# 40 MOUNT VIEW ROAD, BORONIA VEGETATION ASSESSMENT

# **Department of Treasury and Finance**



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#### 1. EXECUTIVE SUMMARY

Brett Lane & Associates Pty Ltd (BL&A) undertook a vegetation assessment of an approximately eight hectare area of land in Boronia that was once the site of Boronia K-12 College (the study area). The study area is proposed to be re-zoned to allow residential development. This assessment ground-truths and updates the results of a previous environmental assessment of the study area undertaken prior to the former school buildings being demolished (Landserv 2014).

Vegetation in the study area consisted of remnant patches totalling 2.628 hectares of Valley Heathy Forest (EVC 127) and Lowland Forest (EVC 16). The species richness and structural diversity of the understorey within patches varied across the study area, consistent with the former use as a school.

A large number of scattered trees and shrubs were observed within the study area. Seven of these were consistent with the canopy species identified within remnant patches and therefore were considered to be remnant. However, the majority of trees and shrubs were considered to have been planted for amenity purposes associated with landscaping for the school grounds. This included 202 planted trees and shrubs and approximately 262 plants in garden beds.

A permit under the Knox City Council – General Provisions Local Law 2010 would be required for any impacts to remnant patches or scattered trees. The objectives and strategies of Local Planning Policy 22.01 would need to be met in any proposed development.

Under the Environmental Significance Overlay (ESO2), a permit would be required to impact any remnant patches of native vegetation, any scattered trees, 27 of the planted trees and shrubs and 156 plants in garden beds. Under the Significant Landscape Overlay (SLO2), a permit would be required to remove any trees in patches, any scattered trees, 105 of the planted trees and shrubs and approximately 150 plants in garden beds.

Under Clause 52.17 of the Knox Planning Scheme, a permit to remove vegetation would be required for any impacts to remnant patches of vegetation and any scattered trees. All native planted trees and shrubs are exempt under Clause 52.17 as vegetation that has been planted or grown for aesthetic or amenity purposes, street trees, gardens or the like.

A permit would not be required under the FFG Act, as all FFG Act protected species were planted with lawfully obtained stock.

Management recommendations for the 'Sanctuary' — Habitat Zone 7 — are as follows:

- Transfer ownership to Council;
- Management to be undertaken by Council as recommended on page 48 of Sites of Biological Significance in Knox – 2nd Edition (Lorimer 2010).
- Control high threat weeds and remove dumped refuse;
- Repair and maintain the perimeter fence to prevent unauthorised access;
- Provide a walkway along the north-western boundary;
- Manage the adjoining Habitat Zone 6 similarly for conservation (as it provides a useful buffer); and

Work with the Knox Environment Society (or similar interest groups) to provide public education on the value of the site.



#### 2. INTRODUCTION

Brett Lane & Associates Pty Ltd (BL&A) undertook a vegetation assessment of an approximately eight hectare area of land in Boronia that was once the site of Boronia K-12 College (the study area). The study area is proposed to be re-zoned to allow residential development. This assessment ground-truths and updates the results of a previous environmental assessment of the study area undertaken prior to the former school buildings being demolished (Landserv 2014).

This investigation was commissioned to provide information on the extent and condition of native vegetation currently in the study area according to Victoria's *Biodiversity* assessment guidelines (DEPI 2013), as well as any implications under the local planning laws. This report outlines implications under relevant national, state and local legislation and policy frameworks for any future development.

Specifically, the scope of the investigation included:

- Review of existing information on the flora and native vegetation of the study area and surrounds, including:
  - 40 Mount View Road, Boronia (Boronia K-12 College): Habitat Hectares and Permit Assessment (Landserve 2014); and
  - Review of amendments to the Knox Planning Scheme since the preparation of the Landserve 2014 report.
- A site survey involving:
  - Assessing the extent and condition of vegetation documented in the Landserve Environment 2014 report against current on-ground vegetation extent and condition, in accordance with Victoria's *Biodiversity assessment guidelines* (the 'Guidelines'). Documenting differences in the extent and condition of the vegetation in accordance with the Guidelines; and
  - Assessment of the vegetation comprising the 'Sanctuary' in the north east of the property to identify management issues and opportunities;

This report is divided into the following sections:

This investigation was undertaken by a team from BL&A, comprising Elinor Ebsworth (Senior Ecologist) and Alan Brennan (Senior Ecologist & Project Manager).



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# 3. PLANNING AND LEGISLATIVE CONSIDERATIONS

This investigation and report addresses the application on the site of relevant legislation and planning policies that protect biodiversity. Local, state and Commonwealth controls are summarised below.

#### 3.1. Local laws and regulations

Section 111, Part 5 of the *Local Government Act* 1989 gives authority to local governments to make local laws for or with respect to any act, matter or thing that it has jurisdiction over under any Act.

Under the Knox City Council – General Provisions Local Law 2010, a permit is required from Knox City Council to impact any declared significant tree or declared significant vegetation. Boronia Heights College (synonymous with Boronia K-12 College) is identified as a site of biological significance in LPP 21.06 of the Knox Planning Scheme and Sites of Biological Significance in Knox – 2nd Edition (Lorimer 2010).

# 3.2. Local planning provisions

The study area is located within the Knox local government area. It is currently zoned Public Use Zone – Education (PUZ2) in the Knox Planning Scheme. The southern edge of the study area is located within a Bushfire-prone Area.

Local planning provisions apply under the Victorian Planning and Environment Act 1987.

#### 3.2.1. Local Planning Policies

#### Local Planning Policy (LPP) 21.06: Environment

LPP 210.6 is relevant to the current assessment. This policy identifies sites of biological significance within Knox, including Boronia Heights College. Further detail of the biological significance of the site is included in *Sites of Biological Significance in Knox – 2nd Edition* (Lorimer 2010). The objectives of LPP 21.06 are implemented through the use of overlays and LPP 22.01 (see below).

#### Local Planning Policy (LPP) 22.01: Dandenong Foothills

The study area falls within the area covered by LPP 22.01, the objectives of which include:

- Protect and enhance the metropolitan landscape significance of the Dandenong Foothills and maintain uninterrupted view lines from within the municipality and vantage points in metropolitan Melbourne;
- Promote the maintenance and improvement of the continuous closed tree canopy;
- Maintain the low density residential character of the landscape areas; and
- Limit further subdivision and rezoning of land for urban purposes where there is a high risk of bushfire.

In the Foothills Backdrop and Ridgeline Area this is achieved through the following strategies:

 The design and siting of buildings, works and landscaping minimises the threat associated with bushfire;



- The design and siting of buildings, works and landscaping protects and enhances the visual dominance of vegetation, including canopy trees and native understorey plants, to ensure that:
  - There is a continuous vegetation canopy across residential lots and roads;
  - Development blends with vegetation on the hillsides to maintain and enhance the appearance of the area as an extension of the Dandenong Ranges National Park;
  - There is effective screening of development and use of suitable colours and materials to maintain distant views and the appearance of a heavily vegetated natural hillside;
  - Development does not rise above the tree canopy height to maintain the significant landscape character of the area and near and distant view lines;
  - The significant landscape character of the area is protected and enhanced by retaining existing vegetation and planting indigenous canopy and understorey vegetation;
  - Buildings and works located on sites at high points and along ridges are designed, finished and sited so that they are not highly visible from the valley area below;
- Indigenous trees and understorey vegetation be retained and protected;
- A minimum of 80% of all new vegetation (both canopy trees and understorey) be indigenous; and
- Building height does not exceed 7.5 metres.

#### 3.2.2. Overlays

The study area is subject to two overlays in the Knox Planning Scheme which are relevant to this assessment. The purpose of these overlays is discussed below.

#### Environmental Significance Overlay - Schedule 2 (ESO2)

Requirement for a permit: Under ESO2, a permit is required to remove, destroy or lop any vegetation, including dead vegetation.

<u>Exemptions:</u> The following vegetation is exempt from the requirement to obtain a permit under ESO2:

- The vegetation is a noxious weed the subject of a declaration under section 58 or section 58A of the Catchment and Land Protection Act 1994; and
- The vegetation is not indigenous within Knox (e.g. Victorian species of *Boronia* or *Grevillea*).

#### Significant Landscape Overlay - Schedule 2 (SLO2)

Requirement for a permit: Under SLO2, a permit is required to remove, destroy or lop a tree if it has a height of 5 metres or more or a trunk girth greater than 0.5 metre when measured at a height of 0.5 metres above adjacent ground level (on sloping ground to be taken on the uphill side of the tree base) or immediately above the ground for multistemmed trees.



