Toplace Pty Ltd
C/o: Mark Gilder
Grimshaw Architects
Level 2, 333 George Street
Sydney NSW 2000

ECO LOGICAL AUSTRALIA PTY LTD
ABN 87 096 512 088
www.ecoaus.com.au

ELA Reference No: 15SYD-2791

30 November 2018

Dear Mark,

RE: Preliminary biodiversity assessment – Cherrybrook

Eco Logical Australia (ELA) was engaged by Toplace Pty Ltd to provide advice in relation to Blue Gum High Forest (BGHF) on a site that is subject of a Planning Proposal at Cherrybrook. This report describes the presence of Blue Gum High Forest on the site and provides an overview of other biodiversity issues relevant to a Planning Proposal.

The site visit to validate presence of Blue Gum High Forest was undertaken by ELA in 2015 and 2016. Since then, the TSC Act 1995 has been repealed and replaced with the Biodiversity Conservation Act 2016, however the definition of Blue Gum High Forest has not changed.

1. Literature review

Total Earth Care (2015) undertook a preliminary ecological constraints assessment, including vegetation mapping and targeted flora and fauna searches in November 2013 and April 2015. Fauna survey involved nocturnal surveys including call play-back, spotlighting, locating two Anabat devices on site for five nights and surveys for amphibian and avifauna using visual detection an aural recognition.

The TEC (2015) report initially says that seven threatened species were found on site (Table 1), but in the conclusion, the report states that only two of the microbats (Eastern Bentwing and Greater Broad-nosed Bat) were recorded, with the others '*may be identified after additional Anabat data analysis'*. TEC (2015) also concluded that koala potentially use the site. The site contained habitat resources for the Powerful Owl, although TEC (2015) thought it most likely the Powerful Owl flew to the site after hearing the call play-back as Powerful Owl are known to nest in the near-by Cumberland State Forest. The Grey Headed Flying Fox were recorded foraging on site, but not roosting. No threatened flora were detected by TEC. As the TEC field survey was undertaken in 2015, the data is approximately 3 years old. Updated field survey for threatened species and biodiversity plot data will be required prior to lodging a Development Application for the site.

TEC (2015) identified Blue Gum High Forest on the site (Critically Endangered under the Biodiversity Conservation Act 2016 and the EPBC Act 1999).

Table 1 Threatened fauna recorded by TEC (2015)

Species	Biodiversity Conservation Act	Commonwealth EPBC Act
Eastern Bentwing bat (*Miniopterus schreibersii oceanensis*)	Vulnerable	Not listed
Eastern freetail-bat (*Mormopterus norfolkensis*)	Vulnerable	Not listed
Little Bentwing-bat (*Miniopterus australis)*	Vulnerable	Not listed
Eastern False Pipistrelle (*Falsistrellus tasmaniensis*)	Vulnerable	Not listed
Greater broad-nosed Bat (*Scoteanx rueppellii*)	Vulnerable	Not listed
Grey Headed Flying Fox (*Pteropus poliocephalus)*	Vulnerable	Vulnerable
Powerful owl (*Ninox strenua*)	Vulnerable	Not listed

2. Validation of Blue Gum High Forest

ELA reviewed the scientific determination / listing criteria for BGHF as listed under the NSW *Threatened Species Conservation Act 1995* (TSC Act – now the Biodiversity Conservation Act 2016) and Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), existing BGHF mapping for the region, and the mapping contained in the Preliminary Ecological Assessment – Cherrybrook Gateway Rezoning Project (TEC, 2015). A site visit was undertaken by Dr Enhua Lee, Senior Ecologist for ELA with over 12 years of experience in the ecological assessments of the Sydney basin and research. Dr Lee is Biobanking Accredited (assessor number 176) and therefore familiar with all aspects of the methods used in undertaking Biobanking Assessment, including field assessment.

ELA was able to access the majority of the site where BGHF was previously mapped by TEC (2015) on 8 October 2015, with the exception of some lots in the north west of the site along Highs Road, and lots in the east of the site between Castle Hill and Glenhope Roads. Survey occurred over approximately 8 hours. A second site inspection was undertaken in April 2016 by Dr Matthew Dowle to validate vegetation in an additional area known as the Staley Court landholdings.

The presence of BGHF was determined by visiting each area of BGHF previously mapped in regional mapping (**Figure 1**) and by TEC (2015) in the subject site. At each mapped location, the presence/absence of BGHF was determined through assessment of the presence/absence of diagnostic canopy species, namely *Eucalyptus saligna* (Blue Gum), *E. pilularis* (Blackbutt), and *Syncarpia glomulifera* (Turpentine). Where diagnostic canopy species were present, BGHF was considered to be present. Conversely, where diagnostic canopy species were absent, BGHF was considered to be absent. ELA was not able to access one small area in the far south east of the site and has assumed that the existing vegetation map in this area is correct.

