10 September 2024

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Assessment of Biodiversity Offsets Scheme entry requirement for a Section 75W modification for Stage 4 of the Wahroonga Estate Project

Dear Julian,

This letter has been prepared to provide an assessment against the New South Wales (NSW) Biodiversity Offsets Scheme (BOS) entry requirements to support a Section 75W Major Project Modification for Stage 4 (the 'Project) of the Wahroonga Estate Project, located at 187-189 Fox Valley Road, Wahroonga.

The letter reports the preliminary assessment of the Project against the BOS entry requirements, and comprises:

- **Appendix A**: BOS Entry Assessment; and
- **Appendix B**: Test of Significance - Sydney Turpentine Ironbark Forest.

We have concluded the BOS will be required to be utilised for the Project as entry is triggered by the requirement to clear native vegetation that is mapped on the Biodiversity Values Map, including remnants of the Critically Endangered Ecological Community Sydney Turpentine Ironbark Forest.

As such, a Biodiversity Development Assessment Report will be required to meet legislative requirements of the NSW *Biodiversity Conservation Act 2016,* and it is recommended that this report be completed prior to the lodgement of the first Development Application in respect of the site.

Please do not hesitate to contact me if you have any further questions on (02) 9868 1933.

Yours sincerely,

Bryan Furchert
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APPENDIX A :
Biodiversity Offsets Scheme Entry Assessment

A.1. Introduction

A.1.1. The Subject Land and Project

Cumberland Ecology was requested by Capital Corporation Pty Ltd (the 'Client') to provide an assessment against the New South Wales (NSW) Biodiversity Offsets Scheme (BOS) entry requirements for Stage 4 (the 'Project') of the Wahroonga Estate Project (the 'Overall Project'), located at 187-189 Fox Valley Road, Wahroonga, comprising part of Lot 1 in DP1269352 (the Subject Land') (**Figure 1**). The Subject Land is located within the Ku-ring-gai Local Government Area (LGA) in NSW and is zoned as E1 mixed use in the Ku Ring Gai Local Environment Plan 2015 (LEP). The Subject Land is approximately 0.664 ha.

The Project is subject to an approved Concept Plan, approved in 2010 as Major Project Approval *MP 07_0166,* for the expansion of the Sydney Adventist Hospital (the SAN), and a range of residential, commercial, educational, and religious development under the previous Part 3A of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) by the former NSW Department of Planning. A number of modifications have been approved since the approval of the Concept Plan. Impacts to biodiversity were assessed and approved as part of this process, with a large biodiversity offset secured in the form of rezoning substantial areas of bushland containing two Threatened Ecological Communities (TECs) as E2 (now C2) Environmental Conservation. These areas are managed under the Overall Project's Biodiversity Management Plan (BMP) (Cumberland Ecology Report 20120RP1).

Although biodiversity impacts for the Concept Plan were formerly approved, subject to MP 07 0166, impacts of the Project are not approved due to the introduction of the NSW *Biodiversity Conservation Act 2016* (BC Act), which was enacted in 2017. However, under Clause 34A of the NSW *Biodiversity Conservation (Savings and Transitional) Regulation 2017* an application can be made to recognise previous Part 3A concept plan approvals and relevant offsetting arrangements. This application has not currently been applied for, and as such the biodiversity impacts for each future Development Application (DA) of the Project are required to be assessed in accordance with the BC Act (see below).

A.1.2. Biodiversity Conservation Act 2016 Requirements

The BC Act is the key piece of legislation in NSW relating to the protection and management of biodiversity and threatened species. The purpose of the BC 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. The BC Act is supported by several regulations, including the *Biodiversity Conservation Regulation 2017* (BC Regulation).

The BC Act requires consideration of whether a development or an activity is likely to significantly affect threatened entities. For local development (assessed under Part 4 of the EP&A Act) (including the Project), projects that significantly affect threatened species or ecological communities trigger the requirement for the project to utilise the BOS. Projects that trigger entry into the BOS require the preparation of a Biodiversity Development Assessment Report (BDAR), which requires detailed site surveys to be undertaken, as well as determination of whether biodiversity credits are required to be purchased to offset impacts to biodiversity values, determined by utilised the Biodiversity Assessment Method Calculator (BAM-C). Preparation of BDARs is guided by the NSW Biodiversity Assessment Method (BAM).

There are four BOS triggers for determining whether it is expected there will be a significant impact to threatened entities. These are:

- A project is likely to significantly affect threatened species or ecological communities, or their habitats, according to the test of significance in Section 7.3 of the NSW *Biodiversity Conservation Act 2016* (BC Act);
- Clearing for a project exceeds the biodiversity offsets scheme threshold according to Clause 7.1 of the BC Regulation, with the thresholds being:
    - The clearing of native vegetation of an area above a prescribed threshold based on the minimum lot size; or
    - The clearing of native vegetation, or other prescribed action, on land included on the Biodiversity Values Map; and
- A project is carried out in a declared area of outstanding biodiversity value (AOBV).

An assessment of whether the Project triggers these threshold levels is provided in **Section A.4**.

