

8 October 2020

**Re: Ecological Advice – Draft Cumberland Plain Conservation Plan, Lot [REDACTED]  
[REDACTED] Gilead, NSW.**

Dear Green and Resilient Places Division,

The *Draft Cumberland Plain Conservation Plan* (the exhibited Plan) has been prepared by the NSW Department of Planning, Industry and Environment (DPIE) to protect areas of significant biodiversity and habitat while providing for the delivery of urban growth and development in Western Sydney. The exhibited Plan is currently on public exhibition until 9 October 2020. DPIE has sought to engage the community in development of the exhibited Plan and is seeking feedback prior to finalising the exhibited Plan.

Lot [REDACTED] Gilead (the site) lies within the exhibited Plan Area and thus will be subject to strategic biodiversity certification under the NSW *Biodiversity Conservation Act 2016* (BC Act) and strategic assessment under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) when the exhibited Plan is finalised. The exhibited Plan *Exhibition Viewer* (the viewer) displays the current proposed conservation plans for the site with respect to 'Strategic Conservation Area', 'Important Koala Habitat', and lands which are 'Certified – Urban Capable' and 'Non certified – Avoided for Biodiversity'. Regarding conservation planning over the site, this letter of ecological advice assesses an alternative conservation plan (the landowner's alternative plan), which will conserve areas with the highest biodiversity values within the site.

## Background

The primary conservation objectives of the exhibited Plan, which apply to the site relate to protection of the Southern Sydney Koala population, which are detailed under the exhibited Plan *Sub-Plan B: Koalas* (Sub-Plan B), which is informed in part by the *Advice on the protection of the Campbelltown koala population* (Armstrong 2020) (Chief Scientist Koala Report). The landowner's alternative plan will maintain movement corridors in the landscape while also retaining higher quality koala habitat. Key outcomes which will be achieved by the landowner's alternative plan are:

- Preferentially conserve Primary Koala Habitat found on the site
- Conserve more Preferred Koala Feed Trees (PKFT) on site

- Improve the east-west corridor found to the north of the site which links the Nepean and Georges Rivers from Woodhouse Creek to Beulah, identified as Corridor B with regard both to the Mount Gilead Stage 2 site and the exhibited Plan in the Chief Scientist Koala Report
- Maintain and improve the east-west corridor which crosses the site and links the Nepean and Georges Rivers from Nepean Creek to Beulah, identified as Corridor C in the Chief Scientist Koala Report
- Provide for conservation outcomes on site that are consistent with the objectives of the exhibited Plan, as well as the advice of the Chief Scientist Koala Report and objectives of the *Campbelltown Comprehensive Koala Plan of Management* (CKPoM)
- Allow for urban development on site, which is capable of complying with the exhibited Plan and the CKPoM

This ecological advice was informed by a site inspection on 24 September 2020, conducted by Lucas McKinnon (Principal Ecologist) and Bret Stewart (Senior Ecologist) of Ecoplanning, together with review of the following:

- *Draft Cumberland Plain Conservation Plan* (the exhibited Plan)
- *Draft Cumberland Plain Conservation Plan Sub-Plan B: Koalas* (Sub-Plan B)
- *Draft Cumberland Plain Conservation Plan Viewer* (the viewer)
- *Explanation of Intended Effect: State Environmental Planning Policy for Strategic Conservation Planning* (EIE)
- *Advice on the protection of the Campbelltown koala population* (Chief Scientist Koala Report)
- *Campbelltown Comprehensive Koala Plan of Management* (CKPoM)
- *A review of koala tree use across New South Wales* (review of tree use)
- *Biodiversity Constraints Report: [REDACTED] Gilead* (Travers 2019)

## Mapping

Background information relevant to the landowner's alternative plan is displayed on the following figures:

- **Figure 1:** The Draft Cumberland Plain Conservation Plan – certified/ non certified
- **Figure 3:** The landowner's alternative plan – certified/ non certified
- **Figure 3:** Native vegetation (Travers 2019)
- **Figure 4:** Habitat connectivity (Travers 2019)

Native vegetation conserved under the exhibited Plan and the landowner's alternative plan is shown in the following figures:

- **Figure 5:** The exhibited Plan over native vegetation
- **Figure 6:** The landowner's alternative plan over native vegetation

## Vegetation communities and Koala Feed Trees

Travers (2019) mapped two vegetation communities and exotic pasture vegetation on site, as summarised in **Table 1**. Vegetation communities are described below as relates to the landowner's alternative plan.