<u>Exemptions:</u> The following trees are exempt from the requirement to obtain a permit under SLO2:

- Dead trees with a circumference of less than 40 centimetres at a height of 1.3 metres above ground level; or
- One of the following species:
  - o Cootamundra Wattle (Acacia baileyana);
  - Early Black Wattle (Acacia decurrens);
  - Cedar Wattle (Acacia elata);
  - White Sallow Wattle (Acacia floribunda);
  - Sallow Wattle (Acacia longifolia subsp. longifolia)
  - Box Elder (Acer negundo);
  - Sycamore (Acer pseudoplatanus);
  - Strawberry Tree (Arbutus unedo);
  - Tree Lucerne (Chamaecytisus palmensis Tagasate);
  - Mirror Bush (Coprosma repens);
  - Karamu (Coprosma robusta);
  - o Cotoneaster (Cotoneaster spp.);
  - Loquat (Eriobotrya japonica);
  - Desert Ash, Caucasian Ash or Narrow-leafed Ash (excluding Claret Ash)
     (Fraxinus angustifolia (also known as Fraxinus oxycarpa or Fraxinus rotundifolia), excluding the cultivar 'Raywood' subsp. angustifolia);
  - Willow-leaf Hakea (Hakea salicifolia);
  - English Holly (Ilex aquifolium);
  - o Privets (Ligustrum spp.);
  - Apple (Malus spp.);
  - Bracelet Honey Myrtle (Melaleuca armillaris);
  - Cape Wattle (Paraserianthes lophantha);
  - Maritime Pine (Pinus pinaster);
  - Montery (Radiata) Pine (Pinus radiata);
  - Sweet Pittosporum (Pittosporum undulatum);
  - Quaking Aspen (Populus tremuloides);
  - Cherry-plum (Prunus cerasifera);
  - o Cherry Laurel (Prunus laurocerasus);
  - o Portugal Laurel (Prunus Iusitanica);
  - Apricot (Prunus spp.);
  - Nectarine (Prunus spp.);



- Peach (Prunus spp.);
- o Plum (Prunus spp.);
- Firethorns (Pyracantha spp.);
- Willows (Salix spp.); and
- o Laurustinus (Viburnum tinus).

#### 3.3. State planning provisions

State planning provisions are established under the Victorian *Planning and Environment Act* 1987.

Under Clause 52.17 of all Victorian Planning Schemes a planning permit is required for the destruction, lopping or removal of native vegetation on land which has an area of 0.4 hectares or more (together with all contiguous land in single ownership). This includes the removal of dead trees with a DBH (diameter at breast height or 1.3 metres) of 40 centimetres or more and any individual scattered native plants.

Before issuing a planning permit, Responsible Authorities are obligated to refer to Clause 12.01 (Biodiversity) in the Planning Scheme. This refers in turn to the following online tool and document:

- The Native Vegetation Information Management system (NVIM) (DELWP 2017a) a database administered by DELWP; and
- Permitted clearing of native vegetation Biodiversity assessment guidelines (DEPI 2013).

A planning permit under Clause 52.17 of the Knox Planning Scheme is required for the removal of native vegetation.

Removal of the following vegetation is exempt from the requirement for a permit under Clause 52.17 of the Knox Planning Scheme:

- Standing dead vegetation, except standing dead trees with a trunk diameter of 40 centimetres or more at a height of 1.3 metres above ground level;
- Native vegetation that has been planted or grown for aesthetic or amenity purposes, street trees, gardens or the like;
- The following species:
  - White Sallow-wattle (Acacia floribunda);
  - Sticky Wattle (Acacia howittii)
  - Sallow Wattle (Acacia longifolia subsp. longifolia);
  - Coast Wattle (Acacia longifolia subsp. sophorae);
  - Ovens Wattle (Acacia pravissima);
  - Wirilda (Acacia provincialis);
  - Wirilda (Acacia retinodes);
  - Lilly Pilly (Acmena smithii);
  - Port Jackson Pine (Callitris rhomboidea);
  - Clammy Goosefoot (Chenopodium pumilio);



- Spotted Gum (Corymbia maculata);
- Silky Blue-grass (Dichanthium sericeum);
- Bangalay or Southern Mahogany (Eucalyptus botryoides);
- Southern Blue Gum (Eucalyptus globulus);
- Rosemary Grevillea (Grevillea rosmarinifolia);
- Dusky Coral-pea (Kennedia rubicunda);
- Coast Teatree (Leptospermum laevigatum);
- o Bracelet Honeymyrtle (Melaleuca armillaris);
- Totem-poles (Melaleuca decussata);
- Common Boobialla (Myoporum insulare);
- Water Couch (Paspalum distichum);
- Red Passionflower (Passiflora cinnabarina);
- Sweet Pittosporum (Pittosporum undulatum);
- o Pigweed (Portulaca oleracea); and
- o Lilly Pilly (Syzygium smithii).

The application of the *Native Vegetation Information Management system* (NVIM) (DELWP 2017a) and *Permitted clearing of native vegetation – Biodiversity assessment guidelines* (the 'Guidelines') (DEPI 2013) are explained further in Appendix 1.

Clause 66.02 of the planning scheme determines the role of DELWP in the assessment of native vegetation removal permit applications. If an application is referred, DELWP may make certain recommendations to the responsible authority in relation to the permit application. An application to remove native vegetation must be referred to DELWP in the following circumstances:

- Applications where the native vegetation to be removed is 0.5 hectares or more (this
  does not apply to removal of scattered trees only);
- All applications in the high risk-based pathway;
- Applications where a property vegetation plan applies to the site; and
- Applications on Crown land which is occupied or managed by the responsible authority.

#### 3.4. FFG Act

The Victorian Flora and Fauna Guarantee Act 1988 (FFG Act) lists threatened and protected species and ecological communities (DELWP 2017a, DELWP 2017b). Any removal of threatened flora species or communities (or protected flora) listed under the FFG Act from public land requires a Protected Flora Permit under the Act, obtained from DELWP.

FFG Act Protected species which have been planted with lawfully obtained stock, dead specimens and environmental weeds do not require a permit for removal under the FFG Act.

Implications under the FFG Act for the current proposal are discussed in Section 6.4.



# 4. EXISTING INFORMATION & METHODS

#### 4.1. Existing information

Existing information used for this investigation is described below.

# 4.1.1. Existing reporting and documentation

The reports, planning schemes and/or development plans below, relating to the study area were reviewed.

- Knox Planning Scheme
- 40 Mount View Road, Boronia (Boronia K-12 College): Habitat Hectares and Permit Assessment (Landserv 2014)
- Sites of Biological Significance in Knox 2nd Edition (Lorimer 2010)

#### 4.1.2. Native vegetation

Pre-1750 (pre-European settlement) vegetation mapping administered by DELWP was reviewed to determine the type of native vegetation likely to occur in the study area and surrounds. Information on Ecological Vegetation Classes (EVCs) was obtained from published EVC benchmarks. These sources included:

- Relevant EVC benchmarks for the Gippsland Plain bioregion<sup>1</sup> (DSE 2004a); and
- Biodiversity Interactive Maps (DELWP 2016a).

#### 4.2. Field methods

The field assessment was conducted on the 6<sup>th</sup> July 2017. During this assessment, the study area was surveyed on foot.

Vegetation mapping and condition scoring undertaken by Landserve in 2014 was ground-truthed using aerial photography interpretation and a hand-held GPS (accurate to approximately five metres). Particular attention was paid to the area of high-quality vegetation known as the 'Sanctuary' in the north-east corner of the property, and areas where buildings had been demolished. Variations from the 2014 mapping were noted and the details recorded.

#### 4.2.1. Native vegetation

Native vegetation is currently defined in the Victoria Planning Provisions as 'plants that are indigenous to Victoria, including trees, shrubs, herbs and grasses'. The *Biodiversity* assessment guidelines define native vegetation as belonging to two categories (DEPI 2013):

- Remnant patch; or
- Scattered trees.

<sup>&</sup>lt;sup>1</sup> A bioregion is defined as "a geographic region that captures the patterns of ecological characteristics in the landscape, providing a natural framework for recognising and responding to biodiversity values". In general bioregions reflect underlying environmental features of the landscape (DNRE 1997).



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The definitions of these categories are provided below, along with the prescribed DELWP methods to assess them.

#### Remnant patch

A remnant patch of native vegetation is either:

- An area of native vegetation where at least 25 per cent of the total perennial understorey plant cover is native; and/or
- Any area with three or more native canopy trees<sup>2</sup> where the canopy foliage cover<sup>3</sup> is at least 20 per cent of the area.

Remnant patch condition is assessed using the habitat hectare method (Parkes et al. 2003; DSE 2004b) whereby components of native vegetation (e.g. tree canopy, understorey and ground cover) are assessed against an EVC benchmark. The score effectively measures the percentage resemblance of the vegetation to its original condition.

The NVIM system (DELWP 2015) provides modelled condition scores for native vegetation to be used in certain circumstances (see Appendix 1). All wetlands mapped on DELWP's native vegetation layer are treated as a remnant patch (DEPI 2013).

The condition score assists in defining the biodiversity equivalence score of the native vegetation and the offset targets if removal of native vegetation is approved (see Appendix 1 for details of how scoring works).