BGHF, as listed under the BC Act, is characterised by a particular assemblage of species in high rainfall areas (above 1100 mm/year) on fertile soils derived from Wianamatta shale within the Lane Cove, Willoughby, Ku-ring-gai, Hornsby, Baulkham Hills, Ryde and Parramatta Local Government Areas. However, single isolated

trees or stands of trees that characteristic of the canopy of the community, without a native understorey, are considered part of BGHF.

Patches of trees rather than individual trees were marked where canopies were in proximity and were not separated by other non-diagnostic tree species.

At each area of BGHF, notes were taken for the number of diagnostic canopy species present, as well as other species present in the canopy, mid-storey and under-storey. This information was gathered to determine the condition of BGHF present. Two biometric plots using the BioBanking Assessment Method (TSC Act) were undertaken in representative patches of BGHF in the subject site to gather data on condition.

The extent of BGHF mapped by ELA is shown in **Figure 2**. The total amount of BGHF on the site is 1.60 ha.

There were some minor differences in the extent of BGHF compared to the TEC (2015) map. In some cases – such as for the large patch of BGHF in the north west of the site - this was due to TEC not mapping the community on land holdings that they did not access. In others ELA did not find diagnostic species in the areas mapped by TEC and in one area TEC mapped the shrub species *Acacia implexa* as an over-storey species.

Over the last 70 years the extent of BGHF in the area does not appear to have been much reduced; in fact, it appears to have been increased. **Figure 3** shows the extent of remnant vegetation from an aerial photo taken in 1943.

Remaining vegetation in the subject site was a mixture of urban exotics and native plantings.

BGHF in the subject site existed in a highly modified state, with few native species present in the understorey. The lack of understory is shown clearly in **Figure 4**. All patches of BGHF had exotic-dominated ground covers, with *Pennisetum clandestinum* (Kikuyu), *Trifolium repens* (Clover), *Erharta erecta* (Panic Veldgrass), *Stenotaphrum secundatum* (Buffalo Grass) and *Plantago lanceolata* (Plantain) commonly recorded. Some patches supported a mid-storey layer, and these were dominated by *Ligustrum* spp. (Privet) or *Phyllostachys* sp. (Bamboo).

In the two quadrats, the numbers of native species recorded were eight and 18 species (compared with 14 and 28 introduced species). The higher number of native species in one of the quadrats was due to native plantings in the area. There was no evidence of recruitment of native species in any stratum. No seedlings of any of the *E. saligna* were present despite there being evidence of fruit production.

The site value score resulting from the two biometric plots was 10.42 (out of a maximum score of 100). This is a particularly low score and was influenced by the lack of hollow and fallen logs. Undisturbed patches of vegetation would be expected to be greater than 35.

3. Preliminary Assessment of Impacts

The Planning Proposal will lead to extensive redevelopment of the site – and therefore loss of native vegetation is expected due to the need for bulk earthworks and construction of new buildings. Preliminary analysis of the masterplan shows that 0.64 ha of BGHF would be retained within parks and 0.96 ha would be impacted. As detailed design is undertaken, there may be opportunities to retain more native vegetation, either in streetscapes or green corridors. Detailed impact assessment will be undertaken in accordance with the Biodiversity Conservation Act 2016.

At the DA stage, the BC Act 2016 requires biodiversity offsets for any significant impacts to biodiversity value that are approved by the consent authority. The BC Act contains four triggers for what is considered a significant impact:

Table 2 Triggers for the Biodiversity Offset Scheme (Part 7 of the BC Act 2016)

Trigger	Relevance to subject site
Section 7.2(1)(a) Having a significant impact according to section 7.3 of the BC Act (i.e. the 'test of significance')	Tests of significance will need to be undertaken once a final footprint is known
Section 7.2(1)(b) Exceeding the area threshold described in section 7.2 of the BC Regulation 2017.	The minimum lot size in the The Hills LEP fr this site is 2000m2. As this is less than 1ha, the area threshold is 0.25 ha. Any DA that results in the clearing of more than 0.25 ha would trigger the Biodiversity Offset Scheme and would need to be accompanied by a biodiversity Development Assessment Report.
Section 7.2(1)(b) Impacting on vegetation mapped on the Biodiversity Values Map published NSW Office of Environment and Heritage	The subject site contains areas shown on the Biodiversity Values Map. Any DA that proposes clearing of this vegetation must be accompanied by a Biodiversity Development Assessment Report. See **Figure 5**.
Section 7.2(1)(c) Impacting on an Area of Outstanding Biodiversity Value	There are no Areas of Outstanding Biodiversity Value identified near the subject site.