### PCT 835 Forest Red Gum - Rough-barked Apple grassy woodland

The canopy is dominated by *Eucalyptus tereticornis*, with *Angophora floribunda*, *Corymbia maculata* and *E. eugenioides* also present in lower numbers (Travers 2019). The CKPoM lists *E. tereticornis* as a Primary koala food tree species (refer to **Table 2**) and it is a dominant component of the canopy of this forest community, which occurs along a watercourse in an area of medium to high nutrient soils, therefore, this vegetation community is commensurate with Primary Koala Habitat under the CKPoM. Ecoplanning found that where this vegetation community occurs within the landowner's alternative plan conservation area, the groundcover component is largely native with exotics comprising <3% PFC as described by Travers (2019).

### PCT 1395 Narrow-leaved Ironbark - Broad-leaved Ironbark - Grey Gum open forest

In the east of the site the canopy is dominated by *C. maculata*, with *E. moluccana*, *E. tereticornis* and *E. crebra* in lower abundance (Travers 2019). Where this vegetation community occurs as remnant patches within exotic pasture, *C. maculata* forms near monospecific stands with only widely scattered individuals of *E. moluccana* and *E. crebra*. *E. tereticornis* occurs in this community in the north of the site contiguous with the adjacent biobank site and in higher abundance approaching Woodhouse Creek. Exotic pasture vegetation forms the predominant groundcover, up to 50% PFC, where this community occurs in patches surrounded by pasture. Thus, the majority of conservation lands proposed under the exhibited Plan are dominated by *C. maculata* over exotic ground layer vegetation.

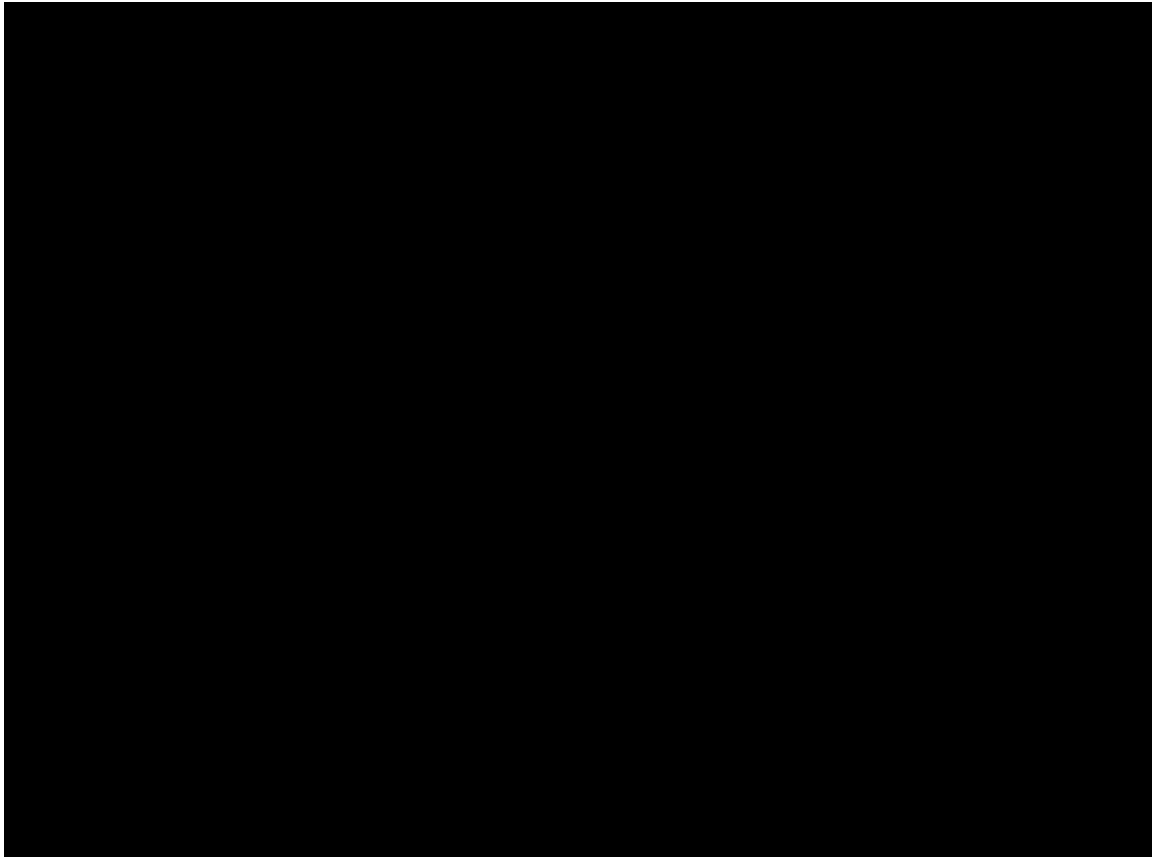
Notably, much of the area mapped under the exhibited Plan as 'Native vegetation' in the east of the site is actually exotic pasture and remnant canopy over exotic pasture. Also, Ecoplanning site inspection found that the vegetation in the east of the site is likely commensurate with PCT 849 Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, which is Cumberland Plain Woodland (CPW) CEEC under the BC Act and EPBC Act. Travers (2019) also notes that based on their site investigations, this vegetation appeared evenly weighted between SSTF and CPW.