#### Scattered trees

The *Biodiversity assessment guidelines* define scattered trees as a native canopy tree<sup>2</sup> that does not form part of a remnant patch of native vegetation.

Scattered trees are counted, the species identified and their DBH (diameter at breast height or 1.3 metres above ground) measured or estimated.

#### 4.3. Limitations of field assessment

The site assessment was carried out in winter. Some flora species and life-forms may be undetectable at the time of the survey or unidentifiable due to a lack of flowers or fruit. The timing of the survey and condition of vegetation was otherwise considered suitable to ascertain the extent and condition of native vegetation.

The short duration of the site assessment meant that re-mapping of native vegetation within the site was beyond the scope of the assessment. Previous mapping of vegetation within the site undertaken by Landserve (2014) was ground-truthed, with particular attention paid to the area of high-quality vegetation known as the 'Sanctuary' in the northeast corner of the property, and areas where buildings had been demolished.

Consideration of the likelihood of occurrence of species listed under the federal Environment Protection and Biodiversity Conservation (EPBC) Act 1999 and the state Flora and Fauna Guarantee (FFG) Act 1988 were beyond the scope of this assessment, except

<sup>&</sup>lt;sup>3</sup> Foliage cover is the proportion of the ground that is shaded by vegetation foliage when lit from directly above



 $<sup>^2</sup>$  A canopy tree is a reproductively mature tree that is greater than 3 metres in height and is normally found in the upper layer of the relevant vegetation type.

where flora species protected under the FFG Act were recorded during the site assessment.

These limitations were not considered to compromise the validity of the current investigation, which was designed to address the relevant policies and decision guidelines.



# **5. ASSESSMENT RESULTS**

#### 5.1. Site description

The study area for this investigation (Figure 1) was approximately eight hectares of land located at Boronia, 30 kilometres south-east of the Melbourne CBD and bordered by private residential land to the north-west, north-east, south-east and south-west, with several connections to Mount View Road along the north-east boundary.

The study area occurred on a sloping landscape associated with the foothills of the Dandenong Ranges, which occur to the south-east of the study area. Lorimer (2010) notes that the soil is loam and clay that originated from Chandlers Hill.

The study area was previously used as the Mount View campus of the Boronia K-12 college. Since the 2014 Landserve assessment was undertaken, all buildings within the study area have been demolished, although many of the concrete foundations and walkways remain. The study area is now vacant, with minor recreational use by dog-walkers and nearby residents using the oval for casual sport. Surrounding land predominantly supported residential housing.

Vegetation in the study area consisted of patches of Valley Heathy Forest (EVC 127) and Lowland Forest (EVC 16) dominated by Red Stringybark (*Eucalyptus macrorhyncha*), Messmate (*E. obliqua*), Long-leaved Box (*E. goniocalyx*) and Mealy Stringybark (*E. cephalocarpa*), including several large old trees. The species richness and structural diversity of the understorey within patches varied across the site, consistent with the use of the area when the study area was used as a school.

A large number of scattered trees and shrubs were observed within the study area. A small number of these were consistent with the canopy species identified within patches, and therefore considered to be remnant. The majority of trees and shrubs were considered to have been planted for amenity purposes associated with landscaping for the school grounds.

The study area lies within the Gippsland Plain bioregion and falls within the Port Phillip and Westernport catchment.

#### 5.2. Remnant patches

Landserve (2014) identified ten habitat zones totalling 2.628 hectares within the study area. The extent and condition scores determined by Landserve (2014) were found to accurately reflect the patches of vegetation within the study area. The demolition works were found not to have impacted any of these remnant patches. A summary of the habitat zones within the study area is provided in Table 1 below. Further descriptions of habitat zones are provided in the Landserve (2014) report.

Table 1: Summary of habitat hectare assessment results modified from Landserve 2014

Habitat Zone	EVC	Area (ha)	Condition score (out of 100)
1	Valley Heathy Forest (EVC 127)	0.086	26
2	Valley Heathy Forest (EVC 127)	0.323	42
3	Valley Heathy Forest (EVC 127)	0.158	21
4	Valley Heathy Forest (EVC 127)	0.454	21



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Habitat Zone	EVC	Area (ha)	Condition score (out of 100)
5	Valley Heathy Forest (EVC 127)	0.018	28
6	Lowland Forest (EVC 16)	0.433	22
7	Lowland Forest (EVC 16)	0.484	47
8	Valley Heathy Forest (EVC 127)	0.520	28
9	Valley Heathy Forest (EVC 127)	0.123	27
10	Valley Heathy Forest (EVC 127)	0.029	20
	Total	2.628	

#### 5.3. Scattered trees

A total of seven scattered trees were identified in the study area by Landserve (2014). These would have once comprised the canopy component of Lowland Forest (EVC 16) and Valley Heathy Forest (EVC 127). These trees were all found to persist within the study area, including ST3, around which building demolition had occurred. The location of scattered trees is shown in Figure 1. Details of the scattered trees within the study area are provided in Table 2. Further details of scattered trees are provided in the Landserve (2014) report.

Table 2: Scattered Trees recorded within the study area (as per Landserve 2014)

Number	Common name	Scientific name	DBH (cm)
ST1	Mealy Stringybark	Eucalyptus cephalocarpa	37
ST2	Mealy Stringybark	Eucalyptus cephalocarpa	58
ST3	Mealy Stringybark	Eucalyptus cephalocarpa	54
ST4	Red Stringybark	Eucalyptus macrorhyncha	15
ST5	Stag*	Eucalyptus spp.	111
ST6	Long-leaved Box	Eucalyptus goniocalyx	64
ST7	Stag*	Eucalyptus spp.	40

<sup>\*=</sup>Dead trees 40cm or greater in DBH are required to be assessed and offset

#### 5.4. Planted vegetation

Landserve (2014) identified 231 specimens (trees and shrubs) that were likely to be planted within the study area, in addition to approximately 494 plants within garden beds. A total of 261 (29 trees and shrubs, and 232 plants in garden beds) of these were found to have been removed during the building demolition works.

Therefore, 202 planted trees and shrubs, and approximately 262 plants in garden beds were found to persist within the study area.

Updated lists of planted specimens and plants within garden beds, including the legislative protections accorded to each under local and state planning policies, are included at Appendix 2 and Appendix 3, respectively.





Figure 1: Study area and native vegetation

Project: 40 MOUNT VIEW ROAD, BORONIA Client: Department of Treasury and Finance Date: 27/07/2017

- Study area
- Scattered trees
- Lowland Forest (EVC 16)
- Valley Heathy Forest (EVC 127)





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#### 6. IMPLICATIONS UNDER LEGISLATION AND POLICY

#### 6.1. Local laws and regulations

Under the Knox City Council – General Provisions Local Law 2010, a permit is required from Knox City Council to impact any declared significant tree or declared significant vegetation. Boronia Heights College is identified as a site of biological significance in LPP 21.06 of the Knox Planning Scheme and Sites of Biological Significance in Knox – 2nd Edition (Lorimer 2010). Within this document, all (remnant) native vegetation within the study area is described as significant. Therefore, a permit under the Knox City Council – General Provisions Local Law 2010 would be required for any impacts to remnant patches or scattered trees.

#### 6.2. Local planning provisions

# 6.2.1. Local Planning Policies

#### Local Planning Policy (LPP) 21.06: Environment

LPP 21.06 identifies sites of biological significance within Knox, including Boronia Heights College. Further detail of the biological significance of the site is included in *Sites of Biological Significance in Knox – 2nd Edition* (Lorimer 2010). The objectives of LPP 21.06 are implemented through the use of overlays and LPP 22.01 (see below).

# Local Planning Policy (LPP) 22.01: Dandenong Foothills

The objectives and strategies of LPP 22.01 would need to be met in any proposed development, including:

- Retention and protection of indigenous trees and understorey; and
- A minimum of 80% of all new vegetation (both canopy trees and understorey) be indigenous.

#### 6.2.2. Overlays

#### Environmental Significance Overlay - Schedule 2 (ESO2)

Under ESO2, a permit would be required to impact any remnant patches of native vegetation, any scattered trees, 27 of the planted trees and shrubs (as detailed in Appendix 2) and 156 plants in garden beds (as detailed in Appendix 3).

# Significant Landscape Overlay - Schedule 2 (SLO2)

Under SLO2, a permit would be required to remove any trees in patches, any scattered trees, 105 of the planted trees and shrubs (as detailed in Appendix 2) and approximately 150 plants in garden beds (as detailed in Appendix 3).

# 6.3. State planning provisions

Under Clause 52.17, a permit to remove vegetation would be required for any impacts to remnant patches of vegetation and any scattered trees. All native planted trees and shrubs are exempt under Clause 52.17 as vegetation that has been planted or grown for aesthetic or amenity purposes, street trees, gardens or the like.