If the site were to be developed under a single DA, a Biodiversity Development Assessment Report will be required as the Biodiversity Offset Scheme would be triggered by at least two of the above triggers. If however there were multiple DAs, some DA's may not trigger the Biodiversity Offset Scheme if the clearing of native vegetation is less than 0.25 ha, not on the areas shown on the Biodiversity Values Map and does not have a significant impact on biodiversity values in accordance with s7.3 of the BC Act 2016.

Alternatively, the proponent could consider the use of Biodiversity Certification under Part 8 of the BC Act 2016. Biodiversity certification need to would demonstrate avoidance and minimisation of impacts, followed by an assessment of impacts and an agreement to offset impacts via the purchase and retirement of biodiversity credits. The result of biodiversity certification is that development on 'biodiversity certified land' would not require further assessment at the DA stage as biodiversity impacts would be offset .

Any development application that does trigger the Biodiversity Offset Scheme will require a Biodiversity Development Assessment report which will determine the magnitude of offsets (if the DA is approved) and describe impacts to any 'serious and irreversible impact (SAII)' entities, which include Blue Gum High Forest.

CONCLUSION

Blue Gum High Forest on the Cherrybrook site is in a fragmented and poor condition due to the lack of mid and understorey, a common condition for this community as it is found within a highly urbanised landscape. The masterplan provides opportunities to retain some of Blue Gum High Forest in parks and reserves and potentially

provide additional biodiversity outcomes through retention or planting of street trees. A detailed assessment of biodiversity values and impacts will be required during the preparation of the Planning Proposal.

If you have any further questions, do not hesitate to contact me on (02) 9259 3714 or davidb@ecoaus.com.au