Table 1: Vegetation communities

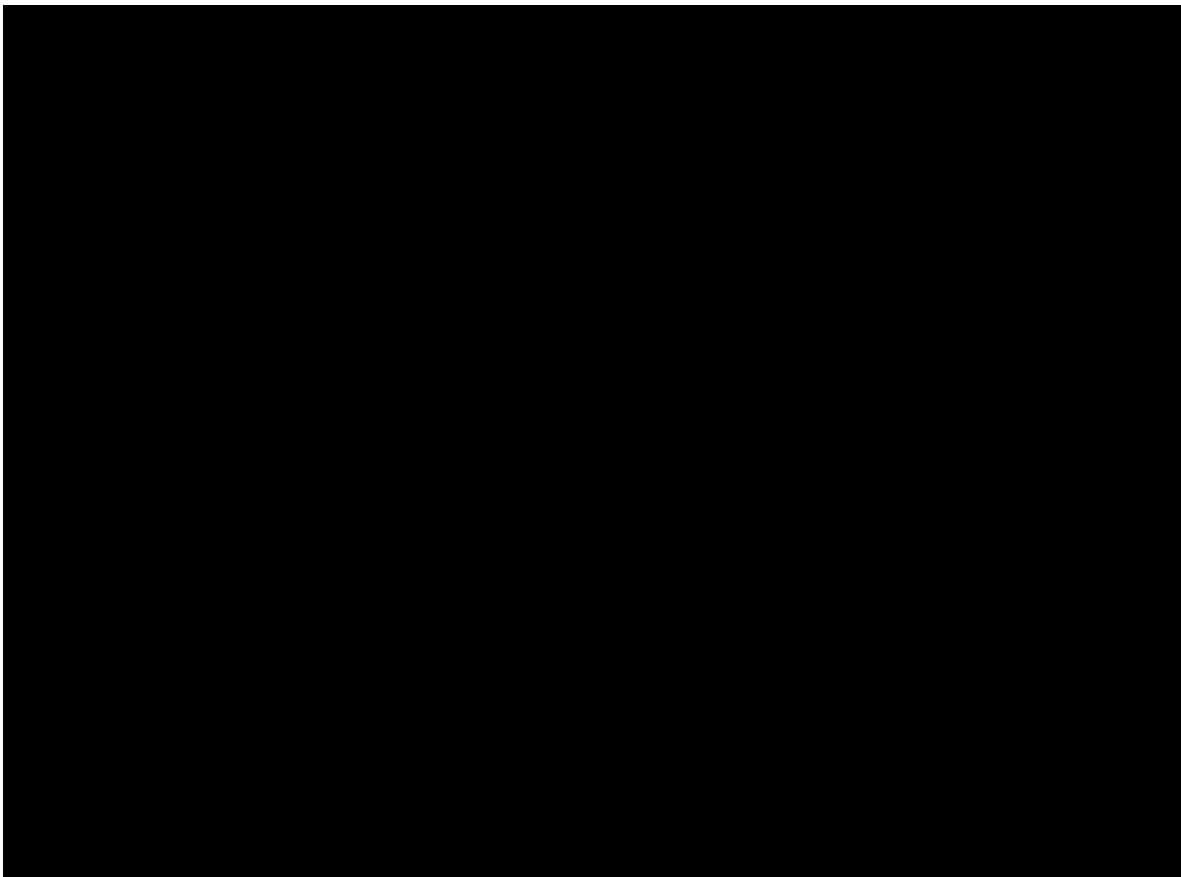
PCT	TEC	Koala Habitat Classification	Dominant canopy	Other canopy
PCT 835 Forest Red Gum - Rough-barked Apple grassy woodland	River-flat Eucalypt Forest (EEC) (BC Act)	Primary Koala Habitat	<i>Eucalyptus tereticornis</i> PKFT – Primary food tree	<ul style="list-style-type: none"> <li>• <i>Angophora floribunda</i></li> <li>• <i>Corymbia maculata</i></li> <li>• <i>Eucalyptus eugenioides</i></li> </ul>
PCT 1395 Narrow-leaved Ironbark - Broad-leaved Ironbark - Grey Gum open forest	Shale Sandstone Transition Forest (CEEC) (BC Act; EPBC Act)	Secondary (Class A) Koala Habitat	<i>Corymbia maculata</i>	<ul style="list-style-type: none"> <li>• <i>Eucalyptus moluccana</i> PKFT – Secondary food tree</li> <li>• <i>Eucalyptus tereticornis</i> PKFT – Primary food tree</li> <li>• <i>Eucalyptus crebra</i></li> </ul>

