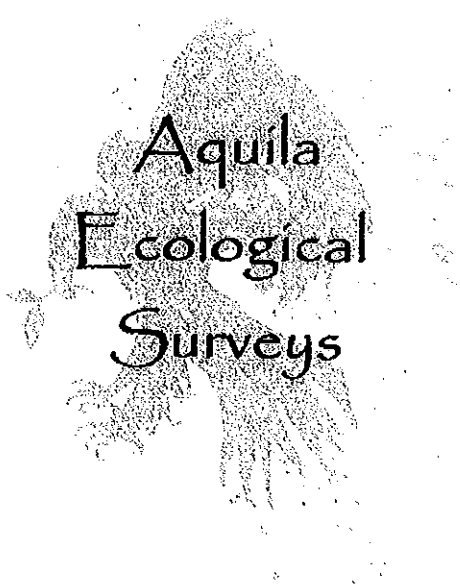
Flora and Fauna Assessment
Proposed Construction of Multi-unit Housing

1, 1a & 5 Avon Road, 1 Arilla Road and 4 & 8 Beechworth Road, Pymble

December 2009



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1. Introduction

AES was requested by Mr Jim Neale to undertake a flora and fauna assessment of a proposed multi-unit housing site at 1, 1a & 5 Avon Road, 1 Arilla Road and 4 & 8 Beechworth Road, Pymble (the site). The proposed development involves demolition of existing dwellings and construction of five apartment buildings and associated access and provision of services. Restoration of bushland around the central drainage line would be undertaken as part of the development.

The proposed development is being assessed under Part 3A of the *Environmental Planning and Assessment Act.* Accordingly, the Director-General of the Department of Planning has issued requirements for the environmental assessment. In relation to flora and fauna, a field survey undertaken in accordance with draft guidelines for threatened species assessment (Department of Environment and Conservation and the Department of Primary Industries, 2005) was required. The Director-general also required that the Commonwealth Department of Environment Water Heritage and the Arts be consulted as to whether the proposed development triggers an approval and assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act).

2. Environmental Setting

The subject site is irregular in shape and has an area of 2.4941 hectares. It is situated West of the North Shore railway line, North of Avon Road, South of Beechworth Road and East of Arilla Road, Pymble. The land falls moderately away from the railway line and is drained by an ephemeral drainage line that discharges into the Lane Cove River some 2.7 kilometres south of the centre of the site. Chapman and Murphy (1989) indicate that the soils in the upper edge of the site are of the of the West Pennant Hills soil landscape, while those downslope are of the Glenorie soil landscape. On upper slopes such as the site, both soil landscapes are characterised by red and brown podsolic soils, the underlying geology being Ashfield Shale of the Wianamatta Group.

The site currently has a number of dwellings and a disused tennis court on it with a large area of weed-infested vegetation around the central drainage line. This had been cleared in the late 1800s to make way for dairy farming and orchards. The whole of 1 and 1a Avon Rd was developed in the 1930s as an exotic landscaped garden and lawns by the Dent Family who also owned the Northern Suburbs Crematorium.

