

TREE WISE MEN[®]
AUSTRALIA PTY LTD

**Arboricultural Impact Assessment
For
Proposed Multi-unit Residential Development
At
1, 1A, 3 & 5 Avon Road and 4 & 8 Beechworth Road
PYMBLE**

Prepared for:

**Ausbao NSW Management Pty Ltd
C/o Price Waterhouse Coopers (PWC)
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Ref: 2325(L)-15AIARevC

December 2015

ARBORICULTURAL CONSULTANCY

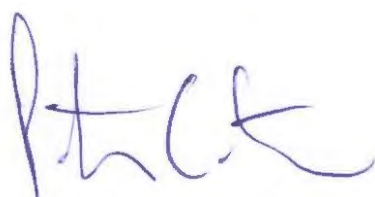
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The Client acknowledges that this Report, and any opinions, advice or recommendations expressed or given in it, are based on the information supplied by the Client and on the data, inspections, measurements and analysis carried out or obtained by Tree Wise Men® Australia Pty Ltd (TWM) and referred to in the Report. No guarantee is implied with respect to future tree safety. The Client should rely on the Report and on its contents, only to that extent.



Peter Castor
Director

BSc (For.)
Member: IACA, AA, ISA, LGTRA, PIA, UDIA, MAE (UK)
15 December 2015



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ATTACHMENTS

- A. Tree Schedule
- B. Definitions of Terms
- C. Tree Protection Requirements (Generic)
- D. Tree Protection Plan (Prepared by Taylor Brammer Landscape Architects)



1. EXECUTIVE SUMMARY

1.1 THE PROPOSED DEVELOPMENT

- 1.1.1 This Arboricultural Impact Assessment (AIA) was prepared for the current Applicant, Ausbao NSW Management Pty Ltd for the subject property (1, 1A, 3 & 5 Avon Road and 4 & 8 Beechworth Road, Pymble) in relation to proposed residential development of the site. The AIA forms part of Land and Environment Court of NSW (L&E Court) Proceedings No. 10834 of 2013. The proceedings relate to the refusal by the Planning Assessment Commission (PAC) as delegate of the Minister for Planning (Minister) of the Major Project Application (MP10_0219) for a multi-unit residential development at 1, 1A & 5 Avon Road and 4 & 8 Beechworth Road, Pymble (the site).
- 1.1.2 In December, 2014, the L&E Court ordered that a Concept Plan approval be issued in respect of the development of the site and the PAC issued the Concept Plan Approval. This AIA addresses the revisions to MP10_0219 as a consequence of the terms of the Concept Plan Approval, more specifically, *Further Assessment Requirement #23* relating to an “*arborist impact assessment*”.
- 1.1.3 The current development layout is as detailed in *Issue U* Architectural drawings by Marchese Partners as well as associated Consultant reports.
- 1.1.4 The tree numbering system from previous reporting has been adopted. Thirteen (13) additional trees have been included in this assessment.

1.2 TREE IMPACTS

- 1.2.1 A total of two hundred and sixty eight (268) trees were assessed on and adjoining the subject site. As with the earlier Assessment, complete tree data was only collected for trees within 10m of proposed buildings or roadways. Only tree number and species data was collected for trees further than 10m from these works.
- 1.2.2 Of the two hundred and sixty eight (268) assessed trees, one hundred and ten (110) (41%) trees are to be retained and one hundred and fifty five (155) (58%) trees are to be removed. An additional two trees are to be retained and transplanted elsewhere on the site. Tree 48 had also been recently removed on an adjoining property.
- 1.2.3 Thirty (30) of the one hundred and ten (110) retained trees are ©Retention Value “A”. The retained trees also include the Blue Gum High Forest (BGHF) canopy tree species located within the Conservation Area on the site. No trees on adjoining properties require removal to facilitate the development works.
- 1.2.4 The current proposal is supported as it allows for retention of the most significant trees on and adjoining the subject site. The likely impacts on the BGHF within the Conservation Area on the site are acceptable as detailed in the Ecological Report prepared by Anne Clements and Associates. No BGHF species are likely to be removed as a result of riparian, stormwater and weed removal works.
- 1.2.5 This Assessment complies with 2.3.5 *Arboricultural Impact Assessment of AS4970-2009 Protection of trees on development sites*.



