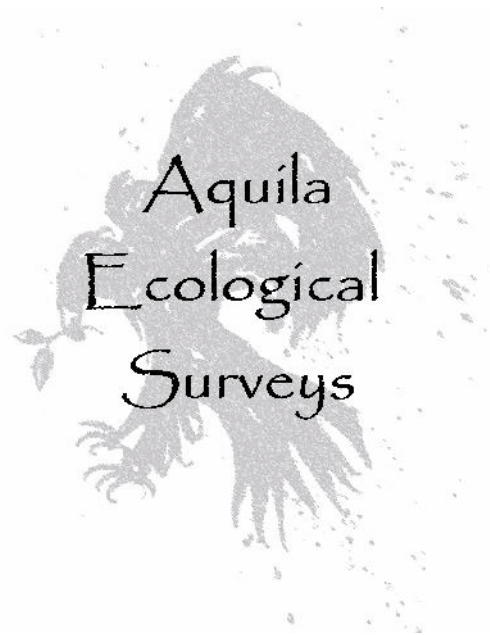


**Flora, Fauna and Tree Assessment,  
Proposed Redevelopment of Manilla Hospital**

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## 1. Introduction and Findings

AES was contracted by Environmental Planning Pty Ltd to undertake an ecological assessment at Manilla Hospital. The Hunter New England Area Health Service is proposing the demolition of the existing Manilla District Hospital and construction of single storey buildings including a hospital, staff accommodation, storage building, on-site car parking area, associated landscaping and site works. The majority of the project will be constructed on the existing hospital site being Lot 14 in DP 814059. A minor portion of the project will be constructed on the northern portion of Lot 13 in DP 814059 occupied by Manellae Lodge including a covered pedestrian link between the hospital and the lodge and a section of the west wing. The area likely to be affected by the proposal is hereafter referred to as the subject site.

The aims of this assessment are to determine:

- whether the proposal is likely to have a significant effect on threatened species, populations or ecological communities, or their habitats<sup>1</sup>, based on the seven factors listed in Section 5A of the *Environment Planning and Assessment Act 1979* as amended by the *Threatened Species Conservation Act 1995 (TSC Act)*. If the proposal were likely to have a significant effect on threatened species, populations or ecological communities, or their habitats, a species impact statement would have to accompany the project application; and
- whether the proposal is likely to have a significant effect on those threatened species, populations or ecological communities listed on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*.

The main findings of the assessment are as follows:

- Apart from those areas covered by existing buildings and access ways, the subject site is vegetated with exotic plantings and a small area of remnant White Box (*Eucalyptus albens*) and associated understorey. This native vegetation is an example of Box-Gum Woodland<sup>2</sup> an endangered ecological community listed on the *TSC Act*. As the patch is smaller than 0.1ha it does not qualify as the analogous *EPBC Act* endangered ecological community Box Gum Grassy Woodlands and Derived Grasslands.
- No threatened flora species were recorded during the field survey. Given the modified condition of the vegetation it is considered unlikely that any threatened flora species are present in the soil seedbank but not apparent above ground.
- No threatened fauna species were recorded during the field survey, and none are considered likely to occur.
- In total, 89 trees would be removed for the proposed development. Apart from 14 White Box trees, none of these are significant in terms of their ecological or landscape function. The loss of the White Box trees would be compensated for by planting of 28 trees of this species around the northern perimeter of the proposed development.
- The proposal is unlikely to have a significant effect on the endangered ecological community Box-Gum Woodland. Therefore, a Species Impact Statement need not accompany the project application.

<sup>1</sup> i.e. species, populations or ecological communities listed on Schedules 1 and 2 of the *Threatened Species Conservation Act 1995*.

<sup>2</sup> Full name is White Box - Yellow Box - Blakely's Red Gum Woodland.

**Figure 1. Aerial View of Lots 13 and 14 in DP 814059**



## **2. Methodology**

### **2.1 Field Survey**

Fieldwork was undertaken on 21/01/2009 using the following methods.

#### **2.1.1 Vegetation**

The vegetation of the subject site is described based on the dominant tree species and the height and cover of the tree layer following Specht (1970). The remnant vegetation was surveyed for plant species by walking transects. Plants not readily identified in the field were collected for identification using standard texts. Checks were made against the Schedules 1 and 2 of the *Threatened Species Conservation Act* and Briggs & Leigh (1995) for species of conservation significance.