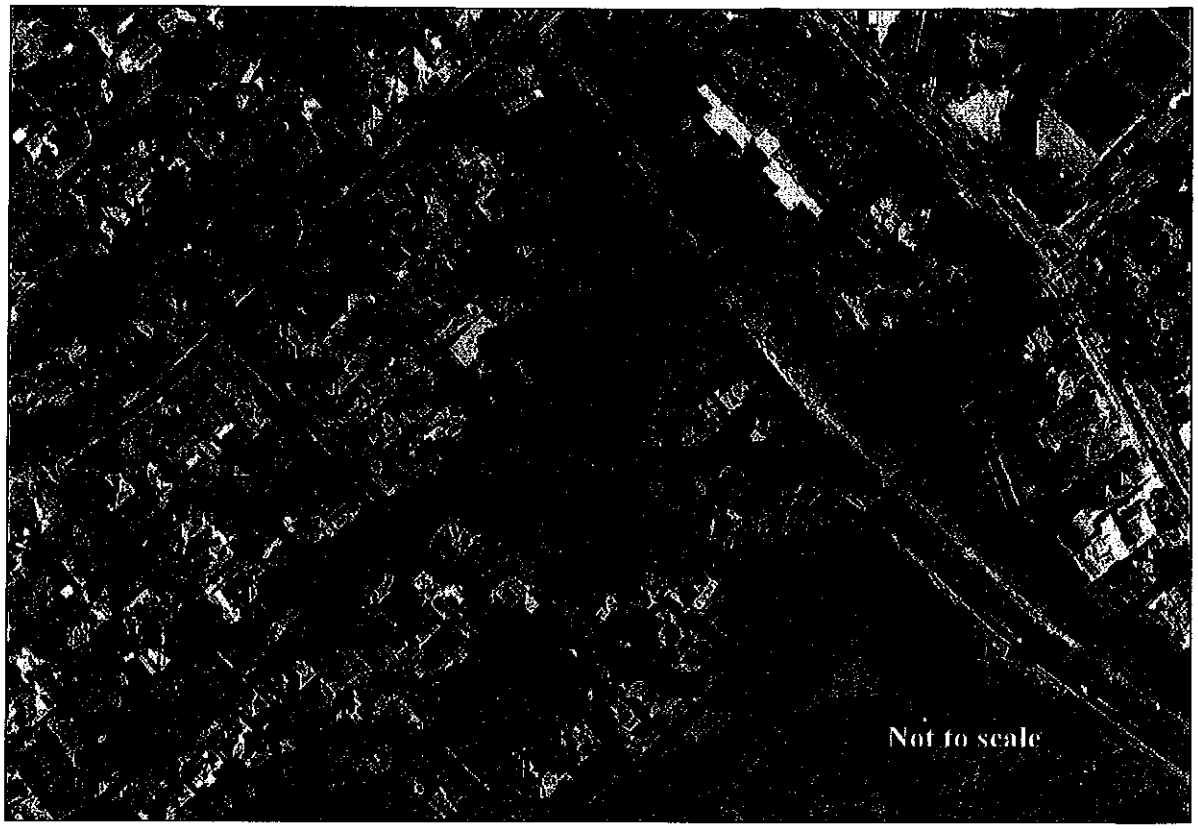


Figure 1. Recent Aerial View of the Property © NSW Dept. Lands 2009.
(Boundary approximate only)

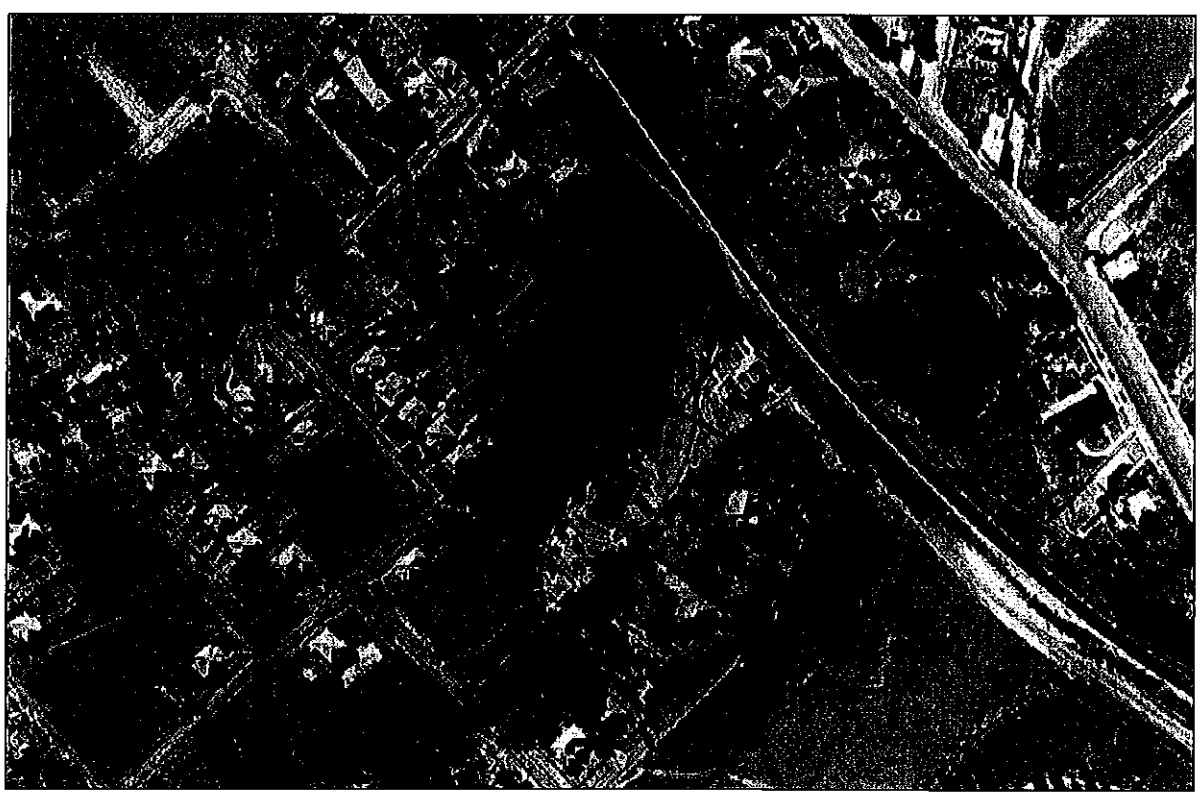


Figure 2. 1943 Aerial View of the Property © NSW Dept. Lands 2009.
(Boundary approximate only)

3. Methods

3.1 Literature Review

Prior to undertaking the field survey a literature review was conducted on reports and databases relevant to the site and propose development. The studies and reports referred to include:

- Mapping and description of the native vegetation of the Cumberland Plain (NPWS, 2002a, 2002b), which includes Pymble within its study area;
- The Department of Environment, Climate Change and Water (DECCW) Atlas of NSW Wildlife (DECC 2009a) for records of threatened species in the locality;
- The Department of the Environment, Water, Heritage and Arts (DEWHA) Online Protected Matters search tool (DEWHA 2009);
- Legislative listings, descriptions and conservation advice in relation to Blue Gum High Forest and Sydney Turpentine Ironbark Forest (NSW Scientific Committee, 1998, 2007; Threatened Species Scientific Committee [TSSC] 2005a, 2005b);
- The Northern Sydney Regional Organisation of Councils State Of The Environment Report 2007 / 2008 (Anon, 2008).

Other reports and documents referred to are provided within the bibliography section of this report.

When accessing the DECC databases, the search area specified was within a five-kilometre radius from the subject site.

3.2 Field Survey

A field survey was undertaken of the site on June 11 2009 using the following methods.

3.2.1 Vegetation

The vegetation of the site is described based on the dominant tree species and the height and cover of the tree layer. The site 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 of the *Threatened Species Conservation Act*, listings on the *EPBC Act* and Briggs & Leigh (1995) for species of conservation significance.