2. BACKGROUND

2.1 INTRODUCTION

- 2.1.1 This Arboricultural Impact Assessment report (AIA) has been prepared on behalf of Ausbao NSW Management Pty Ltd (the Applicant). The AIA forms part of Land and Environment Court of NSW (L&E Court) Proceedings No. 10834 of 2013. The proceedings relate to the refusal by the Planning Assessment Commission (PAC), as delegate of the Minister for Planning (Minister) of the Major Project Application (MP10_0219) for a multi-unit residential development at 1, 1A & 5 Avon Road and 4 & 8 Beechworth Road, Pymble (the site).
- 2.1.2 On 5 December 2014, the L&E Court ordered that a Concept Plan Approval be issued in respect of the development of the site and the PAC issued the Concept Plan Approval on 19 December, 2014. The Proceedings No. 10834 of 2013 relating to the MP10_0219 were stood over following the Court's Order regarding the Concept Plan and the PAC's subsequent issue of the Concept Plan Approval.
- 2.1.3 This AIA report addresses the revisions to MP10_0219 as a consequence of the terms of the Concept Plan Approval.
- 2.1.4 The purpose of this AIA is to describe and categorise the existing trees (native and exotic) on and adjacent to the subject site and to assess the impact of the proposed development on these trees.
- 2.1.5 This AIA coordinates with plans showing existing trees prepared by the Architects, Marchese Partners, Landscape Architects, Taylor Brammer, Ecological Consultant, Anne Clements and Associates and Hydraulic Engineer NPC.
- 2.1.6 For the purposes of this assessment only trees within 10m of the proposed buildings or roadways have been assessed in detail. Trees beyond 10m have been recommended for retention within the Conservation Area unless either Noxious Weeds or non-BGHF species. These weed species are to be removed irrespective of the layout of the proposed Riparian or stormwater works to favour the recovery of the BGHF as detailed in the VMP.
- 2.1.7 The stormwater works within and associated with the riparian zone have been reviewed and no non-weed species trees require removal as part of these works.
- 2.1.8 Further Assessment Requirement #23 of the Concept Plan Approval states:

"23. As part of any future Development Application or Project Applications an arborist impact assessment shall be undertaken and tree protection plan developed by an arborist with a minimum qualification AQF5.

Trees assessed are those trees to be retained within the subject site and those trees on adjoining sites whose tree protection zones are impacted by the proposed works. The plan shall include an inventory of all trees on and adjacent the site and whether proposed to be retained or removed, and a plan to scale 1:100 clearly indicating all of these trees. The assessment shall be undertaken to establish likely impacts on these trees from the proposed works including construction access impacts and to ensure that the proposed works and site management plans are amended to ensure the viability of trees retained.

A tree protection plan shall be developed to ensure the ongoing protection of retained trees during construction works.

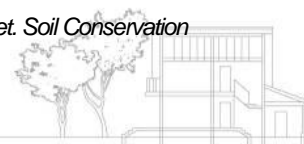


The tree protection plan shall document the trees to be retained and include specifications for and specific locations of fencing, ground protection and the like. The plan shall indicate the specific stages of inspections of works, by the project arborist. Both the assessment and protection plan shall be undertaken consistent with AS4970-2009 Protection of Trees on Development Sites. The plan shall also include the protection of trees during the various stages of construction within the conservation area.”

2.2 THE SUBJECT SITE

- 2.2.1 The site is an irregular shaped parcel of land located on the southern side of the North Shore rail corridor between Avon Road and Beechworth Road, Pymble, in the LGA of Ku-ring-gai. The site includes 1, 1A, 3 & 5 Avon Road and 4 & 8 Beechworth Road, Pymble.
- 2.2.2 The site currently contains four dwellings located at 1, 3 & 5 Avon Road and 8 Beechworth Road. The property at 1 Avon Road is a Heritage item of local significance under the Ku-ring-gai LEP.
- 2.2.3 The *Plan of Proposed Subdivision* (Dwg. No. 150004 P4) has been prepared by Robert Moore and Associates. The “*easement to drain water 1.5m wide*” vary from that used in the Proposed Stormwater Drainage Plan (Figure 2) prepared by NPC, May, 2015. The “*easement to drain water 1.5m wide*” will be amended.
- 2.2.4 The topography of the site is varied with an ephemeral creek traversing from the northwest to the south of the site. There were extensive manmade terraces and retaining walls across the site. There is an abandoned grass tennis court in the lower, southern section of the site. Refer to the *Detail Survey* prepared by Higgins Surveyors for further detail of the site topography, levels, contours, existing features and tree locations.
- 2.2.5 The pre development Soil Landscape² for the site is predominantly West Pennant Hills (*wp*) characterised by rolling to steep sideslopes on Wianamatta Group shales and shale alluvium. Clay soils on the upper, midslopes and the drainage lines will generally be greater than 2m deep. Tall open forest (wet sclerophylla forest) is typically found on this Soil Landscape. Dominant canopy species are Sydney Blue Gum, *Eucalyptus saligna* and Blackbutt, *Eucalyptus pilularis*. Many of the native trees on the site are typical of those found naturally on this soil landscape. The natural soil profile has been significantly altered in the areas surrounding the existing dwellings on the site.
- 2.2.6 The site has been invaded by woody weeds over the past decades. This invasion has reduced the vigour and condition and landscape significance of some of the assessed canopy trees.