A.1.3. Purpose

The purpose of this letter report is to provide the result of an assessment of the Project against the BOS Entry triggers, to determine if a BDAR is required to support future DAs.

A.2. Methods

A.2.1. Literature Review

A review of relevant ecological literature was undertaken as part of this assessment to evaluate the biodiversity values associated with the Subject Land in determining potential triggers into the BOS. The information collected during the literature review guided the field surveys. Information within the literature reviewed was also utilised in determining the likelihood of entry into the BOS being triggered. The literature reviewed include:

- NSW State Vegetation Plant Community Type Map (DCCEEW 2024a);
- Fox Valley Road and The Comenarra Parkway, Wahroonga – Section 75W Application: Draft Urban Design Report (Turner 2024);
- Biodiversity Assessment Method 2020 (NSW Government 2020); and
- NSW Guide to Surveying Threatened Plants (NSW Government 2020a).

The information collected during the literature review guided the field surveys undertaken for this assessment and provided additional information on the ecological values associated with the Subject Land and wider locality.

A.2.2. Database Analysis

The following databases and map tools were interrogated:

- BioNet Vegetation Classification database (EHG 2024b);
- DCCEEW Species Profile and Threat Database (DCCEEW 2024b); and
- Biodiversity Values Map and Threshold Tool (EHG 2024a).

The information collected during the database analysis provided additional information on the ecological values associated with the Subject Land.

A.2.3. Flora Surveys

Flora surveys were undertaken within the Subject Land by Cumberland Ecology on 2 September 2024. Surveys included vegetation mapping, a threatened species survey, and a BAM plot. Further details of each of the survey methods are provided below and **Figure 2** shows the survey locations.

All vascular plants recorded or collected were identified using keys and nomenclature provided in Harden (Harden 1990-1993). Where known, taxonomic and nomenclatural changes have been incorporated into the results, as derived from PlantNET (Botanic Gardens Trust 2024).

A.2.3.1. Vegetation Mapping

Broad-scale vegetation mapping of the Subject Land by the NSW Department of Climate Change, Energy, the Environment and Water was viewed along with previous mapping undertake by Cumberland Ecology for the Project's BMP, prior to the survey to determine vegetation communities that could occur within the Subject Land. The vegetation within the Subject Land was ground-truthed by Cumberland Ecology via random meander surveys to examine the existing vegetation mapping that was prepared. Where vegetation community boundaries were found to differ from the existing mapping, records were made of new boundaries using a hand-held tablet with Global Positioning System (GPS) chip, and mark-up of aerial photographs using ArcGIS Field Maps. The data collected was analysed and the resultant information was synthesised using a Geographic Information System (GIS) to produce a vegetation map of the Subject Land. Vegetation communities were assigned NSW Plant Community Types (PCTs) where applicable.

A.2.3.2. BAM Plots

As part of the flora survey, a single BAM plot (hereafter referred to as a 'plot') was completed within the only PCT and condition zone present. Plot sampling included establishment of a 20 m x 50 m plot within which data was collected to assess the vegetation integrity and habitat suitability of the vegetation zone. This included collection of the following data:

- Composition for each growth form group by counting the number of native plant species recorded for each growth form group within a 20 m x 20 m plot;
- Structure of each growth form group as the sum of all the individual projected foliage cover estimates of all native plant species recorded within each growth form group within a 20 m x 20m plot;
- Cover of High Threat Exotic weed species within a 20 m x 20m plot;
- Assessment of function attributes within a 20 m x 50 m plot, including:

- Count of number of large trees;
- Tree stem size classes, measured as 'diameter at breast height over bark' (DBH);
- Regeneration based on the presence of living trees with stems <5cm DBH; and
- The total length in metres of fallen logs over 10 cm in diameter.
- Assessment of litter cover within five 1 m x 1 m plots evenly spread within the 20 m x 50 m plot; and
- Number of trees with hollows that are visible from the ground within the 20 m x 50 m plot.

A.2.3.3. Targeted Threatened Flora Search

Parallel field traverses were undertaken throughout the Subject Land in accordance with '*Surveying threatened plants and their habitats*' (NSW Government 2020a) on 2 September 2024 (**Figure 2**). The transect width established was 10 m (or less), in accordance with the maximum width for parallel field traverses to identify all species (trees, shrubs, herbs and forbs, etc.) in open vegetation.

A.2.4. Fauna Survey

Fauna surveys were undertaken within the Subject Land by Cumberland Ecology on 2 September 2024. Surveys included a fauna habitat assessment and incidental observations. Further details of each of the survey methods are provided below.

A.2.4.1. Habitat Assessment

A general fauna habitat assessment was undertaken within the Subject Land during field surveys. This assessment included consideration of important indicators of habitat conditions and complexity as well as the occurrence of micro-habitats such as tree hollows and fallen logs. An assessment of the structural complexity of the vegetation and the nature and extent of human disturbance was also undertaken. Notes were taken on specific habitat features that may be utilised by threatened fauna species known to occur in the locality.