### 2.1.2 Fauna

The vegetation community descriptions were used to describe the different fauna habitats that occur on the subject site. The habitat surrounding the subject site was also investigated to gain an appreciation of the relative importance of the habitat that occurs on the subject site.

Notes were made of specific sources of native fauna food and shelter, such as dense shrubs, flowering trees, tree hollows and rock outcrops. The presence, or lack, of particular fauna habitat requirements was noted to enable predictions of species that would be likely to utilise the subject site.

## 3. Results

### 3.1 Vegetation Description

Most of that part of the subject site not occupied by buildings, access ways or associated facilities is vegetated with a variety of planted exotic and native tree and shrub species and small areas of lawn. The only remnant native vegetation is in the west of the subject site, downslope of the internal road. Covering an area of about 600m<sup>2</sup> are a number of remnant White Box (*Eucalyptus albens*) trees above an understorey that is a mix of native and introduced species. Dominant species are the exotics Kikuyu Grass (*Pennisetum clandestinum*) and Ragweed (*Artemisia ambrosifolia*) along with the natives Sifton Bush (*Cassinia aculeata*), Kangaroo Grass (*Themeda australis*), Speargrass (*Austrostipa* sp), Burr-daisy (*Calotis cuneifolia*), Kidney Weed (*Dichondra repens*) and *Myoporum debile*.

This area of remnant native vegetation qualifies as the *TSC Act* listed endangered ecological community Box-Gum Woodland. This community is also listed as the endangered ecological community Box Gum Grassy Woodlands and Derived Grasslands on the *EPBC Act*. However, the listing of the community only applies to those remnants that, amongst other requirements, cover an area of greater than 0.1ha. At approximately 600m<sup>2</sup> the site remnant does not qualify under this criterion.

### 3.2 Fauna Habitat Features

The following habitat features were noted in the study area:

- One hollow-bearing tree occurs in the north of the site beyond the development footprint. Hollows in this tree are suitable as roosting sites for insectivorous bats, arboreal mammals and birds. The hospital's Maintenance Manager also reports possums using cavities in the hospital's roof for shelter (N. Nelson pers. comm.).
- The subject site is within a residential area, which adjoins larger cleared lots to the east and north. The clearing of native vegetation has favoured introduced and generalist native fauna species.

### 3.2. Threatened Species

#### 3.2.1 Threatened Flora Species

No threatened flora species were detected during the survey. There are no records of any listed threatened flora species within ten kilometres of the subject site since 1980 (NSW Government, 2009).

### 3.2.2 Threatened Fauna Species

No threatened fauna species were found at the subject site. Two threatened flora species have been recorded within ten kilometres of the subject site being the Regent Honeyeater (*Xanthomyza phrygia*) and the Spotted-tailed Quoll (*Dasyurus maculatus*). Although some winter-flowering eucalypts are present at the subject site it is considered that there is a very low likelihood that the nomadic Regent Honeyeater would occur. Habitat in the local area is too modified and fragmented for the forest and woodland-dwelling Spotted-tailed Quoll to occur.

## 4. Environmental Planning and Assessment Act

The endangered ecological community Box-Gum Woodland occurs at the subject site. No threatened species or endangered populations occur.

Accordingly, an assessment using the criteria (the "seven part test") provided under Section 5A of the *Environmental Planning and Assessment Act 1979*, has been undertaken in relation to Box-Gum Woodland to determine whether there is likely to be a significant effect on this endangered ecological community, or its habitat, and consequently whether a Species Impact Statement is required.

*(a) in the case of a threatened species, whether the action proposed 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,*

Box-Gum Woodland is an endangered ecological community not a threatened species.

*(b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction,*

Box-Gum Woodland is an endangered ecological community not an endangered population.

*(c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:*

*(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,*

The construction of staff accommodation in the west of the site would remove approximately 200m<sup>2</sup> of degraded Box-Gum Woodland, including 14 mature White Box trees.

*(ii) or 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,*

Development of the subject site is unlikely to substantially and adversely modify the composition of the Box-Gum Woodland remaining post-development.

*(d) in relation to the habitat of a threatened species, population or ecological community:*

- (i) *the extent to which habitat is likely to be removed or modified as a result of the action proposed,*

Approximately 200m<sup>2</sup> of Box-Gum Woodland, including 14 mature White Box trees, would be removed.