²Chapman, G.A. and Murphy, C.L. (1989). *Soil Landscapes of the Sydney 1:100000 Sheet. Soil Conservation Service of NSW, Sydney.*



2.3 THE SUBJECT TREES

- 2.3.1 Only trees within 10m of the proposed buildings 1, 3 & 4 on Avon Road and Houses 1-4 on Beechworth Road and associated driveways have been assessed in detail. Many trees beyond 10m of the proposed buildings and driveways were inaccessible due to the dense weed growth. Tree species and tree number information was taken from the Survey data for those inaccessible trees.
- 2.3.2 Following the 2015 data verification, thirteen (13) additional trees were located within 10m of the amended proposed building or driveway works. These additional trees were: Trees 10A, 10B, 14A, 16A, 40A, 49B, 49C, 250A, 267E, 267F, 318A, 324B and 325B. Of these additional trees, Trees 250A, 267E, 267F, 318A, 324B and 325B need to be removed to facilitate the proposed works (refer to the Tree Schedule of further detail on the tree characteristics).
- 2.3.3 The general findings and data collected for each of the subject trees are contained in Tree Schedule (Attachment A). The trees are numbered and located on the Tree Removal and Retention Plan (Attachment D) prepared by Taylor Brammer Landscape Architects in collaboration with Anne Clements and Associates and Tree Wise Men® Australia Pty Ltd.
- 2.3.4 The site contains Blue Gum High Forest (BGHF) a critically endangered ecological community under the Threatened Species Conservation Act 1995 (NSW). Reference should be made to the Report prepared by Anne Clements and Associates (AC&A) for further detail of the BGHF and the Vegetation Management Plan (VMP) proposed for the site.
- 2.3.5 The site also contains numerous significant exotic cultural tree plantings, many of which are now degraded due to severe competition from woody weed invasion. Refer to the Tree Schedule (Attachment A) for details of individual trees and the Tree Removal and Retention Plan for ©Retention Values, Tree Protection Zone radii and trees to be removed or retained.
- 2.3.6 Trees assessed were those indicated on the supplied Detail Survey Plan (Issue K) by Higgins Surveyors. Some assessed trees are located on the North Shore Railway land, some on the road reserves and some on adjoining properties. Many large woody weed species in the area of the creek have not been individually numbered or assessed. BGHF species identified by AC&A in areas more than 10m from the proposed buildings are to be retained. All other woody weeds or exotic plantings will be removed to favour the rehabilitation of the BGHF.
- 2.3.7 Ku-ring-gai Council's Tree Preservation Order (TPO) applies and informs the landscape quality (©Retention Value) of the trees. Trees which are Exempt under the TPO are generally rated as ©Retention Value "D" irrespective of size.
- 2.3.8 The native understory and ground cover vegetation were highly disturbed or absent due to the earlier development and lack of grounds maintenance. Formal plantings and terraces replaced former natural vegetation across much of the site.



2.4 THE PROPOSAL

- 2.4.1 The proposed development is as indicated on the drawings and described in the documents listed at 3.3.1 below.
- 2.4.2 The Excavation Plan has been considered when calculating TPZ encroachments.
- 2.4.3 The impact of the stormwater drainage works on trees as indicated in the Stormwater Management and Riparian Aspects Report August, 2015 has been assessed. Where pipe work potentially impacts trees with varying TPZ encroachments, directional trenchless drilling, hand trenching and arborist supervision have been recommended. The stormwater drainage works in the valley floor will not require the removal of any retained trees. The tree-sensitive construction methods used in other sites e.g. Sheldon Forest are to be adopted (as detailed by Anne Clements and Associates (AC&A) at Appendix 10).



3. METHODOLOGY

3.1 DATA COLLECTION

- 3.1.1 In preparation of this Report a ground level, visual tree assessment (VTA)³ was undertaken on 22 June, 5 and 18 July, 2014 and 19 May, 2015. No aerial (climbing) inspections, woody tissue testing or tree root mapping were undertaken as part of this assessment.
- 3.1.2 Attachment B provides definition of terms used in this Report. Tree heights were estimated. Trunk diameter at breast height (DBH) was measured at 1.4 metres above ground level (unless otherwise stated) and rounded to the nearest 0.1 metre. Structural Root Zones (SRZ) and Tree Protection Zones (TPZ) were rounded to the nearest 0.5 metre. Where complete tree data is missing from the Tree Schedule those trees were either inaccessible due to dense undergrowth or trees were greater than 10m from the proposed buildings and roads and so completed detail was not required.
- 3.1.3 All tree offsets mentioned in this Report are to centre of trunk unless otherwise stated.
- 3.1.4 This AIA has been prepared by an AQF 5 Arborist. The data collection was similarly undertaken by AQF 5 Arborists.