A.2.4.2. Hollow-bearing Tree Assessment

Remnant native vegetation and areas of planted vegetation were surveyed to determine the presence of hollows. All trees that were observed to contain a hollow visible from the ground were recorded with a hand-held tablet with a GPS chip, using ARCGIS Survey123 (ESRI 2024), including both living and dead trees.

A.2.4.3. Incidental Observations

Visual observation and call identification of diurnal birds was carried out throughout the Subject Land during the survey period. Diurnal birds were also identified and recorded as they were encountered throughout the Subject Land.

Any incidental vertebrate fauna species that was observed, heard calling, or otherwise detected on the basis of tracks or signs were recorded and listed in the total species list for the Subject Land.

A.3. Results

A.3.1. Plant Community Types and Other Vegetation

Previous broad-scale vegetation mapping conducted by the former NSW Department of Environment and Conservation (DEC) identifies one native vegetation communities within the Subject Land. Ground-truthing by Cumberland Ecology refined the existing vegetation mapping and identified one native vegetation community and two additional artificial vegetation types within the Subject Land.

These vegetation communities recorded from the Subject Land are provided within **Table 1**, as well as their associated NSW PCT, conservation status under both the BC Act and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), and extent. The distribution of the vegetation communities within the Subject Land is provided in **Figure 3**.

Table 1 Extent of vegetation communities within the Subject Land

Vegetation Community	PCT	BC Act	EPBC Act	Present (ha)
Sydney Turpentine Ironbark Forest (canopy only)	3262	CE	-	0.085
Planted Native Trees and Shrubs	-	-	-	0.022
Exotic Vegetation	-	-	-	0.026
Cleared Land	-	-	-	0.510
Total				**0.644**

Key:. CE = Critically Endangered.

A.3.1.1. PCT 3262 - Sydney Turpentine Ironbark Forest (canopy only)

Vegetation Formation: Wet Sclerophyll Forests (Grassy sub-formation);

Vegetation Class: North Hinterland Wet Sclerophyll Forests;

NSW PCT: 3262 Sydney Turpentine Ironbark Forest

A.i. General Description

Sydney Turpentine-Ironbark Forest (STIF) in the Sydney Basin Bioregion is an open forest, with dominant canopy trees including *Syncarpia glomulifera* (Turpentine), *Eucalyptus punctata* (Grey Gum), *Angophora costata* (Sydney Redgum), *Eucalyptus paniculata* (Grey Ironbark), *Eucalyptus globoidea* (White Stringybark) and *Eucalyptus eugenioides* (Thin-leaved Stringybark) (NSW Scientific Committee 2019). In areas of high rainfall (over 1050 mm per annum), *Eucalyptus saligna* (Sydney Blue Gum) is more dominant. The mid-stratum is layered, with a sparse cover of small trees that includes eucalypts, occasionally *Acacia parramattensis* (Parramatta Wattle) and *Allocasuarina torulosa* (Forest Oak). The lower shrub layer very frequently includes *Pittosporum undulatum* (Sweet Pittosporum), *Polyscias sambucifolia* (Elderberry Panax), *Breynia oblongifolia* (Coffee bush), *Ozothamnus diosmifolius* (White Dogwood), *Notelaea longifolia* (Large Mock-olive) and *Leucopogon juniperinus* (Prickly Beard-heath). The ground layer includes a diverse cover of grasses that very frequently includes *Microlaena stipoides* (Weeping Grass), *Entolasia stricta* (Wiry Panic), *Imperata cylindrica*

(Blady Grass), *Entolasia marginata* (Bordered Panic Grass) and *Themeda triandra* (Kangaroo Grass). Small forbs including *Lobelia purpurascens* (Whiteroot) are also very frequent, together with *Lomandra longifolia* (Spiny-headed Mat-rush). This community occurs as small remnants in mosaics of urban land use in the shale-dominated landscapes in higher rainfall zones of the Sydney Metropolitan area (Connolly et al. in prep.).

A.ii. Site Description

BC Act Status: Critically Endangered Ecological Community (CEEC)

EPBC Act Status: Does not meet criteria for listing – the vegetation does not have characteristic components from all structural layers (tree canopy, small tree/shrub midstorey, and understorey).

Sydney Turpentine-Ironbark Forest (canopy only) occurs as one small patch in the central are of the Subject Land, and in the eastern areas of the Subject Land. Only the canopy of the PCT is represented and the canopy species present include *Eucalyptus paniculata* (Grey Ironbark), *Eucalyptus resinifera* subsp. *resinifera* (Red Mahogany), and *Syncarpia glomulifera* (Turpentine). The sub-canopy includes one planted individual of *Corymbia maculata* (Spotted Gum). The native shrub stratum representative of the PCT is absent. The planted shrub stratum includes *Elaeocarpus reticulatus* (Blue-berry Ash), *Syzygium paniculatum* (Magenta Lilly-Pilly), and *Westringia fruticosa* (Coastal Rosemary). Planted exotic shrubs are present and include *Rhaphiolepis indica* (Indian Hawthorn). The groundcover is mainly exotic dominated grassland and includes *Stenotaphrum secundum* (Buffalo Grass), *Cenchrus clandestinus* (Kikuyu), *Hypochaeris radicata* (Flatweed), *Taraxacum officinale* (Dandelion), *Stellaria media* (Chick Weed), *Polycarpon tetraphyllum* (Four-leaved Allseed), *Sonchus oleraceus* (Sowthistle) and *Sonchus asper* (Prickly Sowthistle). A small number of individuals of native species are present and present include *Cyperus gracilis* (Slender Flat sedge) and *Dichondra repens* (Kidney Weed).