Table 2: Canopy trees

Species	CKPoM	Review of tree use – KMA 2 Central Coast (OEH 2018)
<i>Angophora floribunda</i>	-	documented irregular use
<i>Corymbia maculata</i>	-	documented irregular use
<i>Eucalyptus crebra</i>	-	documented significant use
<i>Eucalyptus eugenioides</i>	-	documented irregular use
<i>Eucalyptus moluccana</i>	PKFT – Secondary food tree species	documented significant use
<i>Eucalyptus tereticornis</i>	PKFT – Primary food tree species	documented high use



**Plate 1: Forest Red Gum - Rough-barked Apple grassy woodland in proposed corridor.**



**Plate 2: Narrow-leaved Ironbark - Broad-leaved Ironbark - Grey Gum open forest (Spotted Gum dominant) in east of the site.**

### Vegetation conserved – the exhibited Plan vs the landowner's alternative plan

The landowner's alternative plan will preferentially conserve the high quality koala habitat on site. The area conserved under the landowner's alternative plan is also more suitable for restoration of koala habitat as the ground layer is less degraded, has a lower exotic component, and is therefore expected to have greater resilience than the exotic pastures that dominate the east of the site. Notably much of the area mapped as native vegetation under the exhibited Plan is actually exotic pasture, and would require revegetation to restore the canopy, which currently consists mainly of *C. maculata* regrowth, which would be expected to form the dominant canopy in surrounding pasture areas if these were allowed to naturally regenerate. Due to the dominance of *C. maculata* in the east of the site, the area conserved would contain fewer primary koala food trees than the proposed corridor. **Table 3** displays the area of habitat conserved under the exhibited Plan compared to the landowner's alternative plan.

**Table 3: Vegetation conserved**

Vegetation/ habitat	The exhibited Plan (ha)	The landowner's alternative plan (ha)
Primary Koala Habitat	3.31	3.02
Secondary (Class A) Koala Habitat	10.97	2.88
<b>native vegetation (sub-total)</b>	<b>14.28</b>	<b>5.9</b>
exotic vegetation	7.81	2.97
<b>Total conserved</b>	<b>22.09</b>	<b>8.87</b>

### Koala habitat and koala activity

Travers (2019) undertook three koala activity survey points within the site. No koala activity was recorded, however, some possible older scratches were found. One koala has been recorded within the site on 16/5/2018 (Bionet) and one roadkill has been found on [REDACTED] fronting the site on 14/8/2017. Regarding koala habitat, Travers (2019) concluded that the site does not appear to provide core koala habitat currently, however, likely provides dispersal and potential intermittently occupied habitat.

### **Corridors**

The exhibited Plan conserves corridors in the landscape in areas mapped as 'Non certified - Avoided for Biodiversity'. These non-certified areas follow corridors identified in the Chief Scientist Koala Report. In proximity to the site, the Chief Scientist Koala Report identifies and names the following corridors:

- Corridor B – adjacent to the site's north
- Corridor C – crosses the site and continues to the south west
- Corridor D – south of the site along Mallaty Creek



Travers (2019) identified connectivity through the site via the watercourse lined by *E. tereticornis*, which corresponds to Corridor C (refer **Figure 4**).

### Corridor B

This corridor is relevant both to the exhibited Plan and to the Mount Gilead Stage 2 development to the north. The Chief Scientist Koala Report identifies that this is a priority corridor, with a mean width of 316 m, a minimum width of 100 m, and no part of the corridor separated by more than 220 m between stepping stone habitats.

The Chief Scientist Koala Report notes that if this corridor is successfully conserved, then the relative importance of Corridor C is reduced.

This corridor is a mapped Habitat Linking Area (HLA) in the CKPoM.

The landowner's alternative plan would augment this corridor by providing an additional 30m buffer off existing native vegetation, which is consistent with the suggested buffers in Sub-Plan B.

### Corridor C

This corridor crosses the site and the Chief Scientist Koala Report notes that it is not ideal for a number of reasons. Corridor C will experience significant edge effects from urban development surrounding on all sides and due to flat topography development could create a narrow corridor in several locations. Corridor C narrows to less than 50m and would be crossed by power lines, gas lines, and a proposed busway creating a wide hostile area for movement.

This corridor is not a mapped HLA in the CKPoM.