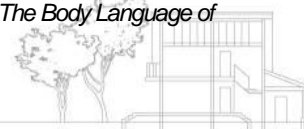
3.2 IDENTIFICATION OF SUBJECT TREES

- 3.2.1 There are two hundred and sixty eight (268) trees indicated on the Tree Plan MP 21.03 Rev. T. Of these, one hundred and fifty nine (159) have been assessed being within 10m of the proposed buildings or driveways.
- 3.2.2 The subject trees were numbered and labelled on site with white plastic tags as per the Tree Schedule (Attachment A), Tree Plan (MP 21.03/S) and Tree Protection Plan (Attachment D).

3.3 DOCUMENTS AND PLANS REFERENCED

- 3.3.1 The conclusions and recommendations in this Report are based on the findings from the site inspections, discussions with the project architect, landscape architect, ecologist and analysis of the following Plans and documents:
- *Plan Showing Details and Levels Over Land Located Between Avon Road and Beechworth Road, Pymble, Issue K, 23.06.14* prepared by Higgins Surveyors.
 - *Architectural Plans Issue U* prepared by Marchese Partners.
 - *Stormwater Management and Riparian Aspects Report*, August 2015 prepared by NCP.
 - *Revised Vegetation Management Plan*, 31, March, 2015 prepared by Anne Clements and Associates.
 - *Bushfire Protection Assessment Report*, May, 2015 prepared by Australian Bushfire Protection Planners.
 - *Construction Traffic Management Plan, 5 August, 2015* prepared by Traffic

³VTA – Visual Tree Assessment, undertaken by tree professionals, is a recognised (International Society of Arboriculture, Journal of Arboriculture, Vol. 22 No. 6, Nov. 1996) systematic method of identifying tree characteristics and hazard potential. VTA is also an assessment method described by Claus Mattheck in *The Body Language of Trees – A handbook for failure analysis*. The Stationary Office, London (1994)

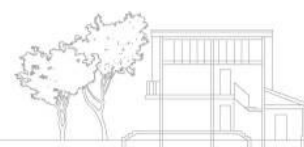


- *Environmental Management & VMP Implementation Costing Assessment, 7 July, 2015* prepared by Ecological Australia
- *Construction Environmental management Plan, July, 2015* prepared by Douglas Partners

3.4 AUSTRALIAN STANDARD AS4970-2009

- 3.4.1 The Australian Standard *AS4970-2009 Protection of trees on development sites* has been used as a benchmark in the preparation of this report and the terminology and impact assessment methodology have been adopted from this document. This AIA complies with *2.3.5 Arboricultural Impact Assessment of AS4970-2009*.
- 3.4.2 Recommendations have been based on tree ©Retention Value, Vigour, Condition, SULE and construction offsets (refer to Attachment B). Trees with ©Retention Value “A” should be given greater priority for retention than trees with ©Retention Value “B” or “C”. Trees with Long (40 years +) SULE should be given greater priority for retention than trees with Short (5-15 years) SULE (refer to Attachment B).
- 3.4.3 Tree Protection Zones (TPZ) and Structural Root Zones (SRZ) are as per *Section 3 of AS4970-2009* and are defined at Attachment B of this report.
- 3.4.4 “Construction” for the purpose of this AIA means excavation (greater than 100mm), compacted fill or machine trenching⁴ for the three Buildings and four Houses and associated driveways. All stormwater works are possible without significant impacts on trees.
- 3.4.5 The pedestrian paths proposed are assumed to be flexible in layout and to be constructed at or above existing ground lines.
- 3.4.6 Trees within proposed construction footprints are recommended for removal (**Rm**).
- 3.4.7 Where construction is proposed within Structural Root Zone (SRZ) offsets, those trees have been similarly recommended for removal (**Rm**). Fully elevated, pier and beam type construction or hand dug services trenches (or horizontal boring) is however possible within a SRZ.
- 3.4.8 Trees with greater than 25% of the Tree Protection Zone (TPZ) impacted by construction are recommended for removal (**Rm**). There are however different types of construction incursions proposed (e.g. fill, cut, services, pavement type, retaining walls) with varying tree impacts likely. Existing constraints to root development also vary the TPZ. Compacted fill can be equally as damaging to tree longevity: root development is restricted within heavily compacted soils.
- 3.4.9 Trees to be retained with construction impacting less than 25% of the TPZ area were rated as Retain Plus (**R+**). Specific construction monitoring will be required for the Retain (**R+**) trees (refer to Recommendations). A **NI** category has been added to the ©Retention Index for this Project. **NI** equates to **No Information due to inaccessibility**. Comprehensive data has not been collected for these trees due to their inaccessibility.