Examples of this community in the Subject Land are shown in **Photograph 1** and **Photograph 2**

Photograph 1 PCT 3262 (canopy only) within the central area of the Subject Land.

Photograph 2 PCT 3262 (canopy only) along the east of the Subject Land.

A.iii. Alignment with Threatened Ecological Communities

PCT 3262 is aligned with Sydney Turpentine Ironbark Forest (STIF) in the Sydney Basin Bioregion, which is listed as a CEEC under the BC Act and EPBC Act.

Sydney Turpentine-Ironbark Forest (canopy only) within the Subject Land conforms to the listing criteria under the BC Act due to the canopy species present, the topographical position, the canopy height, the shale influenced soils and the geographic area where the study area is located (NSW Scientific Committee 2019). Sydney Turpentine-Ironbark Forest (canopy only) does not conform to the EPBC Act listed CEEC status because the vegetation does not have characteristic components from all structural layers (tree canopy, small tree/shrub midstorey and understorey) (DoEE 2017), and therefore does not meet the condition criteria to be considered part of the listed community.

A.iv. PCT Selection Justification

PCT 3262 was selected due to the presence of the characteristic canopy species *Eucalyptus paniculata* (Grey Ironbark), *Eucalyptus resinifera* (Red Mahogany) and *Syncarpia glomulifera* (Turpentine). Additionally, the annual rainfall, geographic position in the Sydney Basin and elevation all contributed to the selection of this PCT (NSW Scientific Committee 2019).

A.3.1.2. Planted Native Trees and Shrubs

Vegetation Formation: Not Applicable

Statewide Class: Not Applicable

NSW PCT: Does not conform to a defined PCT

A.i. Assessment

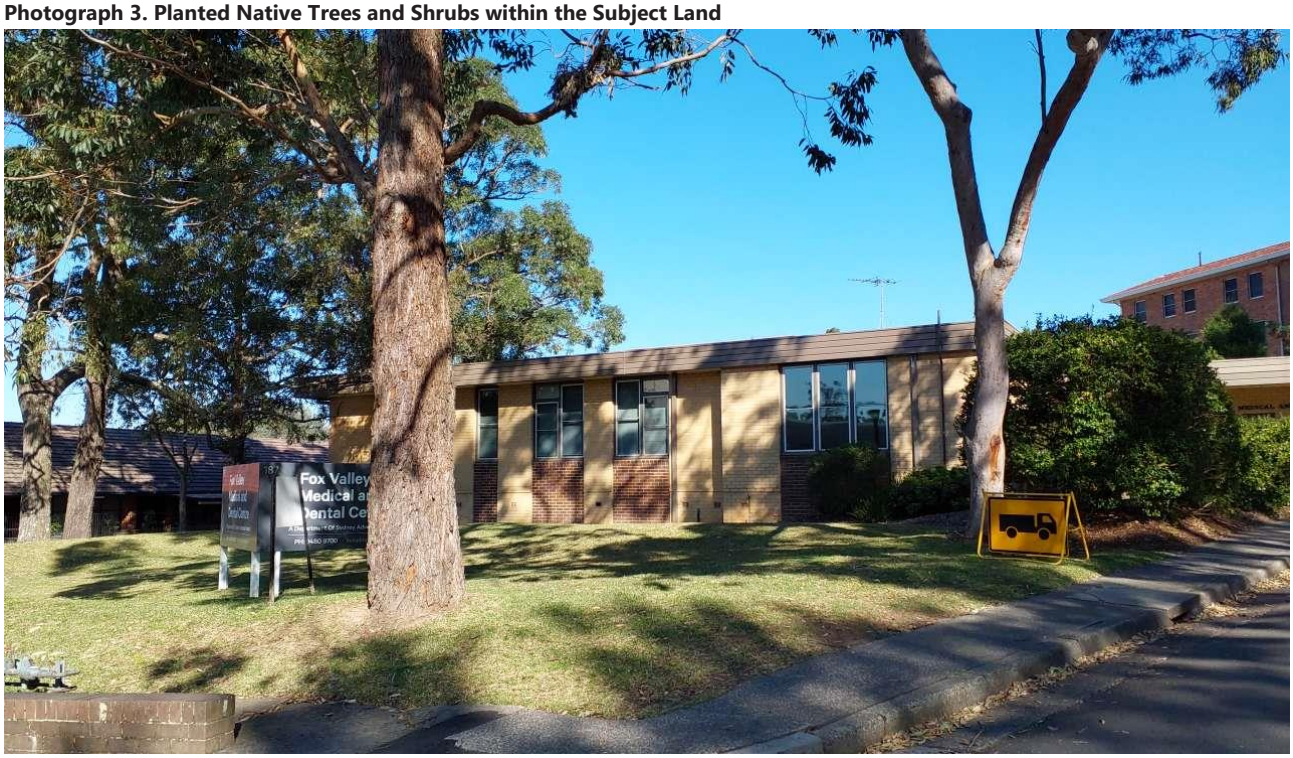
Assessment of planted native trees using the Biodiversity Assessment Methodology (BAM 2020), as would be required in a BDAR, was conducted utilising the key provided in Appendix D: Streamlined assessment module – Planted native vegetation (NSW Government 2020). It was determined using the key that the planted native trees within the Subject Land includes native vegetation planted for functional, aesthetic, horticultural or plantation forestry purposes such as landscaping in parks, gardens and sport fields/complexes. As a result, this vegetation would not be required to be assessed under Chapter 4 and 5 of BAM 2020 (NSW Government 2020). Furthermore, the suitability of the planted native vegetation for use by threatened species was assessed during the site survey and no incidental sightings or evidence (e.g. scats, stick nests) of threatened species credit species (flora and fauna) using, inhabiting or being part of the planted native vegetation was found.