3.2.2 Fauna

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

Notes were made of the availability 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 site.

3.2.3 Limitations of the field survey

It is recognised that a comprehensive fauna survey of the subject site was not undertaken. However, consideration has been given to the presence in the survey area (or surrounding land) of the known or likely habitat components for threatened species. i.e. if suitable habitat is present and there are sufficient recent local records of the species, it is considered likely to occur.

4. Results

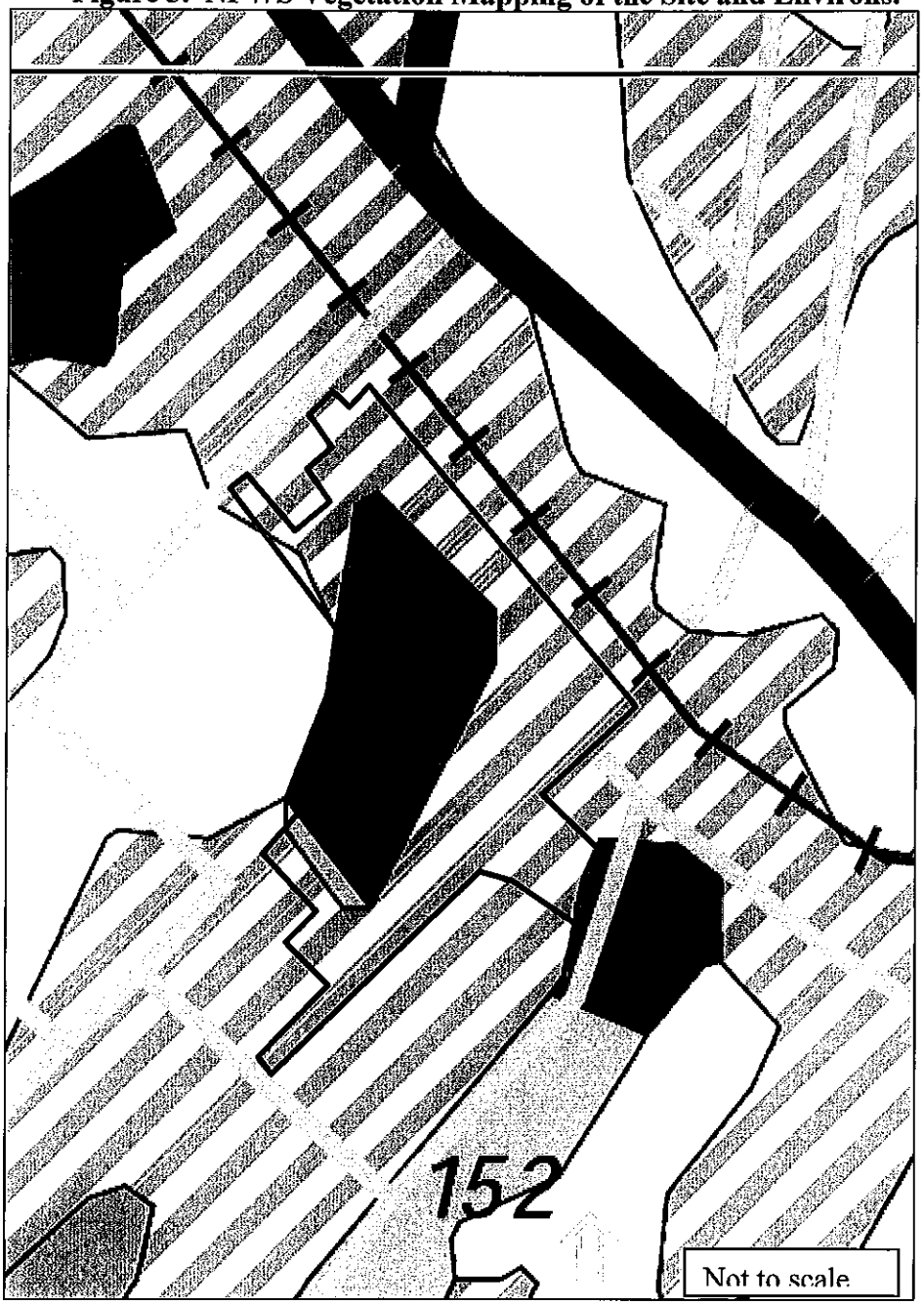
4.1 Literature Review

Mapping by NPWS (2002a) indicates that the site is vegetated with a combination of intact (Condition Class A) and disturbed Sydney-Turpentine Ironbark Forest (Condition Class TXU) with a small area of intact Blue Gum High Forest adjoining the central Sydney-Turpentine Ironbark Forest to its south (Figure 2).

Condition Class A indicates that the remnant is larger than 0.5 hectares, the native tree canopy is relatively intact and there is greater than 10% crown cover projection density. TXU indicates that the remnant is larger than 0.5 hectares, the native tree canopy is discontinuous and there is less than 10% crown cover projection density (NPWS, 2002b).

The EPBC Act Protected matters search tool was used to find those endangered ecological communities listed on that Act that occur, or have habitat, within a five-kilometre radius around the subject site. The search tool indicated that Blue Gum High Forest and Turpentine-Ironbark Forest in the Sydney Basin Bioregion are known to occur in the area.

Figure 3. NPWS Vegetation Mapping of the Site and Environs.