⁴“Construction” is equivalent to “works” as defined at 1.4.9 of AS4970-2009.



- 3.4.10 TPZ encroachments of >10% are defined (3.3.3 of AS4970) as 'major'. This does not mean that the tree will be fatally injured, but that *'the project arborist must demonstrate that the tree(s) would remain viable'*. Refer to Section 4.2 of this Report for explanation of tree retention recommendations.
- 3.4.11 Where construction is proposed beyond the TPZ, those trees are rated as Retain (**R**) with no specific tree protection design or tree protection monitoring required (refer to Attachment C).



4. TREE IMPACTS

4.1 ALL SITE TREES

- 4.1.1 The trees identified as "in contention" below were previously referenced as "significant" by either Ku-ring-gai Council or the PAC. The trees deemed most significant by Tree Wise Men® Australia Pty Ltd are those with ©Retention Value "A". The ©Retention Index definition and matrix is included in the Definition of Terms (Attachment B).
- 4.1.2 Of the two hundred and sixty eight (268) assessed trees, one hundred and ten (41%) trees are to be retained and one hundred and fifty seven (59%) trees are to be removed. In addition, Tree 48 had been recently removed on an adjoining property.
- 4.1.3 It should be noted that fifty one (51) retained trees were located within the Conservation Area for which "**No Information**" (NI) has been collected. The vast majority of these trees are BGHF canopy tree (see Figures 2B-2G, Clements 2015) hence they are also ©Retention Value A.
- 4.1.4 As indicated in the Summary Data at the end of the Tree Schedule, there is a total of fifty six (56) ©Retention Value A trees. Of these, thirty (53%) are to be retained and twenty six (26) to be removed. The retained trees also include the Blue Gum High Forest (BGHF) canopy tree species located within the Conservation Area on the site. No trees on adjoining properties require removal to facilitate the development works. In our opinion this is a good aboriginal outcome considering the zoning expectations and the extent of building works.

4.2 TREES IN CONTENTION

- 4.2.1 Tree Wise Men® Australia Pty Ltd have assessed two hundred and sixty eight (268) trees indicated on the Tree Schedule and one hundred and fifty nine (159) of these are located within 10m of the proposed three buildings off Avon Road and four houses off Beechworth Road and associated driveways. Both BGHF species and other planted species have been assessed. Many of the trees shown on the original Survey have died or have been removed and many of the undescribed trees are woody weed species, predominantly Large-leaved Privet, *Ligustrum lucidum*.
- 4.2.2 In addressing the likely construction impacts on these trees AS4970-2009 *Protection of Trees on Development Sites* has been used as the "best practice" guiding document.
- 4.2.3 Section 4.3 below details the impacts on the particular trees referenced in the earlier Contentions. All two hundred and sixty eight (268) have however been assessed for all types of construction impacts.
- 4.2.4 Amended Statement of Facts and Contentions filed 12 March, 2014 for the Minister of Planning and Infrastructure listed the following trees:
- 7(e)(ii): Trees 23 and 343
 - 7(e)(iii): Trees 188, 210, 39, 182 and 343
- 4.2.5 Ku-ring-gai Council's Statement of Facts and Contentions filed 29 May, 2014 listed the following trees:
- 10(a): Trees 11, 245, 172, 175, 176A, 335, 328, 264 and 267



- 4.2.6 Other additional trees to those referenced above, referred to in the Without Prejudice Minutes dated 27 June, 2014, of the s34 conferencing of 24 June, 2014 were:
- Trees 44, 136, 148, 174, 176, 180, 229, 230, 329 and 344.

4.3 CONSTRUCTION IMPACTS - TREES IN CONTENTION

- 4.3.1 **Tree 11 (Liquidambar, *Liquidambar, styraciflua*)** ©Retention Value A, 0.8m DBH, located between House 1 and House 2 with excessive TPZ encroachment. Tree to be **removed**.

Tree 23 (Sydney Blue Gum, *Eucalypts saligna*) ©Retention Value A, 1.3m DBH, BGHF species, located downslope of House 2.. There is 3% TPZ encroachment from House 3. No works are proposed within 10m. Tree to be **retained**.

Tree 39 (Sydney Blue Gum, *Eucalypts saligna*) ©Retention Value A, 0.9m DBH, BGHF species, located within the Conservation Area. No creekworks are to be undertaken within 5m of the tree. Tree to be **retained**.