A.ii. Site Description

Planted native trees and shrubs occur within the landscaped gardens throughout the Subject Land. The species present include *Eucalyptus botryoides* (Bangalay), *Elaeocarpus reticularis* (Blue-berry Ash), *Melaleuca linariifolia* 'Little Red', *Callistemon citrinus* (Crimson bottlebrush) and *Westringia fruticosus* (Coastal Rosemary). The groundcover in these areas for the most part is woodchip mulch, but lawn areas include *Stenotaphrum secundum* (Buffalo Grass), *Cenchrus clandestinus* (Kikuyu), *Hypochaeris radicata* (Flatweed), *Taraxacum officinale* (Dandelion), *Stellaria media* (Chick Weed), *Polycarpon tetraphyllum* (Four-leaved Allseed), *Sonchus oleraceus* (Sowthistle) and *Sonchus asper* (Prickly Sowthistle).

An example of this vegetation type is shown in **Photograph 3** and **Photograph 4**.

Photograph 3. Planted Native Trees and Shrubs within the Subject Land



Photograph 4. an example of planted native trees and shrubs found on the Subject Land.

A.3.1.3. Exotic Vegetation

Vegetation Formation: Not Applicable

Statewide Class: Not Applicable

NSW Plant Community Type: Does not conform to a defined PCT

A.i. Site Description

Exotic vegetation is present throughout the Subject Land although it occurs predominantly around the building in the north, and includes planted woody vegetation and open grassland/lawn areas. The woody exotic vegetation includes the species *Corymbia citriodora* (Lemon-scented Gum), *Cedrus deodara* (Deodar Cedar), *Abelia* x *grandiflora* (Glossy Abelia), *Lagerstroemia indica* (Crape Myrtle), *Rhaphiolepis indica* (Indian Hawthorn). and a variety of *Camelia* spp. The lawns include the exotic species *Stenotaphrum secundum* (Buffalo Grass), *Cenchrus clandestinus* (Kikuyu), *Hypochaeris radicata* (Flatweed), *Taraxacum officinale* (Dandelion), *Stellaria media* (Chick Weed), *Polycarpon tetraphyllum* (Four-leaved Allseed), *Sonchus oleraceus* (Sowthistle), *Sonchus asper* (Prickly Sowthistle) and *Modiola caroliniana* (Red-flowered Mallow). Other exotic species present include *Dietes grandiflora* (Fortnight Lilly) and *Nandina domestica* (Sacred Bamboo).

An example of this vegetation type is shown in **Photograph 5**.

Photograph 5. an example of exotic vegetation found on the Subject Land.

A.3.2. Threatened Species

No threatened flora or fauna species were located during the surveys. There is very little habitat present within the Subject Land for fauna species, with the exception of three trees with small hollows (**Figure 4**) that could provide habitat for some threatened species such as locally occurring microchiropteran bats.

A.4. Assessment Against the BOS Thresholds

This section provides an assessment of the Project against the BOS thresholds to determine whether or not entry to the BOS is triggered.

A.4.1. Test of Significance BOS Trigger

A Test of Significance has been prepared for the Sydney Turpentine Ironbark Forest CEEC, which is provided in **Appendix B**. This indicates due to the removal of only small areas of STIF, comprising canopy species only, and the large areas being retained in the immediate locality, the Project is unlikely to result in a significant impact on threatened species or communities, and therefore the BOS is not triggered via this mechanism. While some threatened fauna species such as microbats have potential to utilise tree hollows, it is considered unlikely removal of the tree hollows would result in a significant impact to any fauna population, due to the mobile nature of these species, and ability to replace habitat in the locality with nest boxes.