# 6.4. FFG Act

A permit would not be required under the FFG Act, as all FFG Act protected species were planted with lawfully obtained stock.



# 7. RECOMMENDATIONS FOR THE MANAGEMENT OF THE 'SANCTUARY'

# 7.1. Description

The area known as the 'Sanctuary' occurs within the north-east corner of the study area (Figure 1) and comprises Habitat Zone 7, being the most intact and highest quality vegetation within the study area. Habitat Zone 7 supports a patch of Lowland Forest (EVC 16) with a canopy of Mealy Stringybark and Messmate, including several large old trees. The understorey included a shrub layer dominated by Cherry Ballart (*Exocarpos cupressiformis*) and a grassy ground layer including Weeping Grass (*Microlaena stipoides* var. *stipoides*) and Thatch Saw-sedge (*Gahnia radula*). Lorimer (2010) notes that within the 'Sanctuary' there are many plants that are rare or unique in Knox and some that are rare in the whole of metropolitan Melbourne. Vegetation within the 'Sanctuary' is shown in Photograph 1 and Photograph 2. The canopy of vegetation within the 'Sanctuary' is contiguous with that of the adjacent Habitat Zone 6, although the understorey of Habitat Zone 6 has been cleared for recreation purposes (Photograph 3). High-threat weeds noted within the 'Sanctuary' included Common Ivy (*Hedera helix*), Blackberry (*Rubus fruticosus* spp. agg.), Sweet Pittosporum (*Pittosporum undulatum*), Bamboo (*Phyllostachys aurea*) and Blue Periwinkle (*Vinca major*).

The entire perimeter of the 'Sanctuary' is fenced, although the fence was noted to be in a state of disrepair at two locations along the south-western edge (Photograph 4 and Photograph 5) and one location along the north-eastern edge. It appeared that the north-western edge of the 'Sanctuary' is used as a thoroughfare between Mount View Road and the study area (Photograph 6). Several items of dumped household refuse were noted during the site inspection.

#### 7.2. Management recommendations

Implementation of the following recommendations for the management of the 'Sanctuary' — Habitat Zone 7 — will serve to protect and preserve the biodiversity values of this area:

- Transfer ownership to Council;
- Management to be undertaken by Council as recommended on page 48 of Sites of Biological Significance in Knox – 2nd Edition (Lorimer 2010).
- Control high threat weeds and remove dumped refuse;
- Repair and maintain the perimeter fence to prevent unauthorised access;
- Provide a walkway along the north-western boundary;
- Manage the adjoining Habitat Zone 6 similarly for conservation (as it provides a useful buffer); and
- Work with the Knox Environment Society (or similar interest groups) to provide public education on the value of the site.





Photograph 1 and Photograph 2: Lowland Forest vegetation within the sanctuary



Photograph 3: Habitat Zone 6



Photograph 5: Fence in disrepair

Photograph 6: North-west edge used as thoroughfare



# 8. GENERAL SITE RECOMMENDATIONS

The following recommendations apply to the site more generally, and implementation will serve to protect and preserve the biodiversity values of this area:

- All mapped habitat zones and indigenous scattered trees should be retained and protected within any future development.
- Tree Protection Zones (DSE 2011) should be implemented during any construction activities;
- Rubbish removal should be undertaken;
- In addition to the high-threat weeds identified in Section 6.1, the following high-threat weed species should be controlled:
  - o Pampas Grass (Cortaderia selloana); and
  - o Mirror Bush (Coprosma repens).
- Security within the broader site should be improved to prevent removal of fallen timber.



# 9. REFERENCES

- Department of Environment and Primary Industries (DEPI) 2013, Permitted clearing of native vegetation: Biodiversity assessment guidelines (dated September 2013), Department of Environment and Primary Industries, now Department of Environment, Land, Water and Planning, East Melbourne, Victoria.
- Department of Environment, Land, Water and Planning (DELWP) 2015, *Native Vegetation Information Management system*, Department of Environment, Land, Water and Planning, East Melbourne, Victoria, viewed 4<sup>th</sup> July 2017, <a href="https://nvim.delwp.vic.gov.au/">https://nvim.delwp.vic.gov.au/</a>
- Department of Environment, Land, Water and Planning (DELWP) 2016, *Biodiversity Interactive Map 3.2*, Department of Environment, Land, Water and Planning, East Melbourne, Victoria, viewed 4<sup>th</sup> July 2017, <a href="http://mapshare2.dse.vic.gov.au/MapShare2EXT/imf.jsp?site=bim">http://mapshare2.dse.vic.gov.au/MapShare2EXT/imf.jsp?site=bim</a>.
- Department of Environment, Land, Water and Planning (DELWP) 2017a, Flora and Fauna Guarantee Threatened List May 2017, Department of Environment, Land, Water and Planning, East Melbourne, Victoria, <a href="http://www.depi.vic.gov.au">http://www.depi.vic.gov.au</a>
- Department of Environment, Land, Water and Planning (DELWP) 2017b, Flora and Fauna Guarantee Act 1988 Protected Flora List June 2017, Department of Environment, Land, Water and Planning, East Melbourne, Victoria, <a href="http://www.depi.vic.gov.au">http://www.depi.vic.gov.au</a>
- Department of Sustainability and Environment (DSE) 2004a, *Ecological Vegetation Class* (EVC) Benchmarks by Bioregion, Department of Environment, Land, Water and Planning, East Melbourne, Victoria, <a href="http://www.depi.vic.gov.au">http://www.depi.vic.gov.au</a>.
- Department of Sustainability and Environment (DSE) 2004b, *Native Vegetation:* sustaining a living landscape, Vegetation Quality Assessment Manual guidelines for applying the Habitat Hectare scoring method (Version 1.3), Department of Sustainability and Environment, now Department of Environment, Land, Water and Planning, East Melbourne, Victoria.
- Department of Sustainability and Environment (DSE) 2011, Native Vegetation Technical information sheet: Defining an acceptable distance for tree retention during construction works, Department of Sustainability and Environment, now Department of Environment, Land, Water and Planning, East Melbourne, Victoria.
- Landserve 2014, 40 Mount View Road, Boronia (Boronia K-12 College): Habitat Hectares and Permit Assessment, consultant report prepared for Department of Education and Early Childhood Development.
- Lorimer GS 2010, Sites of Biological Significance in Knox, Second Edition: Volume 2, consultant report prepared for Knox City Council.



# Appendix 1: Details of the Guidelines assessment process

#### Native Vegetation Information Management system (NVIM)

The online Native Vegetation Information Management system (NVIM) is an interactive mapping tool, which provides some of the information required to accompany a permit to remove native vegetation. It does not replace the application process.

The information provided by NVIM can include the following (described in more detail below):

- The location risk of the native vegetation;
- The condition of the native vegetation used for the low-risk assessment pathway only;
- The strategic biodiversity score of the native vegetation proposed to be removed; and
- The native vegetation offset requirement used for the low risk assessment pathway only.

#### Biodiversity assessment guidelines

## <u>Guidelines objective</u>

As set out in *Permitted clearing of native vegetation – Biodiversity assessment guidelines* ('the Guidelines') the objective for permitted clearing of native vegetation in Victoria is 'No net loss in the contribution made by native vegetation to Victoria's biodiversity'. The key strategies for ensuring this outcome when considering an application to remove native vegetation are:

- Avoiding the removal of native vegetation that makes a significant contribution to Victoria's biodiversity;
- Minimising impacts on Victoria's biodiversity from the removal of native vegetation; and
- Where native vegetation is permitted to be removed, ensuring it is offset in a manner that makes an equivalent contribution to Victoria's biodiversity made by the native vegetation to be removed.

**Note:** if native vegetation does not meet the definition of either a remnant patch or scattered trees, the Guidelines are not required to be applied.

#### Risk-based assessment pathways

The first step in determining the type of assessment required for any site in Victoria is to determine the risk to biodiversity associated with the proposed native vegetation removal and therefore the risk-based assessment pathway for the proposed native vegetation removal. There are three risk-based pathways for assessing an application to remove native vegetation, below.

- Low risk
- Moderate risk
- High risk

This risk-based assessment pathway is determined by two factors, outlined below.

**Extent risk** – the area in hectares proposed to be removed *or* the number of scattered trees. *Note:* extent risk also includes any native vegetation clearing for which permission has been granted in the last five years.



**Location risk** – the likelihood that removing native vegetation in a location will have an impact on the persistence of a rare or threatened species classified into three categories: Location A, Location B and Location C.

The risk-based pathway for assessing an application to remove native vegetation is determined by the following matrices for remnant patches and scattered trees:

Extent (remnant patches)	Location A	Location B	Location C
< 0.5 hectares	Low	Low	High
≥ 0.5 hectares and < 1 hectare	Low	Moderate	High
≥ 1 hectare	Moderate	High	High
Extent (scattered trees)	Location A	Location B	Location C
< 15 scattered trees	Low	Moderate	High
≥ 15 scattered trees	Moderate	High	High

All native vegetation within any subdivision plot of less than 0.4 hectares is deemed to be lost; For applications with combined removal of both remnant patch and scattered trees, the extent of the scattered trees is converted to an area by assigning a standard area of 0.070 hectares per tree – the total extent is then used to determine the risk-based pathway.