Tree 44 (Sydney Blue Gum, *Eucalypts saligna*) ©Retention Value A, 0.9m DBH, BGHF species, located east of House 3 within the Conservation Area. Tree to be **retained**.

Tree 136 (Common Lilly Pilly, *Acmena smithii*) ©Retention Value B, 0.5m DBH, possible BGHF species (Clements 2015), located down slope of Building 3 clear of proposed stormwater works. Path to be above grade. Tree to be **retained**.

Tree 148 (Jacaranda, *Jacaranda mimosifolia*) ©Retention Value A, 0.6m DBH, located southwest of Building 3 with no TPZ encroachment. Tree to be **retained**.

Tree 172 (Kauri Pine, *Agathis robusta*) ©Retention Value A, 1.1m DBH, located east of Building 3 with 31% TPZ encroachment comprising 16% from building to the west and 15% from the path to the south. The path and associated landing appear to be at or near existing grade. No crown pruning is required for construction. Tree to be **retained**.

Tree 174 (no data recorded). Likely typographical error in Minutes.

Tree 175 (Sydney Blue Gum, *Eucalypts saligna*) ©Retention Value A, 0.5m DBH, BGHF species, located within the footprint of Building 3. Tree to be **removed**.

Tree 176 (Liquidambar, *Liquidambar, styraciflua*) ©Retention Value A, 1.0m DBH, located within the Basement footprint. Tree to be **removed**.

Tree 176A (Liquidambar, *Liquidambar, styraciflua*) ©Retention Value B, 0.3m DBH, located within Basement footprint. Tree to be **removed**.

Tree 180 (Sydney Blue Gum, *Eucalypts saligna*) ©Retention Value B, 0.3m DBH, BGFH species, located within footprint of Building 3. Tree to be **removed**.

Tree 182 (Sydney Blue Gum, *Eucalypts saligna*) ©Retention Value A, 0.9m DBH, BGHF species, located downslope of Building 3 clear of construction. Path to be above grade. Minor stormwater works proposed to the north. Tree to be **retained**.

Tree 188 (Sydney Blue Gum, *Eucalyptus saligna*) ©Retention Value A, 0.9m DBH, BGHF species, located downslope of Building 3. Minor stormwater works to south. Path to be above grade. Tree to be **retained**.



Tree 210 (Blackbutt, *Eucalyptus pilularis*) ©Retention Value A, 1.3m DBH, BGHF species, located downslope of Building 4 clear of construction. Path to be at grade. Tree to be **retained**.

Tree 229 (Sydney Blue Gum, *Eucalypts saligna*) ©Retention Value A, 1.0m DBH, BGHF species located on northern boundary north of Building 4. Minor (2%) TPZ encroachment. Path to be above grade. No crown pruning required given northerly crown skew. Tree to be **retained**.

Tree 230 (Sydney Blue Gum, *Eucalypts saligna*) ©Retention Value A, 1.0m DBH, BGHF species located on adjoining property north of Building 4. Minor (2%) TPZ encroachment. The tree is to be **retained**.

Tree 245 (Atlas Cedar, *Cedrus atlantica 'glauca*) ©Retention Value A, 0.7m DBH, located within footprint of Building 3. Tree to be **removed**.

Trees 264 – 267 (Turpentine, *Syncarpia glomulifera*) ©Retention Value, A (except T266 which is a ©Retention Value B), 0.4-0.7 DBH, located within the Basement footprint. Trees to be **removed**.

Tree 328 (Port Jackson Fig, *Ficus rubiginosa*) ©Retention Value C, 1.2m DBH, tree in *Poor* structural condition given epiphytic origins on dead Eucalypt. Tree with structural defects and with 23% TPZ encroachment from Building 1. Tree to be **removed**.

Tree 329 (Common Lilly Pilly, *Acmena smithii*) ©Retention Value C, 0.4m DBH (at grade), possible BGHF species (Clements, 2015) located adjacent drive from Avon Road to Building 1. Tree to be **removed as part of landscape treatment**.

Tree 335 (Tupelo, *Nyssa sylvatica*) ©Retention Value A, 0.4m DBH, located on Avon Road verge east of Building 1 with a 10% TPZ encroachment. Tree to be **removed as part of landscape treatment**.

Tree 343 (Sydney Blue Gum, *Eucalypts saligna*) ©Retention Value B, 0.5m DBH, BGHF species, located within Driveway to House 2. Tree to be **removed**.

Tree 344 (Native Daphne, *Pittosporum undulatum*) ©Retention Value B, 0.4/0.2 DBH, possible BGHF species (Clements, 2015) located on southern boundary of Conservation Area. Tree is to be **retained**.