Regards

David Bonjer

Senior Planner

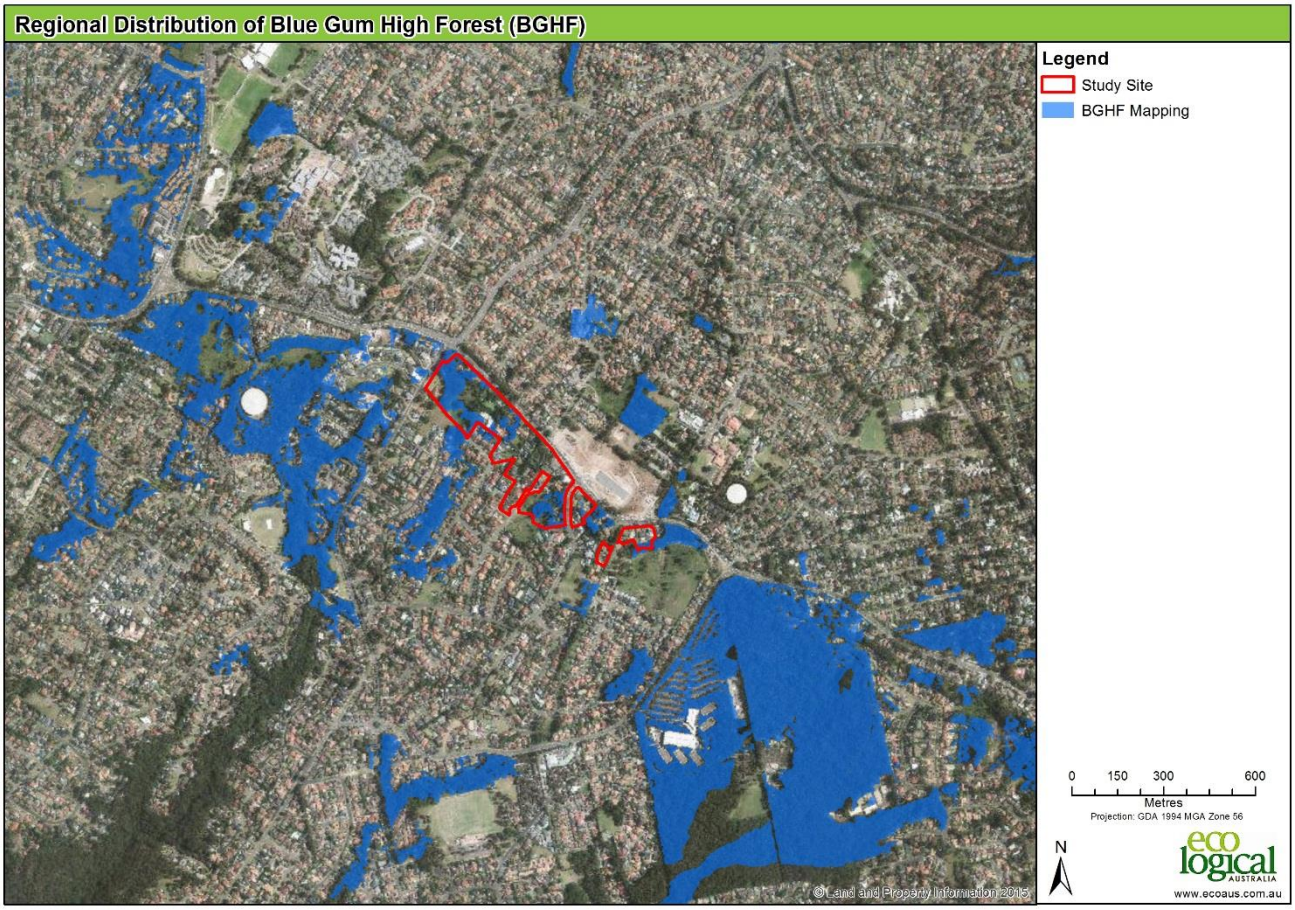

Figure 1 Extent of Blue Gum High Forest mapped by Hornsby Shire and The Hills Shire Council vegetation maps

Figure 2 Extent of Blue Gum High Forest mapped by ELA (October 2015)