The landowner's alternative plan would allow for construction of a koala underpass consistent with CKPoM standards within the site crossing Woodhouse Creek. The landowner's alternative plan will maintain this corridor via linking with Corridor B north of the site so as not to create a dead end/ population sink.

Notably, the exhibited Plan would sever the existing corridor along Woodhouse Creek identified by Travers (2019) and would require revegetation in exotic pasture areas in order to establish Corridor C as mapped by the exhibited Plan.

### Corridor D

This corridor is located well south of the site and provides a link between the Georges and Nepean Rivers via an existing vegetated area along Mallaty Creek. Notably Corridor D and Corridor B are better quality movement corridors than Corridor C owing to the level of existing vegetation and the wider average width and width at narrowest point.

This corridor is a mapped HLA in the CKPoM.

## Discussion

Ecoplanning site inspections and Travers (2019) assessment of the site found that the area of the proposed corridor contains higher quality koala habitat and more primary koala food tree species than the area proposed for conservation under the exhibited Plan. The landowner's alternative plan will also maintain connectivity through the site via Corridor C, allowing for revegetation along the riparian zone of Woodhouse Creek and construction of a koala underpass within the site across this corridor. The landowner's alternative plan will also further augment Corridor B located to the north of the site, providing an improved conservation outcome along this priority corridor.

If you would like to discuss any of the above recommendations further, please do not hesitate to contact me.



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## References

Armstrong, C. (2020). Advice on the Protection of Campbelltown Koala population, Koala Independent Expert Panel. NSW Government Chief Scientist & Engineer. Sydney.

NSW Department of Planning, Industry and Environment (DPIE) (2020a). Draft Cumberland Plain Conservation Plan, A Conservation Plan for Western Sydney 2056. NSW Government.

NSW Department of Planning, Industry and Environment (DPIE) (2020b). Draft Cumberland plain Conservation Plan- Exhibition. NSW Government

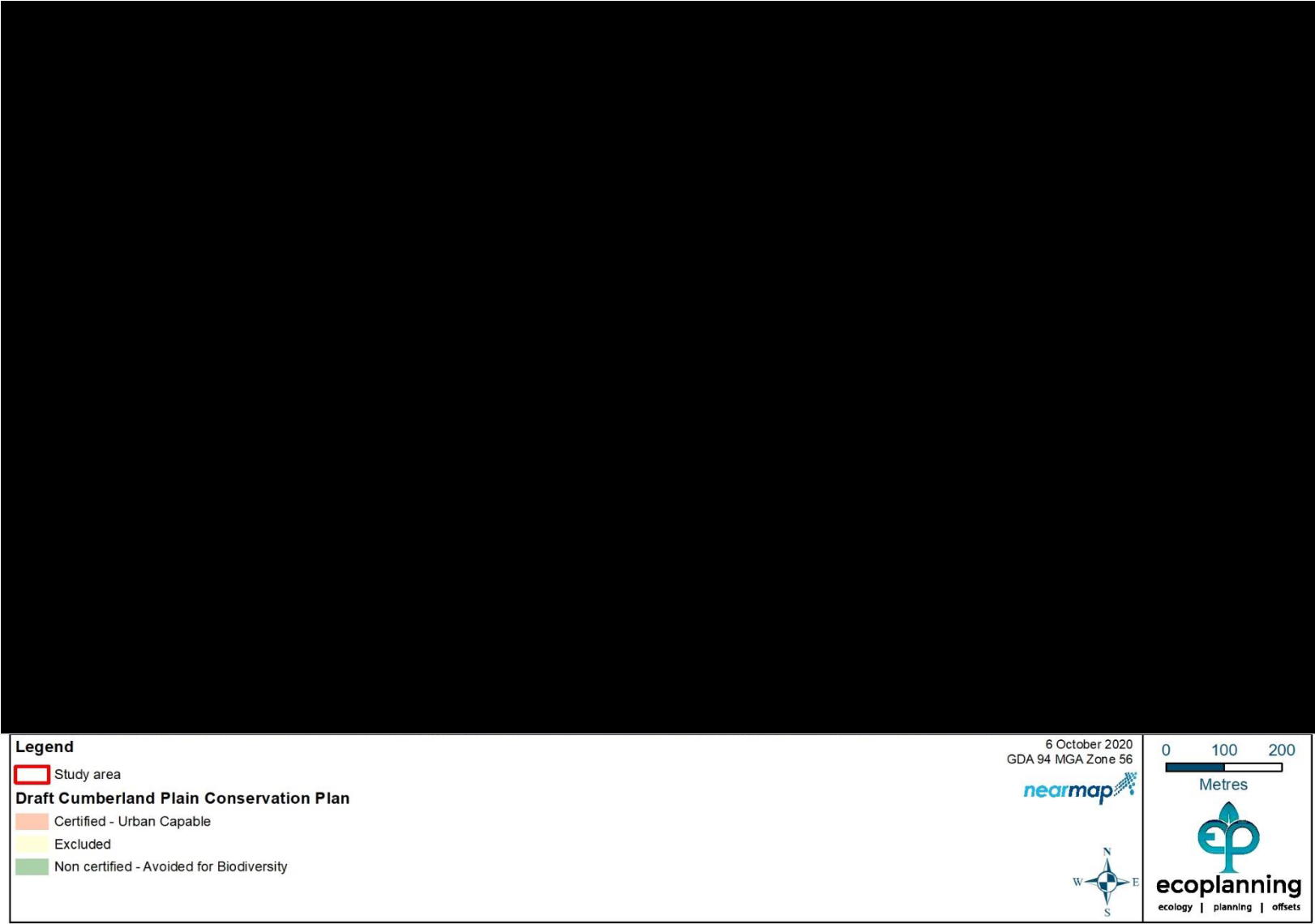
NSW Department of Planning, Industry and Environment (DPIE) (2020c). Explanation of Intended Effect, State Environmental Planning Policy for Strategic Conservation Planning. NSW Government.