- (ii) *whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action,*

Box-Gum Woodland in the area is already heavily fragmented by intervening development. The removal of a small proportion of degraded Box-Gum Woodland is unlikely to significantly increase the degree of fragmentation.

- (iii) *and the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality,*

Given the small amount of Box-Gum Woodland affected, its degraded condition and the proposal to retain and enhance remaining Box-Gum Woodland at the hospital, it is considered that the habitat affected is not of importance to the long-term survival of the community in the locality.

- (e) *whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly),*

Critical habitat of Box-Gum Woodland has not yet been defined.

- (f) *whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan,*

No recovery plan or threat abatement plan has been prepared for Box-Gum Woodland. In 2004, amendments were made to the *Threatened Species Conservation Act*, which removes the mandatory requirement to prepare recovery plans, and threat abatement plans, and instead requires preparation of a Threatened Species Priorities Action Statement. Within this, 28 strategies have been identified to help recover Box-Gum Woodland. Of relevance, is the following:

*Habitat management: Ongoing EIA - Advice to consent and planning authorities: Ensure Box-Gum Woodland is afforded high level of protection by relevant environmental management committees when developing environmental policy.*

It is considered that given the small amount and condition of the Box-Gum Woodland at the subject site that protection of this part of the remnant is not warranted in this case. Its loss could be mitigated by revegetation of a cleared area downslope.

- (g) *whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.*

Development of the subject site would involve "Clearing of native vegetation", which is listed as a Key Threatening Process on the *Threatened Species Conservation Act* and within that listing is recognised as a threat to Box-Gum Woodland.

### Conclusion: Expected Impact on Box-Gum Woodland.

The proposal would result in the loss of approximately 200m<sup>2</sup> of Box-Gum Woodland, including 14 mature White Box trees. Given the small amount of habitat affected and its degraded state, it is considered that the loss of this area of Box-Gum Woodland is unlikely to have a significant effect on the community, or its habitat. Nevertheless, it is recommended that Box-Gum woodland plant species be used in landscaping of the hospital site and that revegetation of the unused steeper slopes in the western part be investigated as a long-term strategy.

## **5. Tree Assessment**

On the site plan<sup>3</sup> issued to the author prior to fieldwork, 64 individual trees were indicated as occurring at the site (Appendix A). Since the fieldwork was completed, there have been a number of amendments to the proposal; the result being that in total, 89 trees would be removed, and one, a Strawberry Tree, would be relocated. Of the trees to be removed, 14 are White Boxes (including seven not indicated on the survey plan). These are the only trees considered significant on the site, as they are part of the endangered ecological community Box-Gum Woodland. Their loss would be compensated for by the planting of 28 White Box trees around the northern perimeter of the proposed development (as indicated on the Landscape Plan prepared by Site Image Pty Ltd Drawing No.101 Issue E). None of the other trees to be removed have any particular ecological or cultural significance. In addition, 13 trees occur in the property opposite the hospital that will be used for the construction compound. It is understood no trees need be removed for this purpose.

## **6. Environmental Measures and Safeguards**

The following recommendations are made to mitigate the loss of Box-Gum Woodland, and to protect retained trees and vegetation and fauna habitat nearby.

- The loss of 14 mature White Box trees should be compensated for by replanting of 28 trees of the same species elsewhere in the hospital grounds. Consideration should also be given to restoring Box-Gum woodland on the unused land down slope of the hospital.
- Footings for the buildings should be placed outside of the dripline of retained trees.
- During the demolition and construction phases, retained trees should be protected from mechanical damage by the erection of temporary barriers, for example star posts inserted in the ground at least one metre from the trunk with wire mesh attached.
- Compacted soil within the dripline of retained trees should be aerated when installation of the buildings is complete.

## **References**

Briggs, J.D., & Leigh, J.H., (1995), *Rare or Threatened Australian Plants*. CSIRO Publishing, Collingwood.

NSW Government (2009) *Bionet*. [www.bionet.nsw.gov.au/area.cfm](http://www.bionet.nsw.gov.au/area.cfm)

<sup>3</sup> Drawing No. 1384C0102 by Brown and Krippner Pty Ltd (Plan of Selected Detail and Levels over Portions of Lots 13, 14 DP814059).



