitat have been t addressed within latest revision of Structure Plan.
Scrub Turpentine *(Rhodamnia rubescens)*	Survey adequate and in accordance with guidelines.	Local SAII candidate species assessment	
Threatened Orchids *Corunastylis* sp. Charmhaven (NSW896673) *Cryptostylis hunteriana* Leafless Tongue Orchid *Diuris praecox* Rough Doubletail *Genoplesium insigne* Variable Midge Orchid *Rhizanthella slateri* Eastern Australian Underground Orchid *Thelymitra adorata* Wyong Sun Orchid	Evidence is to be provided demonstrating that reference populations were in flower at the time of survey for all orchids in accordance with the Threatened Biodiversity Database Survey Guidelines. If this cannot be provided, then further survey is required. Inadequate survey or data for impact assessment Consideration of adequacy of survey to demonstrate absence is required, and site specific survey methodology and potential for occurrence Needs information on regional context and overall populations of these species	Local SAII candidate species assessment Matter of National Environmental Significance under the EPBC Act	The BioNet Atlas indicates that all species were either detectable during the survey undertaken by AEP, or highly unlikely to be found due to the absence of records for said species, as follows: • *Corunastylis* sp. Charmhaven: Advice received regarding flowering from Central Coast Council on 22 December 2020; • *Cryptostylis hunteriana*: Recorded in LGA in Oct 2020 (Surveyed in Nov and Dec 2020). • *Diuris praecox*: No record of the species in SYB or NNC IBRA regions since 1/1/2020. Advice received from Central Coast Council regarding flowering – August 2020 • *Genoplesium insigne*: Recorded in LGA in Sep and Oct 2020. Advice received from Central Coast Council regarding flowering – September 2020 • *Rhizanthella slateri*: No record of the species in SYB or NNC IBRA regions since 1/1/2019 • *Thelymitra adorata*: Recorded in LGA in Oct 2020. Advice received from Central Coast Council regarding flowering – September 2020
EEC (Lower Hunter Spotted Gum ark Forest	All threatened species and EECs should be assessed against the relevant Scientific Committee's Final Determination to determine if there is likely to be serious and irreversible impacts– refer to Planners North v Ballina Shire Council LEC Judgement (3/11/2021) Impact not adequately assessed. Needs to be reviewed in local and regional context, having regard to conservation reserves and co-benefits of retention with other biodiversity values.	Local SAII candidate species assessment	LHSGIF is not a listed candidate SAII entity. Significant reduction of impacts to the EEC is proposed within the latest Structure Plan revision.