NSW Department of Planning, Industry and Environment (DPIE) (2020d). Sub-Plan B: Koalas, Draft Cumberland Plain Conservation Plan. NSW Government.

Office of Environment and Heritage (OEH) (2018). A review of Koala tree use across New South Wales. Sydney.

Phillips, S (2016) Campbelltown Comprehensive Koala Plan of Management. Prepared by Biolink for Campbelltown City Council.

Travers (2019) Biodiversity Constraints Report: [REDACTED] Gilead. Prepared by Travers bushfire & ecology.



**Figure 1:** Draft Cumberland Plain Conservation Plan



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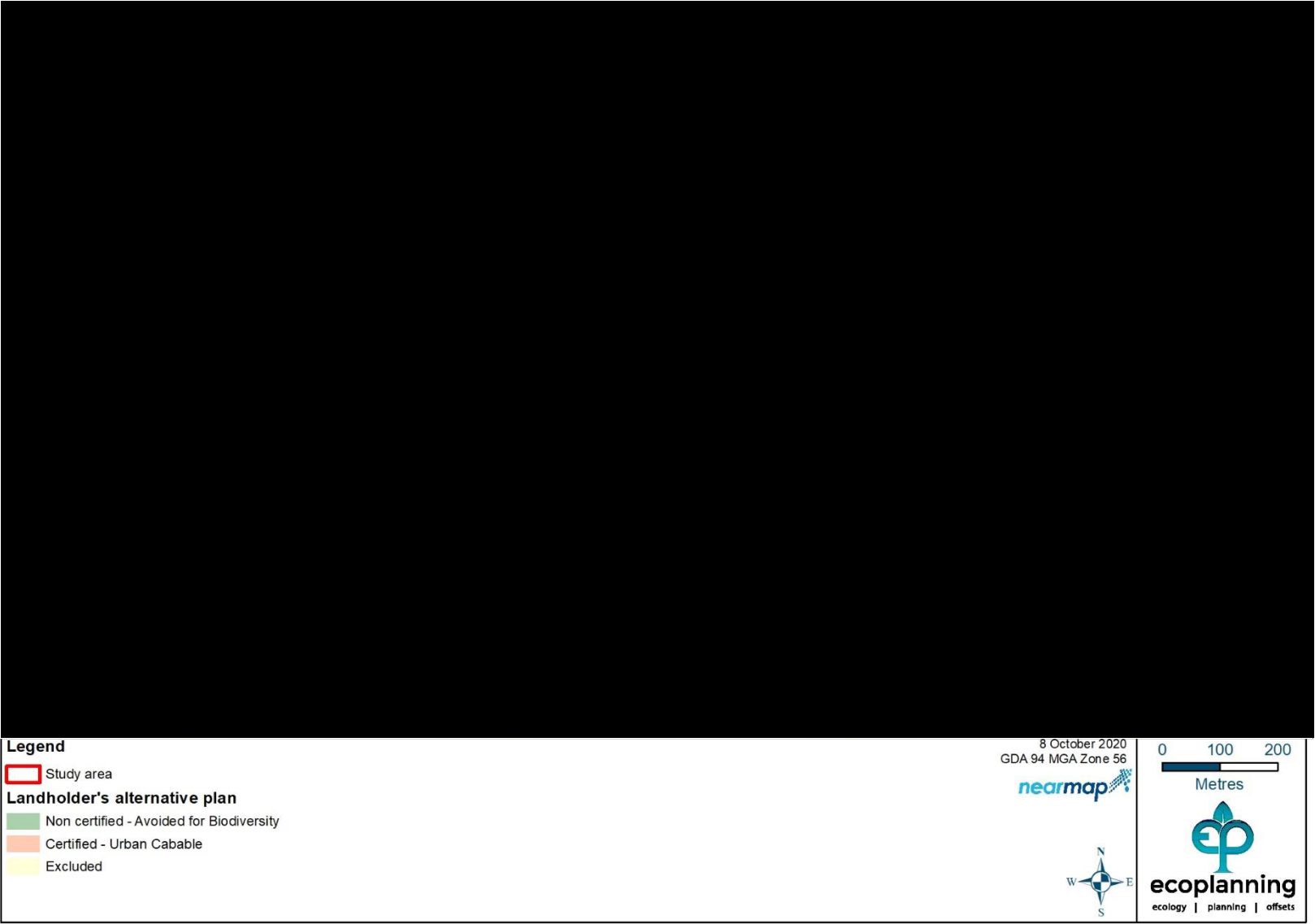
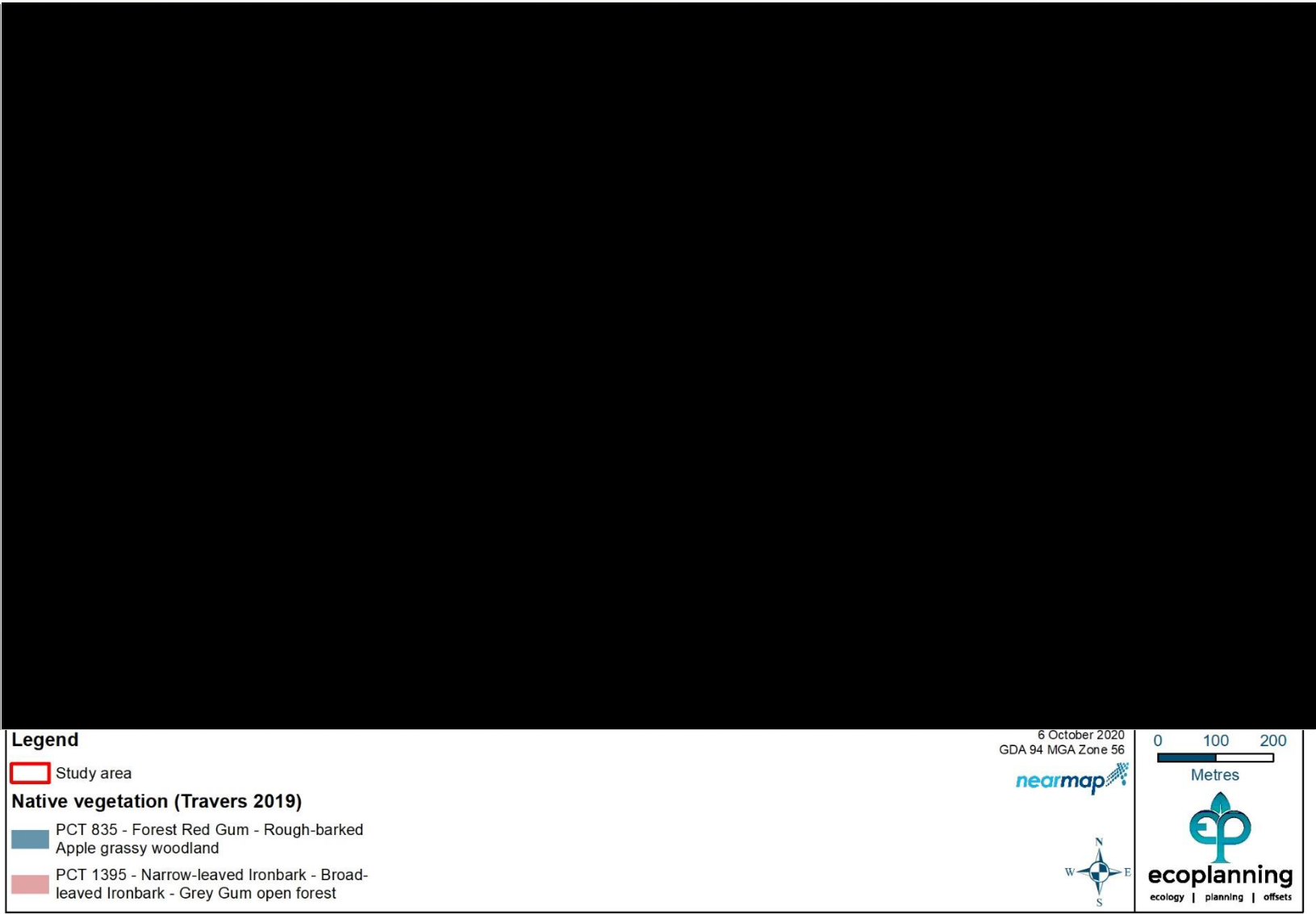