## Appendix A. Schedule of Species and Condition of Trees at Manilla Hospital

n.b. This schedule should be read in conjunction with the attached Drawing No. 1384C0102 by Brown and Krippner Pty Ltd (Plan of Selected Detail and Levels over Portions of Lots 13, 14 DP814059). Trees in bold text will be removed for the proposal.

No	Species	Trunk Diameter (m)	Height (m)	Condition	SULE
1	Ash <i>Fraxinus</i> sp	0.3	5	Fair. Leans to road and requires pruning for o/head wires	2D
2	<i>Pittosporum</i> sp	0.2	4	Good. Pruning required in future for o/head wires	2D
3	<b>Jacaranda <i>Jacaranda mimosifolia</i></b>	<b>0.5</b>	<b>11</b>	<b>Moderate. Pruned for o/head wires</b>	<b>2D</b>
4	Bottlebrush <i>Callistemon</i> sp	0.3	9	Twin trunk	2A
5	<b>Jacaranda</b>	<b>0.6</b>	<b>11</b>	<b>Good</b>	<b>1A</b>
6	<b>Kurrajong <i>Brachychiton populneus</i></b>	<b>0.6</b>	<b>10</b>	<b>Good</b>	<b>2A</b>
7 <sup>4</sup>	<b>Strawberry Bush <i>Euonymus americana</i></b>	<b>0.</b>	<b>3</b>	<b>Good</b>	<b>2A</b>
8	Kurrajong	0.2	8	Poor form, borers present. Remove.	4A
9	<b>Jacaranda</b>	<b>0.3</b>	<b>9</b>	<b>Good</b>	
10	<b>Kurrajong</b>	<b>0.4</b>	<b>7</b>	<b>Poor form; no leader.</b>	
11	White Box <i>Eucalyptus albens</i>	0.5	18	On neighbour's property. Cavity in trunk.	
12	<b>White Box</b>	<b>0.5</b>	<b>18</b>	<b>Bracket fungi at ~2m on trunk. Pruned for neighbour</b>	<b>2A</b>
13	White Box	0.5	18	Moderate. Cavity in base.	2A
14	<b>White Box</b>	<b>0.5</b>	<b>18</b>	<b>Good</b>	
15	<b>White Box</b>	<b>0.5</b>	<b>18</b>	<b>Good</b>	
16	<b>White Box</b>	<b>0.5</b>	<b>18</b>	<b>Good</b>	
17	<b>White Box</b>	<b>0.5</b>	<b>18</b>	<b>Good</b>	
18	<b>White Box</b>	<b>0.5</b>	<b>18</b>	<b>Good</b>	
19	White Box	0.9	18	Moderate	2A
20	White Box	0.9	18	Good	
21	<b>White Box</b>	<b>0.3</b>	<b>18</b>	<b>Good</b>	<b>2A</b>
22	Wattle <i>Acacia</i> sp	0.4	10	Good. Likely short life span.	3A
23	White Box	1.0	20	Good. Hollow-bearing.	2A
24	<b><i>Liquidambar styraciflua</i></b>	<b>0.3</b>	<b>8</b>	<b>Moderate</b>	
25	<b>Ash</b>	<b>0.3</b>	<b>6</b>	<b>Moderate</b>	
26	<b>Ash</b>	<b>0.4</b>	<b>6</b>	<b>Moderate</b>	

<sup>4</sup> This tree will be relocated.