A.4.2. Native Vegetation Clearing Threshold

There is no minimum lot size associated with the Subject Land, and as such the actual lot size is used in estimating the native vegetation clearing threshold. The estimate of the lot size containing the Subject Land is approximately 42 ha. As such, any clearing of native vegetation of 1 ha or more will trigger entry into the BOS (see **Table 2**). Considering the proposed development and area of the Subject Land, the project is unlikely to result in the removal of 1 ha or more of native vegetation; as this quantum of vegetation is not present. Up to 0.108 ha of native vegetation will be removed under the Project. Accordingly, the BOS is not triggered by this mechanism.

Table 2: Native vegetation clearance thresholds for triggering entry into the BOS

Minimum Lot Size	Area of Clearing
Less than 1 hectare	0.25 hectare or more
Less than 40 hectares but not less than 1 hectare	0.5 hectare or more
Less than 1,000 hectares but not less than 40 hectares	**1 hectare or more**
1,000 hectares or more	2 hectares or more

A.4.3. Biodiversity Values Map Trigger

Clearing of any native vegetation, including planted native vegetation within an area mapped on the Biodiversity Values Map triggers entry into the BOS. There are 2 polygons on the Biodiversity Values Map that cover the Subject Land. One covers parts of the central area of the Subject Land and the eastern boundary, and another occurs in the south-east (**Figure 5**). Although there may be some possibility of retaining native trees along the eastern boundary of the Subject Land, the Project cannot be facilitated without removal of trees

within areas included on the Biodiversity Values Map, including areas of PCT 3262 within the centre of the Subject Land, and other areas of planted native shrubs and trees which will need to be removed within the Subject Land.

As such, the BOS is triggered by this mechanism.

A.4.4. Areas of Outstanding Biodiversity Values Trigger

The Subject Land is not mapped as an AOBV and therefore, the BOS is not triggered by this mechanism.

A.5. Conclusions

The Project is unlikely to trigger entry into the BOS via a test of significance trigger for threatened entities, exceeding the native vegetation clearing threshold, or by clearing an AOBV. However, it is inevitable the Project will require clearing of native vegetation that is mapped on the Biodiversity Values Map, and this includes clearing of the CEEC Sydney Turpentine Ironbark Forest/PCT 3262.

As such, a BDAR is required to be prepared in accordance with the BC Act. Cumberland Ecology has undertaken a BAM Plot within PCT 3262 within the Subject Land, which will be sufficient to utilise the BAM-C, and no further vegetation mapping surveys will be required to support a BDAR. A survey was also conducted for threatened flora species within the Subject Land, however under the BAM there are specific survey requirements for threatened species, which include adequate timing of surveys, and as such further targeted surveys are likely to be required for species that could not be surveyed for during the site assessment. Additionally, there may be specific survey requirements for some threatened fauna species with potential to utilise the Subject Land. If surveys are not undertaken credits would need to be purchased to offset these threatened species which will be assumed present under the BAM, in addition to any credits required to be purchased to offset areas of PCT 3262 to be removed. Due to the small amount of clearing required however, the Project will qualify for use of the small area module of the BAM, and a small area BDAR only requires specific species to be surveyed for, that have been determined to be at risk of a serious and irreversible impact.

Due to the clearing of native vegetation on the Biodiversity Values Map under the Project, the only alternative to preparing a BDAR, is to pursue certification of existing offsetting arrangements for the Overall Project under Clause 34A of the NSW *Biodiversity Conservation (Savings and Transitional) Regulation 2017*.

A.6. References

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APPENDIX B :

Assessment of Significance: Sydney Turpentine Ironbark Forest

B.1.1. Sydney Turpentine-Ironbark Forest

B.1.1.1. Background

Sydney Turpentine-Ironbark Forest in the Sydney Basin Bioregion is listed as a Critically Endangered Ecological Community (CEEC) under the NSW BC Act and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). When intact, this community consists of open forest, with dominant canopy trees including *Syncarpia glomulifera* (Turpentine), *Eucalyptus punctata* (Grey Gum), *Eucalyptus paniculata* (Grey Ironbark) *Eucalyptus* e*ugenioides)* (Thin-leaved Stringybark). In areas of high rainfall (over 1050 mm per annum) *Eucalyptus saligna* (Sydney Blue Gum) is more dominant. The shrub stratum is usually sparse and may contain mesic species such as *Pittosporum undulatum* (*S*weet Pittosporum) and *Polyscias sambucifolia* (Elderberry Panax).

Sydney Turpentine-Ironbark Forest in the Sydney Basin Bioregion is heavily fragmented, with less than 10% percent its original extent remaining intact. Remnants mostly occur in the Baulkham Hills, Hornsby, Ku-ring-gai, Parramatta, Ryde, Sutherland and Hurstville local government areas. This community is a transitional community, between Cumberland Plain Woodland in drier areas and Blue Gum High Forest on adjacent higher rainfall ridges.

The Final Determination for Sydney Turpentine-Ironbark Forest states that the community can still exist in the form of scattered native trees dominated by trees such as *Eucalyptus paniculata*, as is the case for the Subject Land. NSW PCT 3262 Sydney Turpentine-Ironbark Forest represents the Sydney Turpentine-Ironbark Forest CEEC on the Subject Land.