Threatened Flora Species

Point records from the Sydney 1:100,000 map sheet of the Atlas of NSW Wildlife (DECC 2009a) were obtained and filtered using GIS software (MapInfo™) to find which threatened species have been recorded within five kilometres of the subject site. The *EPBC Act* Protected matters search tool was used to find which threatened species listed on that Act have been recorded, or have habitat within a five-kilometre radius around the subject site. Table 1 presents the results of these reviews.

Species	**Status**		**Habitat** (DECC 2009b & author's field notes)
	EPBC	**TSC**	
Acacia bynoeana	V	E	Heath/scrub on clayey ridge-tops and slopes
Caladenia tessellata	V	V	Grassy sclerophyll woodland on clay loam or sandy soils
Cryptostylis hunteriana	V	V	Dry sclerophyll woodland on sandy soils.
Darwinia biflora	V	V	Heath/scrub on clayey ridge-tops and slopes
Deyeuxia appressa	E	E	Record is from 1941. Locally extinct and little known of its ecology.
Epacris purpurascens var. purpurascens		V	Deeper shales and near creeks
Eucalyptus camfieldii	V	V	Heath/scrub on clayey ridge-tops and slopes
Eucalyptus nicholii	V	V	Northern tablelands species commonly planted in Sydney
Haloragodendron lucasii	E	E	Very localised in sheltered gullies in Barra Brui.
Leptospermum deanei	V	V	In sandstone scrub near watercourses
Melaleuca deanei	V	V	Heath/scrub on clayey ridge-tops
Pimelea curviflora var. curviflora	V	V	Heath/scrub on clayey ridge-tops
Prostanthera marifolia	X	CE	Unknown. Formerly confined to the Seaforth area.
Syzygium paniculatum	V	V	Littoral rainforest species commonly used in landscaping
Tetratheca glandulosa	V	V	Heath/scrub on moderately clayey ridge-tops and slopes

Bold – species recorded within 5km of the site
CE – critically endangered
E – endangered
V – vulnerable
X – extinct.

Threatened Fauna Species

Point records from the Sydney 1:100,000 map sheet of the Atlas of NSW Wildlife (DECC 2009a) were obtained and filtered using GIS software (MapInfo™) to find which threatened species have been recorded within five kilometres of the subject site. The *EPBC Act* Protected matters search tool was used to find which threatened species listed on that Act have been recorded, or have habitat within a five kilometre radius around the subject site. Table 1 presents the results of these reviews. During the field survey, consideration was given to the possible presence of one or more of these species (based on the identification of those habitats present).

Table 2 Locally Occurring Threatened Fauna Species

Scientific Name	Status		Habitat
	EPBC	TSCA	
Heleioporus australiacus Giant Burrowing Frog	V	V	Densely vegetated, slow flowing permanent streams, occasionally swamps with dense vegetation.
Mixophyes balbus Stuttering Frog	V	V	Undisturbed streams in rainforest and wet sclerophyll forest
Pseudophryne australis **Red-crowned Toadlet**		V	Undisturbed first order drainage lines in sandstone woodland and heath.
Litoria aurea **Green and Golden Bell Frog**	V	E	Ephemeral and permanent ponds with fringing vegetation.
Litoria littlejohni Littlejohn's Tree Frog	V	V	Permanent rocky streams with thick fringing vegetation associated with eucalypt woodlands and heaths among sandstone outcrops
Varanus rosenbergi **Rosenberg's Goanna**		V	Heath, open forest and woodland where it breeds in termite mounds
Limicola falcinellus **Broad-billed Sandpiper**		V	Summer migrant inhabiting estuarine sandflats and mudflats, harbours, embayments, lagoons, saltmarshes and reefs.
Haematopus fuliginosus **Sooty Oystercatcher**		V	Rocky headlands, rocky shelves, exposed reefs with rock pools, beaches and muddy estuaries
Ptilinopus superbus **Superb Fruit-Dove**		V	Rainforest and similar closed forests where it forages high in the canopy, eating the fruits of many tree species such as figs and palms. Some birds have an autumn passage through Sydney.
Polytelis swainsonii **Superb Parrot**		V	Inland species; record is likely aviary escape.
Callocephalon fimbriatum **Gang-gang Cockatoo**		V,EP	Open forest in the upper Lane Cove Valley.
Calyptorhynchus lathami **Glossy Black-Cockatoo**		V	Nests in large tree hollows. Feeds on Black She-oak in forest and woodland.
Lathamus discolor **Swift Parrot**	E	E	Winter migrant from Tasmania. Occasionally occurs in Sydney feeding on winter-flowering eucalypts and lerp.
Ninox strenua **Powerful Owl**		V	Nests in large tree hollows. Forages on arboreal mammals in open forest.
Ninox connivens **Barking Owl**		V	Nests in large tree hollows. Forages on birds and arboreal mammals in woodland open forest.
Xanthomyza phrygia **Regent Honeyeater**	E	E	Woodlands and open forests of the inland slopes occasionally visiting Sydney during inland drought
Dasyurus maculatus			Occurs in a variety of bushland habitats and their