No	Species	Trunk Diameter (m)	Height (m)	Condition	SULE
27	absent				
28	<i>Citrus</i> sp	0.1	2	Poor. Needs feeding.	4E
29	Juniper <i>Juniperus</i> sp	0.5	10	Good	2A
30	Juniper <i>Juniperus</i> sp	0.5	10	Good	2A
31	Juniper <i>Juniperus</i> sp	0.3	10	Good	2A
32	Juniper <i>Juniperus</i> sp	0.3	8	Good	2A
33	<b>London Plane Tree</b> <i>Platanus x hispanica</i>	<b>0.6</b>	<b>16</b>	<b>Good</b>	
34	<b>London Plane Tree</b>	<b>0.9</b>	<b>16</b>	<b>Good</b>	
35	<b>Silky Oak <i>Grevillea robusta</i></b>	<b>0.5</b>	<b>16</b>	<b>Multi-trunk may eventually split</b>	
36	Jacaranda	0.4	10	Good	2A
37	Jacaranda	0.4	10	Good	2A
38	Jacaranda	0.4	10	Good	2A
39	Liquidambar	0.3	8	Off site	
40	Liquidambar	0.3	8	Off site	
41	<i>Eucalyptus</i> sp	0.4	11	Off site	
42	<i>Eucalyptus</i> sp	0.4	10	Off site	
43	<i>Eucalyptus</i> sp	0.2	8	Off site	
44	<i>Eucalyptus</i> sp	0.4	10	Off site	
45	Bracelet Honey-myrtle <i>Melaleuca armillaris</i>	0.4	10	Off site	
46	<i>Pittosporum</i> sp	0.1	3	Off site	
47	Bracelet Honey-myrtle	0.2	6	Off site	
48	<i>Pittosporum</i> sp	0.1	4	Off site	
49	Bracelet Honey-myrtle	0.2	1	Off site	
50	<i>Pittosporum</i> sp	0.1	6	Off site	
51	Bracelet Honey-myrtle	0.2	6	Off site	
52	<i>Pittosporum</i> sp	0.1	4	Off site	
53	Bracelet Honey-myrtle	0.1	4	Off site	
54	<i>Pittosporum</i> sp	0.2	6	Off site	
56	Jacaranda	0.5	12	Good	2A
57	<i>Pittosporum</i> sp	0.2	5	Good	2A
58	<i>Pittosporum</i> sp	0.2	5	Good	2A
59	Pea <i>Fabaceae</i> sp	0.2	5	Good	2A
60	Bracelet Honey-myrtle	0.2	5	Moderate. Remove to give 59 and 61 room.	4E
61	Pea <i>Fabaceae</i> sp	0.2	5	Good	2A
62	Bracelet Honey-myrtle	0.4	6	Good	2A
63	<i>Pittosporum</i> sp	0.2	5	Good	2A
64	<i>Pittosporum</i> sp	0.4	6	Good	2A

## **Appendix B. Explanation of SULE (Safe and Useful Life Expectancy) Categories**

**1. Long SULE** – tree appeared retainable at time of assessment for over 40 years with acceptable degree of risk assuming reasonable maintenance.

- A. Structurally sound trees located in positions that can accommodate future growth.
- B. Trees which could be made suitable for long-term retention by remedial care.
- C. Trees of special significance which would warrant extraordinary efforts to secure their long-term retention.

**2. Medium SULE** – tree appeared retainable at time of assessment for over 15-40 years with acceptable degree of risk assuming reasonable maintenance.

- A. Trees which may only live from 15-40 years.
- B. Trees which may live for 40 years but would be removed for safety or nuisance reasons.
- C. Trees which may live for more than 40 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting.
- D. Trees which could be made suitable for retention in the medium term by remedial care.

**3. Short SULE** – tree appeared retainable at time of assessment for over 5-15 years with acceptable degree of risk assuming reasonable maintenance.

- A. Trees which may only live from 5-15 years.
- B. Trees which may live for 15 years but would be removed for safety or nuisance reasons.
- C. Trees which may live for more than 15 years but would be removed to prevent interference with more suitable individuals or to provide space for new planting.
- D. Trees which could be made suitable for retention in the medium term by remedial care.

**4. Removal** – trees that should be removed within the next five years.

- A. Dead, dying, suppressed or declining trees.
- B. Dangerous trees through instability or recent loss of adjacent trees.
- C. Dangerous trees because of structural defects including cavities, decay, included bark, wounds or poor form.
- D. Damaged trees that are clearly not safe to retain.
- E. Trees which may live for more than five years but would be removed to prevent interference with more suitable individuals or to provide space for new planting.
- F. Trees which are damaging or may cause damage to existing structures within the next five years.
- G. Trees that will become dangerous after removal of other trees for the reasons given in A to F.
- H. Trees in categories A to G that have a high wildlife habitat value and, with appropriate treatment, could be retained subject to regular review.

**5. Small, young or regularly pruned** – trees that can be readily moved or replaced.

- A. Small trees less than five metres in height.
- B. Young trees less than 15 years old but over 5m in height.
- C. Formal hedges and trees intended for regular pruning to artificially control growth.