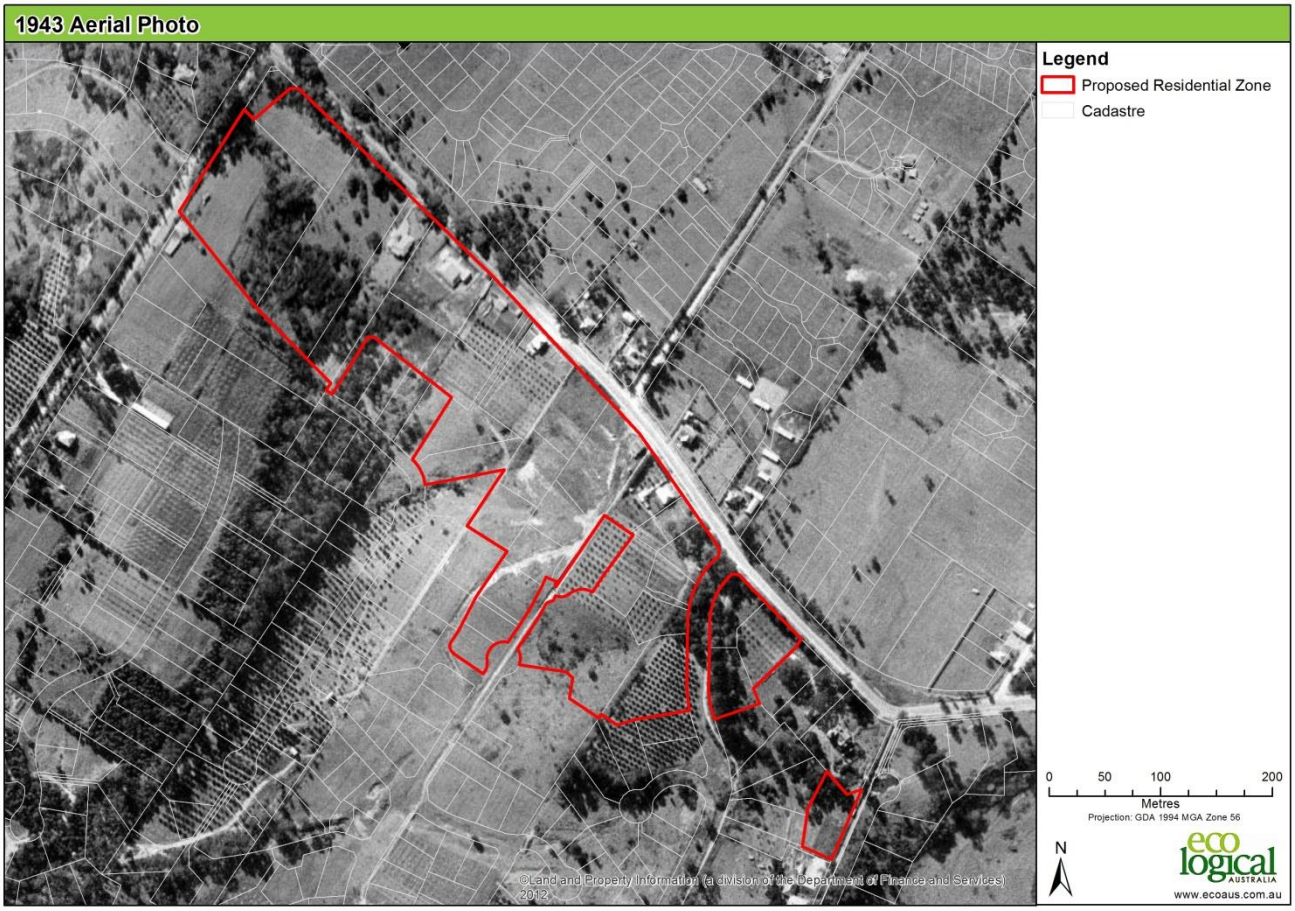

Figure 3 1943 aerial photography showing extent of clearing

Figure 4 The largest patch of Blue Gum High Forest in the north west of the study area.

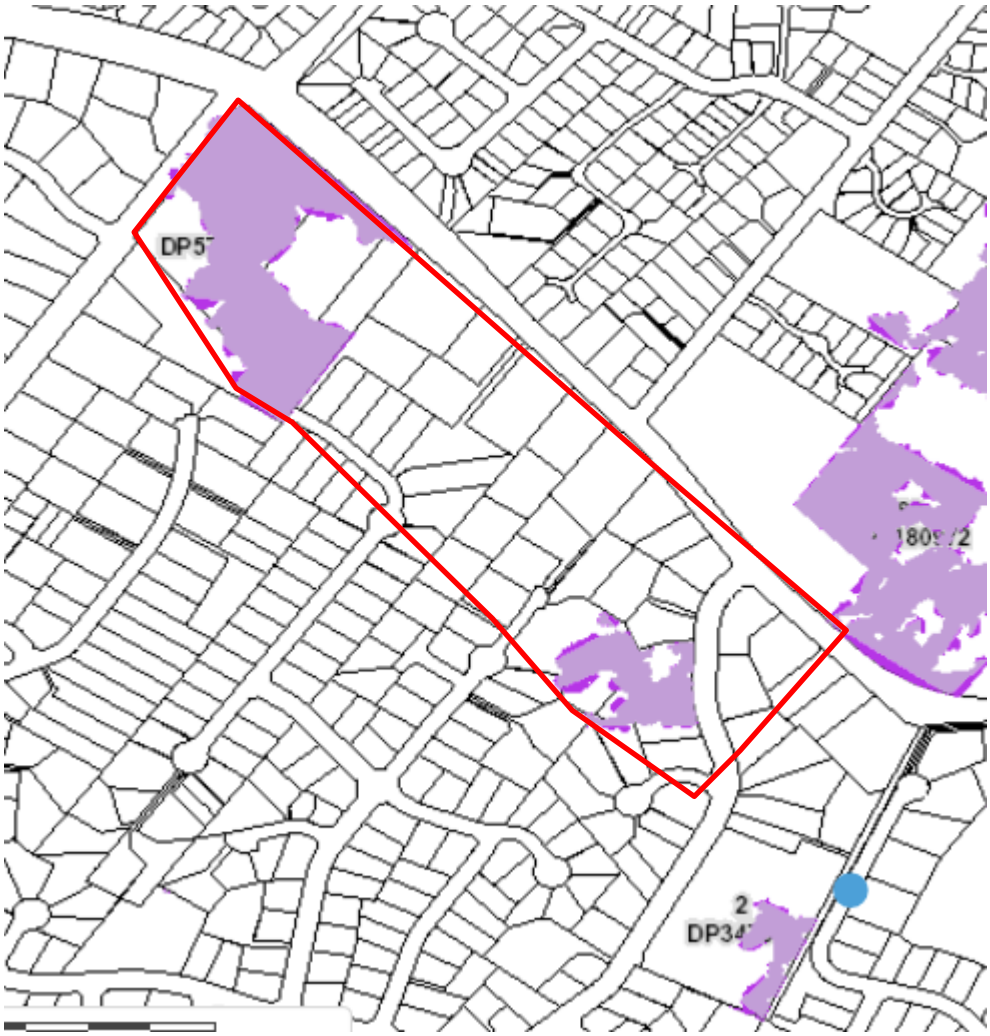

Figure 5 Biodiversity Values Map (OEH)