Scientific Name	Status		Habitat
	EPBC	TSCA	
Spotted-tailed Quoll			margins; few local records; unlikely
Isoodon obesulus obesulus **Southern Brown Bandicoot (eastern)**	V	E	Heath or open forest with a heathy understorey on sandy or friable soils.
Potorous tridactylus tridactylus Long-nosed Potoroo	V	V	Coastal heaths and dry and wet sclerophyll forests. Dense understorey with occasional open areas is an essential part of habitat, and may consist of grass-trees, sedges, ferns or heath, or of low shrubs of tea-trees or melaleucas.
Phascolarctos cinereus **Koala**		V	Forest and woodland containing certain eucalypt feed trees.
Pteropus poliocephalus **Grey-headed Flying-fox**	V	V	Roosts in camps in gullies, the nearest being at East Gordon. Forages widely on fruiting/flowering trees.
Chalinolobus dwyeri **Large-eared Pied Bat**	V	V	Roosts and breeds in caves, mines and tunnels; forages in open forest.
Saccolaimus flaviventris **Yellow-bellied Sheathtail-bat**		V	Forages over a range of habitats including cleared areas. Requires tree hollows for roosting.
Mormopterus norfolkensis **Eastern Freetail-bat**		V	Dry sclerophyll forest and woodland east of the Great Dividing Range. Roosts mainly in tree hollows but will also roost under bark or in man-made structures
Miniopterus schreibersii **Common Bent-wing Bat**		V	Roosts in caves, mines, tunnels etc; forages over open forest and adjoining open areas.

Bold – species recorded within 5km of the site
E – endangered;
EP – endangered population (in the Hornsby & Ku-ring-gai LGAs);
V – vulnerable.

4.2 Flora Survey

4.2.1 Vegetation Description

Most of the flatter, upper areas of the site consist of dwellings and associated hard surfaces with surrounding landscaped areas vegetated with lawns and a range of introduced cultural plants eg citrus trees, exotic conifers, jacarandas, etc.

Running through the middle of the site is a drainage line and gully where weed growth has become rampant. Old survey plans indicate the whole of the site was cleared in the past for the purpose of landscaped gardens. This clearing, landscaping and subsequent weed invasion has badly degraded the pre-existing vegetation and resulted in particularly heavy growth of Morning Glory (*Ipomoea indica*), Lantana (*Lantana camara*), Wandering Jew (*Tradescantia albiflora*), Japanese Honeysuckle (*Lonicera japonica*), Blackberry (*Rubus ulmifolius*) and Small- and Large-leaf Privet (*Ligustrum sinense & L.lucidum*)

As far as native vegetation is concerned, there are a number of remnant canopy trees in the gully. These are mostly Sydney Blue Gum (*E.saligna*) with a few Blackbutt (*Eucalyptus pilularis*) and Smooth-barked Apple (*Angophora costata*). These species grow to about 35m tall with a projective foliage cover of around 50%. In areas where Lantana forms a

dense shrub stratum and Wandering Jew and Morning Glory are suppressed, some native ferns persist. Most common is Giant Maidenhair Fern (*Adiantum formosum*) and Rainbow Fern (*Calochlaena dubia*) with a few *Christella dentata* also present. Some Tree Ferns (*Cyathea australis* and *C.cooperi*) also occur. *C.cooperi* is not regarded as native to the Sydney area.