B.1.1.2. Test of Significance

The following is to be taken into account for the purposes of determining whether a proposed development or activity is likely to significantly affect threatened species or ecological communities, or their habitats:

a. *in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,*

Not applicable.

b. *in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:*

   i. *is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or*

   ii. *is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,*

While it is acknowledged that the Sydney Turpentine-Ironbark Forest CEEC has less than ten percent of its original extent remaining intact ,the Project will result in only the removal of approximately 0.085 ha of degraded Sydney Turpentine-Ironbark Forest consisting of predominantly exotic vegetation beneath a Sydney

Turpentine Ironbark Forest canopy. The removal of the community within the Project footprint is not considered likely to have an adverse effect on the extent of this community such that its local occurrence is likely to be placed at risk of extinction. The local occurrence includes scattered patches of Sydney Turpentine Ironbark Forest trees in a similar condition state, throughout the higher elevation areas of the Overall Project boundary. Within the boundary of the Overall Project, there are also large areas of STIF in a better condition state that are being retained within C2 zones areas of the Overall Project area, and managed under a BMP (**Figure 6**). The community exists in a modified and degraded form within a fragmented landscape, and the majority of Sydney Turpentine-Ironbark Forest in the locality will remain, including large areas permanently conserved within C2 zoned areas associated with the Overall Project.

Beyond the area subject to the Overall Project, Sydney Turpentine-Ironbark Forest is present in similar in scattered form across the surrounding suburban areas and the proposed development with removal of only a small area of Sydney Turpentine Ironbark Forest will not place its local occurrence at a risk of extinction.

Even if mitigation measures are not considered, the project is not likely to substantially and adversely modify the composition of the community such that its local occurrence on site and in the locality is likely to be placed at risk of extinction.

c. in relation to the habitat of a threatened species or ecological community:

i. the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

ii. whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

iii. the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality

Approximately 0.085 ha of degraded Sydney Turpentine-Ironbark Forest will be removed and areas of Sydney Turpentine Ironbark Forest will remain within the Overall Project boundary post-development. The extent of Sydney Turpentine-Ironbark Forest in the locality will not be substantially impacted/modified as result of the proposed development.

Sydney Turpentine Ironbark Forest patches are not likely to become significantly more fragmented or isolated from other areas of habitat, as the removal will only be a small area that will not substantially increase the distance insect pollinators will travel between fragments, and the patches to be cleared are already on the fringe of the occurrence within the Overall Project area.

Occurrences of the Sydney Turpentine-Ironbark Forest CEEC present on site are fragmented and greatly reduced in species diversity by the existing development and associated surroundings, primarily existing only as remnant/regrowth trees with no associated understorey or ground layer. The impacts of the proposed development have limited adverse implications for the remaining Sydney Turpentine-Ironbark Forest CEEC vegetation within the Overall Project boundary and in the locality and it is therefore predicted that there will be no significant adverse impacts to habitat of the community on site, or the long-term survival of the

ecological community in the locality. The Sydney Turpentine Ironbark to be removed is a small degraded area, and as such is not important to the long term survival of the community in the locality.

d. whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

No area of outstanding biodiversity value is located in the locality of the Subject Land. Therefore, the Project is not likely to have an adverse effect on an area of outstanding biodiversity value (directly or indirectly).

e. whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

The Project will result in the key threatening process of 'clearing of native vegetation', as this reduces the area of habitat available for threatened species and communities. Clearing of native vegetation is a key threatening process, and clearing of components of Sydney Turpentine-Ironbark Forest is proposed to facilitate the Project. However, the clearing will be limited as it is only one small fragment of Sydney Turpentine-Ironbark Forest within the Subject Land that will be cleared . The rest of the Sydney Turpentine-Ironbark Forest community within the Overall Project boundary will be retained. Hence, even without consideration of mitigation measures, the impacts of clearing would be quite limited and would not remove the community from the area subject to the Overall Project. Accordingly, the Project is not likely to increase the impact of this key threatening.

B.1.1.3. Conclusion

The impacts of the proposal on Sydney Turpentine-Ironbark Forest are limited and, even in the absence of mitigation measures, would not be likely to significantly impact Sydney Turpentine-Ironbark Forest such that its local occurrence was put at risk of extinction. The area to be removed is only a small sub-set of the local occurrences of the community, and in its current state is highly degraded to the extent function as an ecosystem has been drastically impaired.

No significant impact is likely on the Sydney Turpentine-Ironbark Forest CEEC, and subsequently a BDAR is not required as a result of impacts to TECs.