The presence of any Location B or Location C risk categories within an area of proposed native vegetation removal means this whole area of removal is considered to belong to that category for the purpose of determining the risk-based assessment pathway.

# Strategic biodiversity score

The strategic biodiversity score generated by NVIM acts as a measure of the site's importance for Victoria's biodiversity relative to other locations across the landscape. It is calculated based on a weighted average of scores across an area of native vegetation proposed for removal on a site.

#### Habitat importance

Habitat importance mapping produced by DELWP is based on one or a combination of habitat importance models, habitat distribution models or site record data. It identifies the following:

- Habitat importance for dispersed species based on habitat distribution models and assigned a habitat importance score ranging from 0 to 1; and
- Highly localised habitats considered to be equally important for a particular species and assigned a habitat importance score of 1.

Habitat importance mapping is used to determine the type of offset required under the moderate and high risk assessment pathways.

#### Biodiversity equivalence



Biodiversity equivalence scores are used to quantify losses in the contribution to Victoria's biodiversity from removing native vegetation and gains in this contribution from a native vegetation offset.

There are two types of biodiversity equivalence scores depending on whether or not the site makes a contribution to the habitat of a Victorian rare or threatened species.

A general biodiversity equivalence score is a measure of the contribution native vegetation on a site makes to Victoria's biodiversity overall and applies when no habitat importance scores are applicable according to the equation:

General biodiversity equivalence score = habitat hectares x strategic biodiversity score

 A specific biodiversity equivalence score is a measure of the contribution that native vegetation on a site makes to the habitat of a particular rare or threatened species – calculated for each such species for which the site provides important habitat (using habitat importance scores provided by DELWP) according to the equation:

Specific biodiversity equivalence score = habitat hectares x habitat importance score

#### Offset requirements

A native vegetation offset is required for the approved removal of native vegetation. Offsets conform to one of two types and each type incorporates a risk factor to address the risk of offset failing:

 A general offset applies if the removal of native vegetation impacts Victoria's overall biodiversity and has an offset risk factor of 1.5 applied according to the equation:

General risk-adjusted offset requirement = general biodiversity equivalence score (clearing site) x 1.5

A specific offset applies if the native vegetation makes a significant impact to habitat for a rare or threatened species determined by a specific-general offset test. It applies to each species impacted and has an offset risk factor of 2 applied according to the equation:

Specific risk-adjusted offset requirement = specific biodiversity equivalence score (clearing site) x 2

**Note:** if native vegetation does not meet the definition of either a remnant patch or scattered trees an offset is not required.



# Summary of the Guidelines assessment process

Decision guidelines	Offset requirements
Low-risk assessment pathway	
An application for removal cannot be refused on biodiversity grounds (unless it is not in accordance with any property vegetation plan that applies to the site).  Note: this guideline also applies to native vegetation that does not meet the definition of either a remnant patch or scattered trees.	<ul> <li>General offset applies:</li> <li>General offset = general biodiversity equivalence score (clearing site) x 1.5</li> <li>Offset must be located in the same CMA^ or Local Government Area as the removal</li> <li>Offset must have a strategic biodiversity score at least 80% of the native vegetation removed</li> <li>Offsets must be secured before the removal of native vegetation.</li> </ul>
Moderate-risk assessment pathway	
The responsible authority will consider:  The strategic biodiversity score and habitat importance score of the native vegetation proposed to be removed	If the proportional impact on modelled habitat for a rare or threatened species is above a predetermined threshold, a specific offset applies for that species:
<ul> <li>Any property vegetation plan that applies to the site</li> </ul>	<ul> <li>Specific offset = specific biodiversity equivalence score (clearing site) x 2</li> </ul>
Whether reasonable steps have been taken to ensure that impacts of the proposed removal of native vegetation on biodiversity have been minimised with regard to the contribution to biodiversity made by the native vegetation to be removed and the native vegetation to be retained	Offset must be located in the same species habitat anywhere in Victoria as determined by DELWP habitat importance mapping
<ul> <li>Whether an offset has been identified that meets the requirements</li> </ul>	General offsets apply where the specific offset threshold is not exceeded.
<ul> <li>The need to remove native vegetation to create defendable space to reduce the risk of bushfire</li> </ul>	Offsets must be secured before the removal of native vegetation.



High-risk assessment pathway	
In addition to the considerations for the moderate pathway the responsible authority will determine whether the native vegetation to be removed makes a significant contribution to Victoria's biodiversity. This includes considering:	
<ul> <li>Impacts on important habitat for rare or threatened species, particularly highly localised habitat</li> </ul>	As for the moderate pathway
Proportional impacts on remaining habitat for rare or threatened species	76 for the moderate pathway
<ul> <li>If the removal of the native vegetation will contribute to a cumulative impact that is a significant threat to the persistence of a rare or threatened species</li> </ul>	
The availability of, and potential for, gain from offsets	

<sup>\*</sup> Habitat hectares = condition score (out of 1) x extent (hectares)

**Note:** All applications must provide information about the vegetation to be removed such as location and address of the property, description of the vegetation, maps and recent dated photographs.



<sup>^</sup> Catchment Management Authority

Appendix 2: Planted specimens (trees and shrubs) in the study area and legislative protection afforded to them updated from Landserve 2014

No	Common nome	Scientific name	Permit requirements				Cita Ouizin
No	Common name	Scientific name	FFG Act1	Clause 52.17	ES02	SL02	Site Origin
1	Yellow Gum	Eucalyptus leucoxylon	No	No	No	Yes	Likely planted non- indigenous
2	Flowering Gum	Corymbia ficifolia	No	No	No	Yes	Likely planted non- indigenous
3	Yellow Gum	Eucalyptus leucoxylon	No	No	No	Yes	Likely planted non- indigenous
4	Yellow Gum	Eucalyptus leucoxylon	No	No	No	Yes	Likely planted non- indigenous
5	Yellow Gum	Eucalyptus leucoxylon	No	No	No	Yes	Likely planted non- indigenous
6	Yellow Gum	Eucalyptus leucoxylon	No	No	No	Yes	Likely planted non- indigenous
7	Cherry Plum	Prunus cerasifera	No	No	No	No	Likely planted exotic
8	Japanese Cherry	Prunus serrulata	No	No	No	Yes	Likely planted exotic
9	Japanese Cherry	Prunus serrulata	No	No	No	Yes	Likely planted exotic
10	Cherry Plum	Prunus cerasifera	No	No	No	No	Likely planted exotic
11	Large-leaf Cotoneaster	Cotoneaster glaucophyllus var. serotinus	No	No	No	No	Likely planted exotic
12	Cherry Plum	Prunus cerasifera	No	No	No	No	Likely planted exotic
13	Cherry Plum	Prunus cerasifera	No	No	No	No	Likely planted exotic
14	Cherry Plum	Prunus cerasifera	No	No	No	No	Likely planted exotic
15	White Sallow-wattle	Acacia floribunda	No	No	No	No	Likely planted non- indigenous
16	Prickly Paperbark	Melaleuca styphelioides	No	No	No	Yes	Likely planted non- indigenous
17	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
19	Cherry Plum	Prunus cerasifera	No	No	No	No	Other - exotic



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No	Common name	Scientific name	FFG Act <sup>1</sup>	Clause 52.17	ES02	SL02	Site Origin
26	Prickly Paperbark	Melaleuca styphelioides	No	No	No	Yes	Likely planted non- indigenous
51	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
67	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
68	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
72	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
88	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
89	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
94	Cherry Plum	Prunus cerasifera	No	No	No	No	Other - exotic
95	Cherry Plum	Prunus cerasifera	No	No	No	No	Other - exotic
110	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
111	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
112	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
124	Large-leaf Cotoneaster	Cotoneaster glaucophyllus var. serotinus	No	No	No	No	Other - exotic
128		Unknown species	No	No	Yes	Yes	Other - unknown
129	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
133	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
139	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
142	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
143	Cherry Plum	Prunus cerasifera	No	No	No	No	Other - exotic
146	Cootamundra Wattle	Acacia baileyana	No	No	No	No	Other - non-indigenous
148	Cootamundra Wattle	Acacia baileyana	No	No	No	No	Other - non-indigenous
157	Lemon-scented Gum	Corymbia citriodora subsp. citriodora	No	No	No	Yes	Likely planted non- indigenous
161	Lemon-scented Gum	Corymbia citriodora subsp. citriodora	No	No	No	Yes	Likely planted non- indigenous
166	Prickly Paperbark	Melaleuca styphelioides	No	No	No	Yes	Likely planted non- indigenous