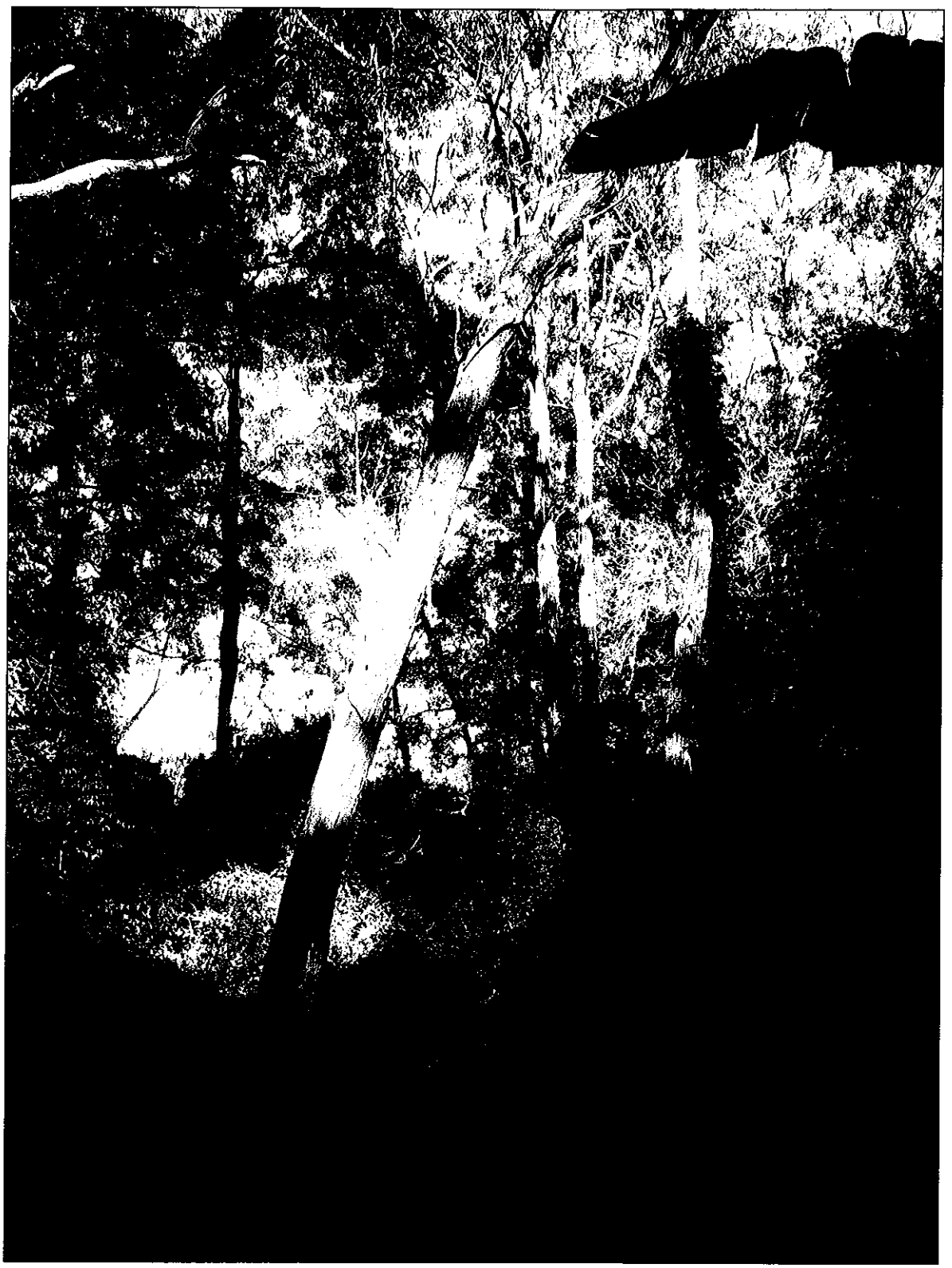


Figure 4. View along drainage line from near northern boundary.

4.2.2 Conservation Significance of the Vegetation

As discussed in section 3.1, most of the remnant vegetation at the site has been mapped as Sydney Turpentine – Ironbark Forest by NPWS (2002a) and subsequent mapping exercises covering the Sydney area and derived from that study (Tozer 2003; Tozer *et al* 2006). However, it would appear from the remnant native vegetation at the site that Blue Gum High Forest (as described by NPWS 2002b and these authors) would have been the pre-existing vegetation. The question then arises whether the remnant vegetation at the site now qualifies as Blue Gum Forest as described in its listing as a critically endangered ecological community on the *TSC Act* (NSWSC, 1997) and the *EPBC Act* (TSSC, 2005).

The determination by NSWSC (2007) of Blue Gum High Forest as a critically endangered ecological community includes a description of intact remnants of the community including a suite of species that is usually present. However, it also states that "A number of stands of Blue Gum Forests (sic) have highly modified understories, in which the native woody component has been largely replaced by woody exotic species or by increased abundance of native and exotic grasses" and that "highly modified relics of the community also persist as small clumps of trees without a native understorey," while noting that both these factors "contribute to a very large reduction in the ecological function of the community." Therefore, under the *TSC Act*, the subject stand of Sydney Blue Gums and associated eucalypts at the subject site qualifies as Blue Gum High Forest despite the remnant being unlikely to be viable in the long-term.

The *EPBC Act* definition of Blue Gum High Forest (TSSC 2005) provides a description of the community including the composition and structure of the community's vegetative strata. In relation to condition classes it also states that "Only high quality remnant patches with characteristic native plant species present in all structural layers and that have the following characteristics are part of the Blue Gum High Forest ecological community listed under the Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth) (Threatened Species Scientific Committee 2005):

- tree canopy cover >10%, patch area > 1 ha, or
- tree canopy cover <10%, patch area > 1 ha and patch is located within native vegetation with an area >5 ha.

Whilst the subject stand of subject stand of Blue Gums and associated eucalypts at the subject site does have a canopy greater than 10% and have a patch area greater than one hectare, it does not have characteristic native plant species present in all structural layers. Furthermore, the definition also states "Single isolated trees or stands of trees, characteristic of the canopy of Blue Gum High Forest of the Sydney Basin Bioregion, without a native understorey are considered important as biodiversity reservoirs. However, due to having been severely modified, these areas fall outside the definition of this ecological community and therefore do not form part of this listing."

Therefore, the subject stand of Sydney Blue Gums and associated eucalypts does not qualify as the critically endangered ecological community Blue Gum High Forest under the *EPBC Act*. Consequently, an assessment as to whether or not the proposed development is a controlled action requiring referral to DEWHA is not required.

4.2.3 Threatened Flora Species

No threatened flora species were found on the site during the survey. Of those species listed in Table 1, it is considered none are likely to persist in the soil seedbank due to the site's long history of disturbance and weed invasion.

4.3. Fauna

A narrow range of fauna species was detected during the survey, this being both a function of the brevity of the survey and the degraded quality of fauna habitat at the subject site. Species detected included Common Brushtail Possum (*Trichosurus vulpecula*), Rainbow Lorikeet (*Trichoglossus haematodus*), Crimson Rosella (*Platycercus elegans*), Noisy Miner (*Manorina melanocephala*), Eastern Whipbird (*Psophodes olivaceus*), Pied Currawong (*Strepera graculina*) and Yellow-throated Scrubwren (*Sericornis citrioregularis*).

4.3.1 Specific Habitat Features and Habitat Disturbance

The following habitat features that favour fauna occur on the site:

- These site's native trees have some habitat value for native fauna by providing nesting and sheltering hollows, pollen when flowering and roosts;
- Dense undergrowth of weeds affords some shelter for smaller birds such as whipbirds and scrubwrens;
- Rock ledges near the drainage line would provide suitable habitat for some reptile species. However due to rampant weed growth there are few sunning spots.