FIGURES

Legend

Subject Land

Image Source: Nearmap © (2024) Dated: 14/7/2024
Data Source: Sixmaps Clip & Ship, DCS Spatial Services
NSW Department of Customer Services

cumberland ecology

Spatial Reference: GDA 1994 MGA Zone 56

0 10 20 40 60 80 m

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Figure 1. Location of the Subject Land

Legend

Subject Land

BAM Plot

Survey Tracks

Image Source: Nearmap © (2024) Dated: 14/7/2024
Data Source: Sixmaps Clip & Ship, DCS Spatial Services
NSW Department of Customer Services

cumberland ecology

Spatial Reference: GDA 1994 MGA Zone 56

0 3 5 10 15 20 m

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Figure 2. Survey Locations

Legend

Subject Land

Plant Community Type

PCT 3262: Sydney Turpentine Ironbark Forest

Other Vegetation Types

Planted Native Trees and Shrubs

Exotic Vegetation

Cleared Land

Image Source: Nearmap © (2024) Dated: 14/7/2024
Data Source: Sixmaps Clip & Ship, DCS Spatial Services
NSW Department of Customer Services

cumberland ecology

Spatial Reference: GDA 1994 MGA Zone 56

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Figure 3. Vegetation of the Subject Land

Legend

Subject Land

Hollow-bearing Tree

Image Source: Nearmap © (2024) Dated: 14/7/2024
Data Source: Sixmaps Clip & Ship, DCS Spatial Services
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cumberland ecology

Spatial Reference: GDA 1994 MGA Zone 56

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Figure 4. Fauna Habitat within the Subject Land

Figure 5. Vegetation within Biodiversity Values Map areas to potentially be impacted

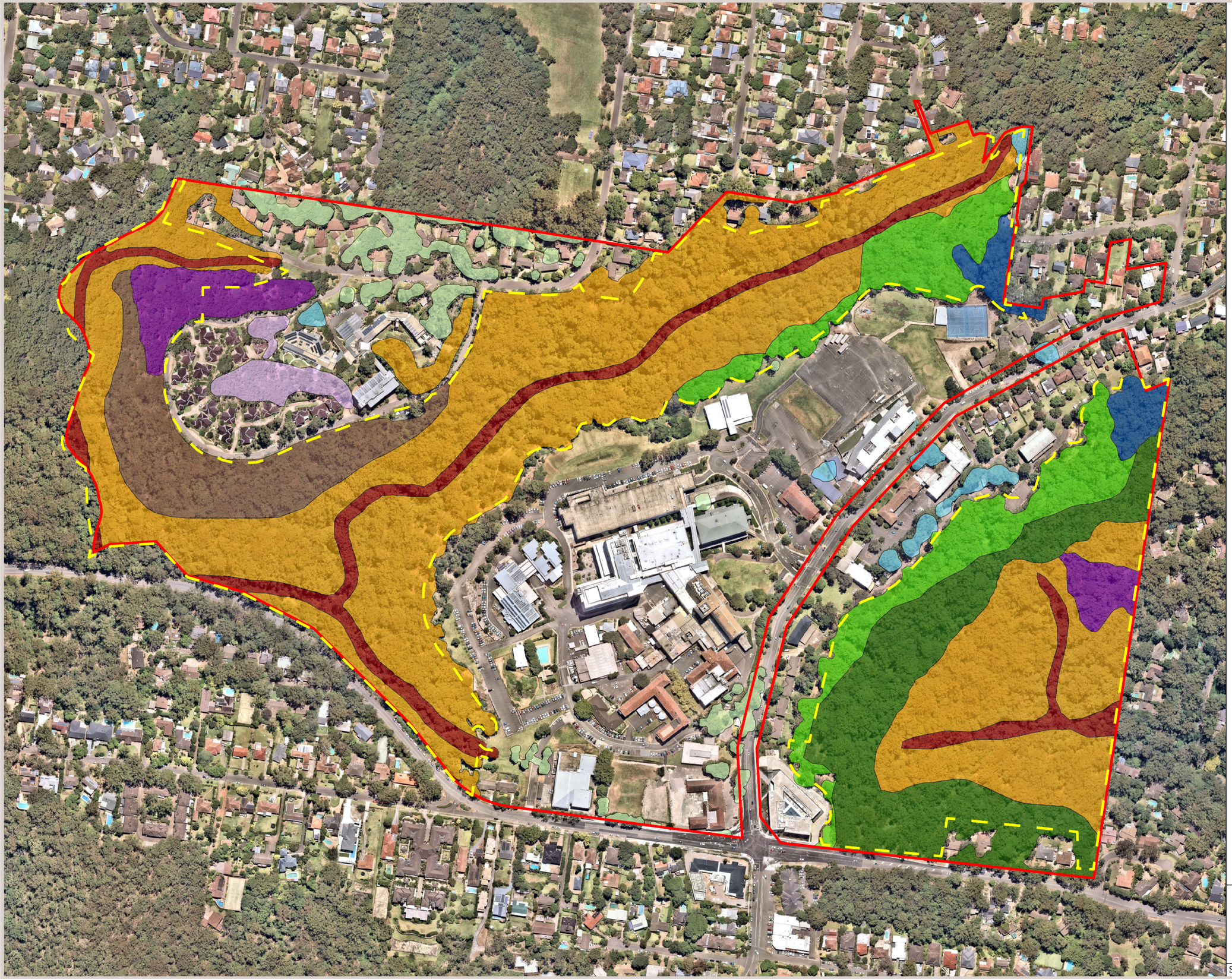

Figure 6. Vegetation Mapping for the Overall Project