NIa	0	Scientific name	Permit requirements				Oite Outsta
No	Common name		FFG Act1	Clause 52.17	ES02	SL02	Site Origin
173	Burdett's Gum	Eucalyptus burdettiana	No	No	No	Yes	Likely planted non- indigenous
176	Yellow Gum	Eucalyptus leucoxylon	No	No	No	Yes	Likely planted non- indigenous
177	Narrow-leaved Black Peppermint	Eucalyptus nicholii	No	No	No	Yes	Likely planted non- indigenous
178	Silky Oak	Grevillea robusta	No	No	No	Yes	Likely planted non- indigenous
179	Narrow-leaved Black Peppermint	Eucalyptus nicholii	No	No	No	Yes	Likely planted non- indigenous
180	Narrow-leaved Black Peppermint	Eucalyptus nicholii	No	No	No	Yes	Likely planted non- indigenous
182	Prickly Paperbark	Melaleuca styphelioides	No	No	No	Yes	Likely planted non- indigenous
183	Narrow-leaved Black Peppermint	Eucalyptus nicholii	No	No	No	Yes	Likely planted non- indigenous
184	Silky Oak	Grevillea robusta	No	No	No	Yes	Likely planted non- indigenous
185	Narrow-leaved Black Peppermint	Eucalyptus nicholii	No	No	No	Yes	Likely planted non- indigenous
186	Narrow-leaved Black Peppermint	Eucalyptus nicholii	No	No	No	Yes	Likely planted non- indigenous
187	Black Wattle	Acacia mearnsii	No	No	Yes	Yes	Likely planted indigenous
188	Swamp Gum	Eucalyptus ovata	No	No	Yes	Yes	Likely planted indigenous
189	Spotted Gum	Corymbia maculata	No	No	No	Yes	Likely planted non- indigenous
190	Silky Oak	Grevillea robusta	No	No	No	Yes	Likely planted non- indigenous



NIa	0	Common nama Sajantifia nama	Permit requirements				Cito Ovisio
No	Common name	Scientific name	FFG Act <sup>1</sup>	Clause 52.17	ES02	SL02	Site Origin
192	Lemon-scented Gum	Corymbia citriodora subsp. citriodora	No	No	No	Yes	Likely planted non- indigenous
194	Prickly Paperbark	Melaleuca styphelioides	No	No	No	Yes	Likely planted non- indigenous
195	Smooth-barked Apple	Angophora costata subsp. costata	No	No	No	Yes	Likely planted non- indigenous
196	Giant Honey-myrtle	Melaleuca armillaris subsp. armillaris	No	No	No	No	Likely planted non- indigenous
197	Spotted Gum	Corymbia maculata	No	No	No	Yes	Likely planted non- indigenous
198	Bushy Sugar Gum	Eucalyptus cladocalyx 'Nana'	No	No	No	Yes	Likely planted non- indigenous
199	Bushy Sugar Gum	Eucalyptus cladocalyx 'Nana'	No	No	No	Yes	Likely planted non- indigenous
200	Black Wattle	Acacia mearnsii	No	No	Yes	Yes	Likely planted indigenous
201	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Likely planted non- indigenous
202	Lemon-scented Gum	Corymbia citriodora subsp. citriodora	No	No	No	Yes	Likely planted non- indigenous
203	Aleppo Pine	Pinus halepensis	No	No	No	Yes	Likely planted exotic
204	Black Sheoak	Allocasuarina littoralis	No	No	Yes	Yes	Likely planted indigenous
205	Silver Wattle	Acacia dealbata	No	No	Yes	Yes	Likely planted indigenous
206	Black Wattle	Acacia mearnsii	No	No	Yes	Yes	Likely planted indigenous
207	Black Wattle	Acacia mearnsii	No	No	Yes	Yes	Likely planted indigenous



Nic	0	Colombilio nomo		Permit requireme	ents		Sito Origin
No	Common name	Scientific name	FFG Act <sup>1</sup>	Clause 52.17	ES02	SL02	Site Origin
208	Giant Honey-myrtle	Melaleuca armillaris subsp. armillaris	No	No	No	No	Likely planted non- indigenous
209	Black Wattle	Acacia mearnsii	No	No	Yes	Yes	Likely planted indigenous
210	Black Wattle	Acacia mearnsii	No	No	Yes	Yes	Likely planted indigenous
211	Lemon-scented Gum	Corymbia citriodora subsp. citriodora	No	No	No	Yes	Likely planted non- indigenous
212	Silver Wattle	Acacia dealbata	No	No	Yes	Yes	Likely planted indigenous
213	Black Wattle	Acacia mearnsii	No	No	Yes	Yes	Likely planted indigenous
214	Lemon-scented Gum	Corymbia citriodora subsp. citriodora	No	No	No	Yes	Likely planted non- indigenous
215	Lemon-scented Gum	Corymbia citriodora subsp. citriodora	No	No	No	Yes	Likely planted non- indigenous
216	Black Wattle	Acacia mearnsii	No	No	Yes	Yes	Likely planted indigenous
217	Bushy Sugar Gum	Eucalyptus cladocalyx 'Nana'	No	No	No	Yes	Likely planted non- indigenous
218	Black Wattle	Acacia mearnsii	No	No	Yes	Yes	Likely planted indigenous
219	Mugga	Eucalyptus sideroxylon subsp. sideroxylon	No	No	No	Yes	Likely planted non- indigenous
220	Black Wattle	Acacia mearnsii	No	No	Yes	Yes	Likely planted indigenous
221	Black Wattle	Acacia mearnsii	No	No	Yes Yes		Likely planted indigenous
222	Black Wattle	Acacia mearnsii	No	No	Yes	Yes	Likely planted indigenous



NI	<u></u>	Ociontifia nome		Permit requireme	ents		Oite Outsin
No	Common name	Scientific name	FFG Act <sup>1</sup>	Clause 52.17	ES02	SL02	Site Origin
223	Black Wattle	Acacia mearnsii	No	No	Yes	Yes	Likely planted indigenous
224	Black Wattle	Acacia mearnsii	No	No	Yes	Yes	Likely planted indigenous
225	Prickly Paperbark	Melaleuca styphelioides	No	No	No	Yes	Likely planted non- indigenous
226	Silky Oak	Grevillea robusta	No	No	No	Yes	Likely planted non- indigenous
227	Lemon-scented Gum	Corymbia citriodora subsp. citriodora	No	No	No	Yes	Likely planted non- indigenous
228	Magenta Cherry	Syzygium paniculatum	No	No	No	Yes	Likely planted non- indigenous
229	Prickly Paperbark	Melaleuca styphelioides	No	No	No	Yes	Likely planted non- indigenous
230	Large-leaf Privet	Ligustrum lucidum	igustrum lucidum No		No	No	Likely planted exotic
231	Large-leaf Privet	Ligustrum lucidum	No	No	No	No	Likely planted exotic
239	Oyster Bay Pine	Callitris rhomboidea	No	No	No	Yes	Likely planted non- indigenous
240	Box-elder Maple	Acer negundo	No	No	No	No	Likely planted exotic
256	Flowering Gum	Corymbia ficifolia	No	No	No	Yes	Likely planted non- indigenous
262	River Red-gum	Eucalyptus camaldulensis	No	No	Yes	Yes	Likely planted indigenous
263	Coast Banksia	Banksia integrifolia subsp. Integrifolia	No	No	No	Yes	Likely planted non- indigenous
267	Yellow Gum	Eucalyptus leucoxylon	No	No	No	Yes	Likely planted non- indigenous
268	Paulownia	Paulownia tomentosa	No	No	No	Yes	Likely planted exotic
270	Michelia	Michelia spp.	No	No	No	Yes	Likely planted exotic
284	Large-leaf Cotoneaster	Cotoneaster glaucophyllus var. serotinus	No	No	No	No	Other - exotic



		2:		Permit requireme	ents		011 0 1 4
No	Common name	Scientific name	FFG Act1	Clause 52.17	ES02	SL02	Site Origin
287	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
288	Box-elder Maple	Acer negundo	No	No	No	No	Likely planted exotic
289	Illawarra flame-tree	Brachychiton acerifolius	No	No	No	Yes	Likely planted non- indigenous
291	Spotted Gum	Corymbia maculata	No	No	No	Yes	Likely planted non- indigenous
293	Cherry Plum	Prunus cerasifera	No	No	No	No	Likely planted exotic
294	Apple	Malus spp.	No	No	No	No	Likely planted exotic
298	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
307	Lemon-scented Gum	Corymbia citriodora subsp. citriodora	No	No	No	Yes	Likely planted non- indigenous
308	Weeping Bottlebrush	Callistemon viminalis	No	No	No	Yes	Likely planted non- indigenous
309	Willow-leaf Hakea	Hakea salicifolia subsp. salicifolia	No	No	No	No	Likely planted non- indigenous
310	Willow-leaf Hakea	Hakea salicifolia subsp. salicifolia	No	No	No	No	Likely planted non- indigenous
311	Ovens Wattle	Acacia pravissima	No	No	No	Yes	Likely planted non- indigenous
313	Loquat	Eriobotrya japonica	No	No	No	No	Likely planted exotic
314	Apple	Malus spp.	No	No	No	No	Likely planted exotic
316	Box-elder Maple	Acer negundo	No	No	No	No	Likely planted exotic
326	Black Wattle	Acacia mearnsii	No	No	Yes	Yes	Likely planted indigenous
327	Black Wattle	Acacia mearnsii	No	No	Yes	Yes	Likely planted indigenous
328	Lemon-scented Gum	Corymbia citriodora subsp. citriodora	No	No	No Yes		Likely planted non- indigenous
329	Black Wattle	Acacia mearnsii	No	No	Yes	Yes	Likely planted indigenous