The following forms of disturbance were either observed during the site inspection, or would be expected to occur on the basis of close proximity to residential areas:

- Even though trees have been retained, much of the native ground cover has been removed from this area and introduced species are dominant.
- Introduced predators (cats, *Felis catus* and dogs, *Canis familiaris*) would be present due to the close proximity to residential areas. These animals would have a detrimental effect on the variety and abundance of native fauna.
- As the drainage line is heavily affected by urban run-off, only the hardiest frog species would be expected to occur along it.
- The site is isolated from bushland areas.

4.3.2 Threatened Fauna Species

Having regard to the site's fauna habitat characteristics and the habitat requirements of those of those species listed in Table 2, it is considered that the following species listed on the *TSC Act* are likely to occur at the subject site: the Powerful Owl, Grey-headed Flying-fox, Eastern Freetail-bat and Common Bent-wing Bat. Of these, the Grey-headed Flying-fox is also listed on the *EPBC Act*.

5. Impacts of the Proposed Development

Developments assessed under Part 3A of the *Environmental Planning & Assessment Act* are exempt from the provisions of the *Threatened Species Conservation Act.* i.e. there is no requirement to undertake seven-part tests (Section 5A of the EP&A Act) to determine whether a proposed development would have a significant effect on threatened species, populations or communities, or their habitat.

Instead, draft guidelines for threatened species assessment have been prepared by DEC (now DECCW) & DPI (2005). The objective of the assessment process is to provide information to enable decision makers to ensure that developments deliver the following environmental outcomes:

1. Maintain or improve biodiversity values (i.e. there is no net impact on threatened species or native vegetation).
2. Conserve biological diversity and promote ecologically sustainable development.
3. Protect areas of high conservation value (including areas of critical habitat).
4. Prevent the extinction of threatened species.
5. Protect the long-term viability of local populations of a species, population or ecological community.
6. Protect aspects of the environment that are matters of national environmental significance.

An assessment matrix based on Appendix 3 of the draft guidelines has been prepared and is attached below. In short, it is considered that the requirements of the six factors listed above are met by the proposed development.

Biodiveristy value will be improved through the re-establishment of Blue Gum High Forest in the central area of the site. Although eight Blue Gums, three Turpentines and one Blackbutt (none of which bear hollows suitable for fauna) will be removed for the proposed development, replanting of these species and other components Blue Gum High Forest species will compensate for their loss. Implementation of the landscape plan prepared by Urban & Rural Design would see the establishment of over 100 Blue Gum High Forest trees, principally Sydney Blue Gum with smaller proportions of Blackbutt, Smooth-barked Apple, Forest Oak (*Allocasuarina torulosa*), Turpentine and Grey Ironbark. Species typical of the community's small tree, shrub and groundcover layers will also be planted. In turn, this will encourage the re-establishment of a more diverse faunal community in the central part of the site. Given that biodiversity will at least be maintained and probably improved it is considered that the proposed development is ecologically sustainable.

Whilst it is considered that the subject site is not of high conservation value due to the degraded nature of its Blue Gum High Forest, re-establishment of the community to a far better condition than extant will improve its protection. Given these improvements, the long-term viability of the Blue Gum High Forest stand and its constituent threatened fauna species will be protected and not placed at risk of extinction.

The Grey-headed Flying-fox is listed as a threatened species on the *EPBC Act* and is therefore a matter of national environmental significance. It is considered that there would be no negative impact on this species as a result of the proposed development and that with re-establishment of the Blue Gum High Forest, habitat for the species will be improved.

As discussed in section 4.2.2, vegetation at the site does not qualify as the critically endangered ecological community Blue Gum High Forest under the *EPBC Act*. Consequently, an assessment as to whether or not the proposed development is a controlled action requiring referral to DEWHA is not required.

Attachment: Assessment matrix (based on Appendix 3 of DEC & DoP 2005).

Potential Impacts	Threatened Biota				
	Blue Gum High Forest	**Grey-headed Flying-fox**	**East Coast Freetail Bat**	**Common Bent-wing Bat**	**Powerful Owl**
How is the proposal likely to affect the lifecycle of a threatened species and/or population? a) displaces or disturbs threatened species and/or populations	N/A	Only likely to forage on site intermittently. Given negligible loss of foraging trees and availability of foraging habitat in wider area, unlikely to be any impact.	May roost on site. No potential roost trees will be removed. Nocturnal habits means there is unlikely to be significant disturbance due to construction or habitation.	Only likely to forage on site intermittently. Given the negligible/if any loss of prey populations (insects), unlikely to be any impact	Only likely to forage on site intermittently. Given the negligible/if any loss of prey populations (possums), unlikely to be any impact
b) disrupts the breeding cycle	N/A	Breeds in camps in gullies, the nearest being at east Gordon. No impact expected.	May breed on site in tree hollow roosts. Unlikely to be disrupted due to habitat trees being retained.	Breeds in caves, mines, tunnels etc. No breeding habitat on site.	Breeds in large tree hollows in gullies near roosting habitat (closed forest). Site not suitable for breeding.
c) disturbs the dormancy period	N/A	N/A	N/A	N/A	N/A
d) disrupts roosting behaviour	N/A	Roost in large camps in gullies. Not relevant	May occasionally roost in hollow-bearing trees on site. These will be retained and no impact expected.	Roosts in caves, mines, tunnels etc. Not relevant.	Roosts in closed forest in gullies. Not relevant.
e) changes foraging behaviour	N/A	Forages widely on flowering and fruiting trees. Site represents very small area of potential habitat and most potential foraging	Little is known about the species' foraging habits. However, given the low level of disturbance to	Forages above the canopy. No impact expected.	Only a small area of potential foraging habitat affected. No impact expected