4.4 CONSTRUCTION IMPACTS - COUNCIL'S COMMENT ON PROJECT APPLICATION

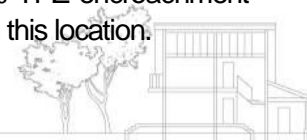
4.4.1 18. Design of Future Dwellings on Housing Lots

Four houses and two driveways are proposed on Lots 1-4 off Beechworth Road. The *Tree Protection Plan LA04/P1* accurately indicates the trees to be retained and removed. Tree 2 Jacaranda (©Retention Value "C") located on within the road reserve is to be retained but may need to be reviewed once the crossover and layback design are prepared.

Tree 5 (Coral Tree) located within the road reserve is recommended for removal given existing defects.

Tree 10 (Brushbox) has a 10% TPZ encroachment which is acceptable.

Tree 14A (Juniper) located at 6 Beechworth Road, has a 29% TPZ encroachment which will be acceptable given the existing driveway is currently in this location.



Tree 14 (Cabbage Palm) and **Tree 16A (Cotton Palm)** have no TPZ encroachments.

Tree 23 (Sydney Blue Gum) has a 10% encroachment from the Building on Lot 3 and stormwater/sewer trenching. This TPZ encroachment complies with Condition B4 of the Concept Approval. In any event a services trench is not a permanent encroachment and root growth across the trench will be possible once backfilled.

Tree 24 (Sydney Blue Gum) has a minor 5% TPZ encroachment from the stormwater/sewer trenching.

Trees 36, 37, 39 and 44 (all Sydney Blue Gums) located within the Conservation Area but with TPZs overlapping Lots 2 and 3 will be retained with no TPZ encroachments.

Trees 45 and 49C (both Jacarandas) have no TPZ encroachments.

Tree 49A (Banyan Fig) and **Tree 49B (Small-leaved Lilly Pilly)** located at 10C Beechworth Rd can be retained as the proposed Driveway duplicates the existing driveway in this location. The site security fencing will act as the tree protection fencing in this location.

The tree protection measures detailed in Section 5 below are to be implemented during both the Stage 1 and Stage 2 construction works.

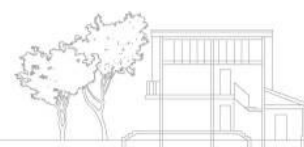
4.4.2 **23. Arborist Impact Assessment and Tree Protection Plan**

Stage 1 of the construction includes: Excavation of the main Building Basement, Stormwater works, Riparian works and Civil works for the four House Lots

The Excavation Plan MP53.01/B has been reviewed showing the bulk earthworks RLs for the Basement levels of the main Apartment Buildings 1, 3 and 4. Vertical shoring has been indicated to minimise soil batters towards retained trees.

Tree protection fencing as indicated on the TPP (LA04, P1) is to be installed prior to commencement of earthworks. The tree protection fencing needs to be varied adjacent to 7 Avon Road because a construction access road is proposed adjacent to 7 Avon Road for machinery access for the riparian and tree removal works. Particular monitoring will be required for Tree 284 (Brushbox) adjacent to northern boundary. Minor fill is indicated in this location.

The stormwater works are as detailed in the NPC report dated August, 2015. Considerable redesign of the stormwater and sewer routes has been undertaken to avoid retained trees. No trees require removal due to stormwater or sewer trenching works. Particular monitoring by the Project Arborist will be required for the stormwater trenching which coincided with the 10m exclusion zone of Tree 23. This trench is approximately 9m from the tree and is unlikely to have any measurable impact on the tree considering the expansive area of undisturbed open landscape elsewhere within the TPZ. All other stormwater routes are at line of best fit between trees and require minor TPZ encroachments only. All routes are beyond the canopy spread of retained trees which is an excellent outcome. Particular monitoring will be required for the trenching adjacent to Trees 325A, 169A and 172.



The tree removal and weed removal works are to be as detailed in the VMP. Machinery access to the creekline is to be via the existing tracks adjacent to the southern boundary with 7 Avon Road. If other machinery access routes are required, these routes are to be clear of the TPZs of retained trees. Additional tree protection fencing will need to be installed around retained trees within the Conservation Area. This fencing is to be installed to enclose as much of the TPZ as possible whilst allowing for the WSUD and stormwater works. The alignment of the fencing should be determined by the Project Arborist, Environmental Manager and Project Superintendent. If a large mulching machine is required to process the removed trees the access track is to be formed clear of the TPZ of retained trees.

“3.2 Earthworks to remove introduced materials and ephemeral ponds”. This section of the Environment Management report describes the construction of the pools, weirs and bypass channels within the riparian area. No construction taller than 0.5m is proposed, which will mean that relatively minor rootzone impacts on retained trees.