NI.	0	0.1		Permit requireme		Otto Outsta	
No	Common name	Scientific name	FFG Act <sup>1</sup>	Clause 52.17	ES02	SL02	Site Origin
395	Cherry Plum	Prunus cerasifera	No	No	No	No	Other - exotic
401	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
471	Blackwood	Acacia melanoxylon	No	No	Yes	Yes	Likely planted indigenous
476	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
491	Cherry Plum	Prunus cerasifera	runus cerasifera No No No No		No	Other - exotic	
493	Cherry Plum	Prunus cerasifera	sifera No No No No C		Other - exotic		
520	Giant Honey-myrtle	Melaleuca armillaris subsp. armillaris	No	No	No	No	Likely planted non- indigenous
525	Giant Honey-myrtle	Melaleuca armillaris subsp. armillaris	No	No	No	No	Likely planted non- indigenous
526	Giant Honey-myrtle	Melaleuca armillaris subsp. armillaris	No	No	No	No	Likely planted non- indigenous
527	Giant Honey-myrtle	Melaleuca armillaris subsp. armillaris	Melaleuca armillaris subsp. armillaris No No No No		No	Likely planted non- indigenous	
528	Yellow Gum	Eucalyptus leucoxylon	No	No	No	Yes	Likely planted non- indigenous
534	Giant Honey-myrtle	Melaleuca armillaris subsp. armillaris	No	No	No	No	Likely planted non- indigenous
535	River Oak	Casuarina cunninghamiana subsp. cunninghamiana	No	No	No	Yes	Likely planted non- indigenous
536	River Oak	Casuarina cunninghamiana subsp. cunninghamiana	No	No	No	Yes	Likely planted non- indigenous
537	Giant Honey-myrtle	Melaleuca armillaris subsp. armillaris	No	No	No	No	Likely planted non- indigenous
538	Giant Honey-myrtle	Melaleuca armillaris subsp. armillaris	No	No	No	No	Likely planted non- indigenous
539	Yellow Gum	Eucalyptus leucoxylon	No	No	No	Yes	Likely planted non- indigenous



NI.	<b>2</b>	0.1		Permit requireme	ents		Otto Octobr
No	Common name	Scientific name	FFG Act1	Clause 52.17	ES02	SL02	Site Origin
540	Yellow Gum	Eucalyptus leucoxylon	No	No	No	Yes	Likely planted non- indigenous
541	Cherry Plum	Prunus cerasifera	No	No	No	No	Likely planted exotic
543	Blackwood	Acacia melanoxylon	No	No	Yes	Yes	Likely planted indigenous
544	Radiata Pine	Pinus radiata	No	No	No	No	Likely planted exotic
545	River Oak	Casuarina cunninghamiana subsp. cunninghamiana	No	No	No Yes		Likely planted non- indigenous
546	River Oak	Casuarina cunninghamiana subsp. cunninghamiana	No	No	No	Yes	Likely planted non- indigenous
547	Radiata Pine	Pinus radiata	No	No	No	No	Likely planted exotic
548	Radiata Pine	Pinus radiata	No	No	No	No	Likely planted exotic
549	Cherry Plum	Prunus cerasifera	No	No	No	No	Likely planted exotic
550	Yellow Gum	Eucalyptus leucoxylon	No	No	No	Yes	Likely planted non- indigenous
551	River Oak	Casuarina cunninghamiana subsp. cunninghamiana	No	No	No	Yes	Likely planted non- indigenous
552	Yellow Gum	Eucalyptus leucoxylon	No	No	No	Yes	Likely planted non- indigenous
553	Yellow Gum	Eucalyptus leucoxylon	No	No	No	Yes	Likely planted non- indigenous
554	Cherry Plum	Prunus cerasifera	No	No	No	No	Likely planted exotic
555	Cherry Plum	Prunus cerasifera	No	No	No	No	Likely planted exotic
556	River Oak	Casuarina cunninghamiana subsp. cunninghamiana			No	Yes	Likely planted non- indigenous
557	Yellow Gum	Eucalyptus leucoxylon	xylon No No		No	Yes	Likely planted non- indigenous
558	Giant Honey-myrtle	Melaleuca armillaris subsp. armillaris	No	No	No	No	Likely planted non- indigenous



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No	Common name	Scientific name	FFG Act1	Clause 52.17	ES02	SL02	Site Origin
561	Giant Honey-myrtle	Melaleuca armillaris subsp. armillaris	No	No	No	No	Likely planted non- indigenous
562	Giant Honey-myrtle	Melaleuca armillaris subsp. armillaris	No	No	No	No	Likely planted non- indigenous
563	Giant Honey-myrtle	Melaleuca armillaris subsp. armillaris	No	No	No	No	Likely planted non- indigenous
564	Giant Honey-myrtle	Melaleuca armillaris subsp. armillaris	No	No	No	No	Likely planted non- indigenous
565	Giant Honey-myrtle	Melaleuca armillaris subsp. armillaris	No	No	No	No	Likely planted non- indigenous
567	Giant Honey-myrtle	Melaleuca armillaris subsp. armillaris	No	No	No	No	Likely planted non- indigenous
620	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
636	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
637	Cherry Plum	Prunus cerasifera	No	No	No	No	Other - exotic
687	Large-leaf Privet	Ligustrum lucidum	No	No	No	No	Other - exotic
694	Cootamundra Wattle	Acacia baileyana	No	No	No	No	Other - non-indigenous
843	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
858	Large-leaf Privet	Ligustrum lucidum	No	No	No	No	Other - exotic
860	Cherry Plum	Prunus cerasifera	No	No	No	No	Other - exotic
861	Large-leaf Privet	Ligustrum lucidum	No	No	No	No	Other - exotic
862	Cherry Plum	Prunus cerasifera	No	No	No	No	Other - exotic
879	Magenta Cherry	Syzygium paniculatum	No	No	No	Yes	Other - non-indigenous
880	Large-leaf Privet	Ligustrum lucidum	No	No	No	No	Other - exotic
881	New Zealand Cabbage- tree	Cordyline australis	No	No	No	Yes	Other - exotic
882	Large-leaf Privet	Ligustrum lucidum	No	No	No	No	Other - exotic
883	Large-leaf Privet	Ligustrum lucidum	No	No	No	No	Other - exotic
884	Large-leaf Privet	Ligustrum lucidum	No	No	No	No	Other - exotic



No	<u></u>	Onlandifia nama		Permit requireme	ents		Otto Outeto
No	Common name	Scientific name	FFG Act <sup>1</sup>	Clause 52.17	ES02	SL02	Site Origin
885	Large-leaf Privet	Ligustrum lucidum	No	No	No	No	Other - exotic
886	Large-leaf Privet	Ligustrum lucidum	No	No	No	No	Other - exotic
887	Large-leaf Privet	Ligustrum lucidum	No	No	No	No	Other - exotic
888	Large-leaf Cotoneaster	Cotoneaster glaucophyllus var. serotinus	No	No	No	No	Other - exotic
889	Lilly Pilly	Syzygium smithii	No	No	No	Yes	Other - non-indigenous
890	Magenta Cherry	Syzygium paniculatum	No	No	No	Yes	Other - non-indigenous
910	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
911	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
918	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
944	Large-leaf Privet	Ligustrum lucidum	No	No	No	No	Other - exotic
948	Large-leaf Privet	Ligustrum lucidum	No	No	No	No	Other - exotic
959	Sweet Pittosporum	Pittosporum undulatum	No	No	No	No	Other - non-indigenous
968	Crimson Bottlebrush	Callistemon citrinus	No	No	No	Yes	Likely planted non- indigenous
969	Coast Tea-tree	Leptospermum laevigatum	No	No	No	Yes	Likely planted non- indigenous
970	Scented Paperbark	Melaleuca squarrosa	No	No	Yes	Yes	Likely planted indigenous
971	Common Correa	Correa reflexa	No	No	Yes	Yes	Likely planted indigenous
974	White Sallow-wattle	Acacia floribunda	No	No	No	No	Likely planted non- indigenous
975	Bottlebrush	Callistemon spp.	No	No	No	Yes	Likely planted non- indigenous
976		Unknown species	No	No	No	Yes	Likely planted exotic
977		Unknown species	No	No	No	Yes	Likely planted exotic
979	Box-elder Maple	Acer negundo	No	No	No	No	Likely planted exotic

<sup>&</sup>lt;sup>1</sup>FFG Act Protected species which have been planted with lawfully obtained stock, dead specimens and environmental weeds do not require a permit for removal under the FFG Act.