Potential Impacts	Threatened Biota				
	Blue Gum High Forest	**Grey-headed Flying-fox**	**East Coast Freetail Bat**	**Common Bent-wing Bat**	**Powerful Owl**
		trees will be retained. No impact on foraging behaviour expected	habitat at the site, little impact expected.		
f) affects migration and dispersal ability	N/A	All four species are wide-ranging and highly mobile. Only a small area of potential habitat affected. No impact expected			
g) disrupts pollination cycle;	N/A	N/A	N/A	N/A	N/A
h) disturbs seedbanks;	N/A	N/A	N/A	N/A	N/A
i) disrupts recruitment (i.e. germination and establishment of plants);	N/A	N/A	N/A	N/A	N/A
j) affects the interaction between threatened species and other species in the community (eg. pollinators, host species, mychorrizal associations).	N/A	This species is an important pollinator and vector of seed. Given the level of impact, no effect in relation to pollination expected.	N/A	N/A	N/A
How is the proposal likely to affect the habitat of a threatened species, population or ecological community?					
a) disturbs any permanent, semi-permanent or ephemeral water bodies;	A buffer would be retained to the ephemeral drainage line that runs through the site. Riparian vegetation will be re-established.				
b) degrades soil quality;	It is unlikely there would be any impact in this regard. Standard erosion and sediment control measures would be implemented. The re-establishment of native vegetation in the core of the site will assist in improving soil quality.				
c) clears or modifies native vegetation;	12 trees typical of Blue Gum High Forest will be removed, none of which are hollow-bearing. This level of loss is not expected to affect the community or component threatened fauna species				
d) introduces weeds, vermin or feral species or provides conditions for them to increase and/or spread;	Weeds are already dominant in the shrub and groundcover layers. Re-establishment of native vegetation will involve weed removal.				

Potential Impacts	Threatened Biota				
	Blue Gum High Forest	**Grey-headed Flying-fox**	**East Coast Freetail Bat**	**Common Bent-wing Bat**	**Powerful Owl**
e) removes or disturbs key habitat features such as trees with hollows, caves and rock crevices, foraging habitat;	N/A	No key habitat features (gullies suitable for breeding camps)are present	Tree hollows are present. However, no tree hollows will be removed	No key habitat features (caves etc) are present	No key habitat features (suitable tree hollows, roosting sites) are present
f) affects natural revegetation and recolonisation of existing species following disturbance; and	At present little or no natural revegetation or recolonisation is occurring. Revegetation and recolonisation of constituent plant species will be an outcome of re-establishment of the Blue Gum High Forest in the centre of the site as per the vegetation management plan (Urban & Rural Design, 2009).				
Does the proposal affect any threatened species or populations that are at the limit of its known distribution?	N/A	The species is not at the limit of its known distribution	The species is not at the limit of its known distribution	The species is not at the limit of its known distribution	The species is not at the limit of its known distribution

Potential Impacts	
How is the proposal likely to affect current disturbance regimes?	
a) modifies the intensity and frequency of fires;	There is unlikely to be any impact in this regard. The subject site is already within a residential area in which the intensity and frequency of fires has been heavily modified.
b) modifies flooding flows.	There is unlikely to be any impact in this regard. The subject site is already within a residential area in which flow regimes have been modified.
How is the proposal likely to affect habitat connectivity?	
a) creates a barrier to fauna movement;	The subject site is already isolated from larger habitat areas. To some degree the proposed re-establishment of Blue Gum High Forest will provide a "stepping stone" for fauna movement.
b) removes remnant vegetation or wildlife corridors;	The only remnant vegetation that would be removed is 12 trees typical of Blue Gum High Forest. This will be compensated for by the replanting of this species and others representative of Blue Gum High Forest
c) modifies remnant vegetation or wildlife corridors.	Remnant vegetation at the subject site is already heavily modified. Re-establishment of Blue Gum High Forest in the centre of the site will negate this. The site does not represent a wildlife corridor
How is the proposal likely to affect critical habitat?	No critical habitat of any endangered species, population or community is present at the subject site

6. Conclusion

A flora and fauna assessment has been undertaken of the proposed residential development site at 1, 1a & 5 Avon Road, 1 Arilla Road and 4 & 8 Beechworth Road, Pymble. It was found that the State listed critical endangered ecological community, Blue Gum High Forest, occurs on part of the site, as single trees or groups of trees without an intact understorey. Such trees are included in the definition of this community.

It was also found that the State-listed threatened fauna species Powerful Owl, Grey-headed Flying-fox, Eastern Freetail-bat and Common Bent-wing Bat are likely to occasionally inhabit the subject site. Of these, the Grey-headed Flying-fox is also listed federally.

An assessment of the likely impacts of the proposed development was undertaken with reference to the draft guidelines for threatened species assessment of Part 3A activities. From this assessment process it was concluded that the objectives of the draft guidelines would be met. The proposed development provides the opportunity to eradicate the extensive weeds that have invaded the site and plant the degraded drainage line with native riparian plants. Whilst the proposal will result in the loss of eight Blue Gums, three Turpentines and one Blackbutt it is proposed to replace these trees with a much greater number of these and other Blue Gum High Forest plant species, as detailed in the Vegetation Management Plan prepared by Urban and Rural Management (2009). By clearing the site of weeds and maintaining it as required by the Bushfire Hazard Assessment Report, the remnant trees retained in the development have a better chance of survival than in the present degraded environment.

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Attachment: Extraction from Site Plan