Figure 2: The landowner’s alternative plan



**Figure 3: Native vegetation (Travers 2019)**



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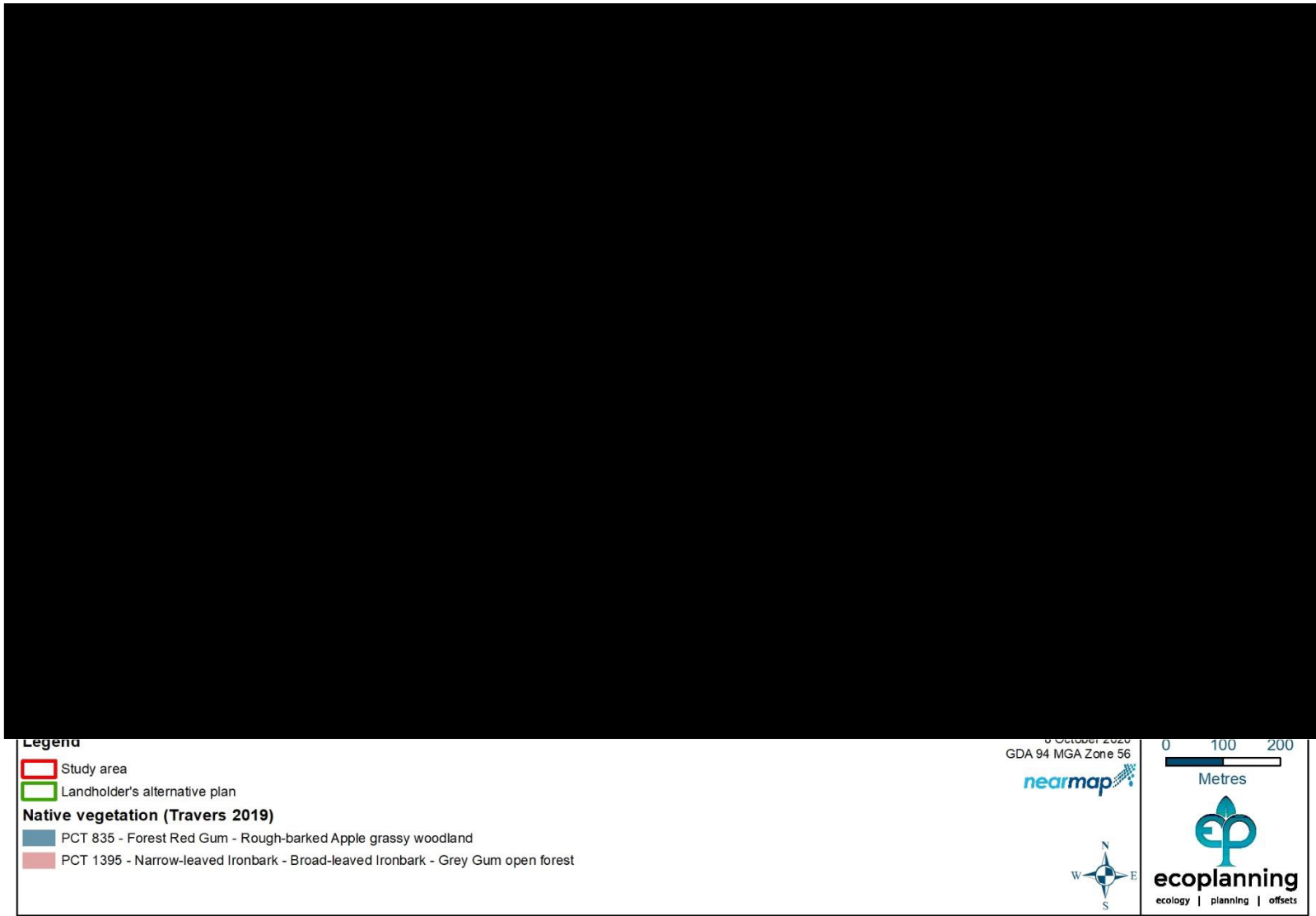
**Figure 4:** Habitat connectivity (Travers 2019)



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**Figure 5:** Draft Cumberland Plain Conservation Plan over native vegetation



**Figure 6:** The landowner's alternative plan over native vegetation



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