Appendix 3: Planted specimens within garden beds in the study area and legislative protection afforded to them updated from Landserve 2014

Candan kad ID	No. of plants	<b>2</b>	0-1		Permi	t requireme	ents
Garden bed ID	observed <sup>1</sup>	Common name	Scientific name	FFG ACT <sup>2</sup>	Clause 52.17	ES02 <sup>3</sup>	SL02
GB1	1	Cinnamon Wattle	Acacia leprosa s.l.	No	No	Yes	No
GB1	1	Flax Lily	Dianella spp.	No	No	Yes	No
GB1	2	Correa	Correa spp.	No	No	Yes	No
GB1	2	Honey-myrtle	Melaleuca spp.	No	No	Yes	No
GB1	2	Dusty Miller	Spyridium parvifolium	No	No	Yes	No
GB1	4	Sheoak	Allocasuarina spp.	No	No	Yes	No
GB1	4	Austral Indigo	Indigofera australis	No	No	Yes	No
GB1	4	Prickly Tea-tree	Leptospermum continentale	No	No	Yes	No
GB1	6	Sweet Bursaria	Bursaria spinosa	No	No	Yes	No
GB1	6	Hop Goodenia	Goodenia ovata	No	No	Yes	No
GB1	12	Baeckea	Baeckea spp.	No	No	Yes	No
GB3	1	Sheoak	Allocasuarina spp.	No	No	Yes	Yes
GB3	1	Hop Goodenia	Goodenia ovata	No	No	Yes	No
GB3	1	Thryptomene	Thryptomene spp.	No	No	Yes	No
GB3	1	Cootamundra Wattle	Acacia baileyana	No	No	No	No
GB3	1	Coast Banksia	Banksia integrifolia subsp. Integrifolia	No	No	No	Yes
GB3	1	Green Honey-myrtle	Melaleuca diosmifolia	No	No	No	Yes
GB3	1	Unknown species		No	No	na	Yes
GB3	1	Unknown species		No	No	na	Yes
GB3	2	Silky Oak	Grevillea robusta	No	No	No	Yes (2 plants)
GB3	2	Ovens Wattle	Acacia pravissima	No	No	No	Yes
GB3	2	Hairpin Banksia	Banksia spinulosa var. cunninghamii	No	No	No	Yes



0 1 1 115	No. of plants		0 1 1/6		Permi	t requireme	rements		
Garden bed ID	observed <sup>1</sup>	Common name	Scientific name	FFG ACT <sup>2</sup>	Clause 52.17	ESO2 <sup>3</sup>	SL02		
GB3	2	Silky Grevillea	Grevillea sericea subsp. sericea	No	No	No	Yes		
GB3	2	Black Sheoak	Allocasuarina littoralis	No	No	Yes	Yes (1 plant)		
GB3	2	Bushy Sugar Gum	Eucalyptus cladocalyx 'Nana'	No	No	No	Yes (2 plants)		
GB3	3	Prickly Tea-tree	Leptospermum continentale	No	No	Yes	Yes		
GB3	3	Honey-myrtle	Melaleuca spp.	No	No	Yes	Yes		
GB3	3	Wattle	Acacia spp. (dead)	No	No	Yes	Yes		
GB3	3	Common Cassinia	Cassinia aculeata subsp. aculeata	No	No	Yes	Yes		
GB3	3	Cherry Ballart	Exocarpos cupressiformis	No	No	Yes	Yes		
GB3	3	Weeping Bottlebrush	Callistemon viminalis	No	No	No	Yes		
GB3	4	Hop Wattle	Acacia stricta	No	No	Yes	Yes		
GB3	4	Black Wattle	Acacia mearnsii	No	No	Yes	Yes		
GB3	5	Chef's Cap Correa	Correa baeuerlenii	No	No	No	Yes		
GB3	5	Giant Honey-myrtle	Melaleuca armillaris subsp. armillaris	No	No	No	No		
GB3	5	Prickly Paperbark	Melaleuca styphelioides	No	No	No	Yes		
GB3	5	Blackwood	Acacia melanoxylon	No	No	Yes	Yes		
GB3	6	Lemon-scented Gum	Corymbia citriodora subsp. Citriodora	No	No	No	Yes (5 plants)		
GB3	11	Willow-leaf Hakea	Hakea salicifolia subsp. Salicifolia	No	No	No	No		
GB3	15	Hedge Wattle	Acacia paradoxa	No	No	Yes	Yes (at least 2 plants)		
GB3	29	Silver Wattle	Acacia dealbata	No	No	Yes	Yes - although some specimens may be		



Condon had ID	No. of plants	0	Opinatifia mana		Permi	t requireme	ents
Garden bed ID	observed <sup>1</sup>	Common name	Scientific name	FFG ACT <sup>2</sup>	Clause 52.17	ES02 <sup>3</sup>	SL02
							exempt due to trunk size or height
GB3	29	Burgan	Kunzea ericoides spp. agg.	No	No	Yes	Yes (at least 3 plants)
GB9a	1	Sweet Bursaria	Bursaria spinosa	No	No	Yes	No
GB9a	1	Glossy Abelia	Abelia X grandiflora	No	No	No	Yes
GB9a	1	Weeping Bottlebrush	Callistemon viminalis	No	No	No	Yes
GB9a	1	Pink Diosma	Coleonema pulchellum	No	No	No	Yes
GB9a	1	Sweet Briar	Rosa rubiginosa	No	No	No	Yes
GB9a	1	Coast Rosemary	Westringia fruticosa	No	No	No	Yes
GB9a	1	Rosemary Grevillea	Grevillea rosmarinifolia	No	No	No	Yes
GB9a	1	Sweet Briar	Rosa rubiginosa	No	No	No	Yes
GB9a	2	Velvet Cotoneaster	Cotoneaster pannosus	No	No	No	No
GB9a	3	Grey-leaved Euryops	Euryops pectinatus	No	No	No	Yes
GB9a	3	Fuchsia	Fuchsia magellanica	No	No	No	Yes
GB9a	4	Boneseeds	Euryops chrysanthemoides	No	No	No	Yes
GB9a	8	Grey-leaved Euryops	Euryops pectinatus	No	No	No	Yes
GB9b	1	Sweet Bursaria	Bursaria spinosa	No	No	Yes	No
GB9b	1	Weeping Bottlebrush	Callistemon viminalis	No	No	No	Yes
GB9b	1	Flowering Gum	Corymbia ficifolia	No	No	No	Yes
GB9b	1	Velvet Cotoneaster	Cotoneaster pannosus	No	No	No	No
GB9b	1	Cherry Plum	Prunus cerasifera	No	No	No	No
GB9b	3	Pink Diosma	Coleonema pulchellum	No	No	No	Yes
GB9c	1	Montpellier Broom	Genista monspessulana	No	No	No	Yes
GB9c	3	Sweet Briar	Rosa rubiginosa	No	No	No	Yes



Garden bed ID	No. of plants	Common nome	Cajantifia nama		ents		
Garden bed ib	observed <sup>1</sup>	Common name	Scientific name	FFG ACT <sup>2</sup>	Clause 52.17	ES02 <sup>3</sup>	SL02
GB9d	Approx. 15 plants	Pink Diosma	Coleonema pulchellum	No	No	No	Yes - although some specimens may be exempt due to trunk size or height
GB12	1	Silver Wattle	Acacia dealbata	No	No	Yes	Yes
GB12	1	Ovens Wattle	Acacia pravissima	No	No	No	Yes
GB12	1	Weeping Bottlebrush	Callistemon viminalis	No	No	No	Yes
GB12	1	Cherry Plum	Prunus cerasifera	No	No	No	No
GB12	1	Sweet Briar	Rosa rubiginosa	No	No	No	No
GB12	1	Showy Honey-myrtle	Melaleuca nesophila	No	No	No	Yes
GB12	1	Unknown species		No	No	na	Yes

<sup>&</sup>lt;sup>1</sup> As per Landserv (2014), where the number of plants recorded is 'multiple plants' a nominal figure of 5 plants was used to calculate the total number of specimens impacted.



<sup>&</sup>lt;sup>2</sup> FFG Act Protected species which have been planted with lawfully obtained stock do not require a permit for removal under the FFG Act.

<sup>&</sup>lt;sup>3</sup> The species of some specimens was unknown; therefore, it is uncertain whether these specimens would be subject to the ESO.