“3.1.3 Weed Control”. This section refers to the removal of the larger weed trees from within the Conservation Area with the guidance of the Project Arborist. In our opinion, having considered the volume of woody weeds to ultimately be removed from the Conservation Area, that a large mulcher/grinder will be required to efficiently process the materials. A central location in the creekline, clear of retained trees should be selected for these vegetation processing works. It is likely that such a mulcher/grinder will be required to process the trees to be removed from the construction area. These Stage 1 works should be undertaken within the same Tender Contract so as to reduce costs.

The pool and riffle (WSUD) construction works in the creekline as indicated on the Stormwater Drainage Concept Plan are to be undertaken with a small (<5t) mini-excavator or equivalent. There is minor works only shown within the TPZ of retained trees.

The civil works for Houses 1-4 and associated Driveways are not to commence until the tree protection fencing is installed as indicted on LA04/P1. A minor realigning of the fencing adjacent to the House 3 (T23) will be required.

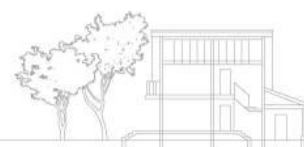
At 5.4 *Tree Protection Measures* of the CEMP, the role of the Project Arborist and key tree protection measures have been outlined.

Stage 2 of the construction includes: the main Building works

The tree protection fencing and ground protection devices may need to be realigned following the Stage 1 works. Fencing may need to be realigned depending upon the builders access requirements. No major changes are expected given the building platforms will have already been constructed. Minor crown pruning may be required to allow for the above ground construction and scaffolding installation.

Crown pruning will be required to Tree 284. The pedestrian path is proposed above existing ground lines.

The tree protection measures at Section 5 below are to be implemented during the Stage 2 works.



Pathways adjacent to trees. Pathways within the TPZs of retained trees have been verified. Construction is possible at or above existing soil levels. In particular paths adjacent to Tree 172 and Tree 284 are possible at existing grade. The grade changes of the path within the Conservation Area are small and will allow for construction at or above grade. Construction above grade will be desirable given the ephemeral nature of the riparian zone.

Engagement of a Project Arborist. The CEMP and Stormwater report refer to the role of the Project Arborist. The recommended key stages of tree protection Certification are listed at 5.2.3. These stages have been incorporated in the CEMP at 5.1. We understand the client has no issue with the proposed appointment of a Project Arborist to coordinate tree protection measures during the Stage 1 and Stage 2 works.

Management of works within the Conservation and Riparian Zones. As detailed at 5.2.1 - 5.2.3 a Project Arborist is recommended for all stages and in all areas of work adjacent to trees.

We recommend that start-up meetings be Conditioned between the relevant Contractors, Environmental Manager and the Project Arborist for all stages and specific contracted areas of work.

The key stages for arboricultural Certification are detailed at 5.2.3. These key certification stages should be a condition of approval.

The 18% TPZ encroachment of **Tree 172 (Kauri Pine)** associated with the construction of Building 3 is acceptable for the following reasons:

- Building 3 and scaffold are beyond the canopy spread
- The footprint of Building 3 occupies a similar footprint to the original Tennis Court and retaining walls reducing the likelihood of root spread in this location.
- The proposed removal of several woody weed trees (not numbered or mapped) from within the TPZ will favour the long-term retention of the tree.
- The proposed pedestrian path traversing the southern edge of the TPZ is proposed to be constructed above existing ground lines and so does not represent an encroachment.
- The tree is currently in *Good* vigour and condition as so has the greatest capacity to cope with the pending construction phase.



5. TREE MANAGEMENT PLAN (TREE PROTECTION MEASURES)

5.1 BACKGROUND

- 5.1.1 Project Application MP10_0219 is for the demolition of existing structures, renovation of Heritage Item at 1 Avon Road and construction of multilevel residential apartment Buildings 1, 3 and 4 with Driveway off Avon Road and Houses 1, 2, 3 and 4 with two Driveways off Beechworth Road.
- 5.1.2 The following tree protection measures are to be implemented for the retained trees during the construction works and stormwater infrastructure works. These measures apply for both Stage 1 and Stage 2 however the earthworks during Stage 1 require the greater level of monitoring. This Section of this Report should be read in conjunction with 4.4 which addresses Council's particular concerns with regards to the earlier AIA.

5.2 ARBORIST INVOLVEMENT

- 5.2.1 An Arborist (the Project Arborist) experienced in tree protection on construction sites should be engaged prior to the commencement of construction work on the site. The Project Arborist shall monitor and report regularly to the Principal Certifying Authority (PCA) and the Applicant on the condition and protection of the retained trees during the construction works. The Project Arborist is to monitor any excavation, machine trenching or compacted fill placed within the TPZ of all retained trees for both Stage 1 and Stage 2 works.
- 5.2.2 The schedule of works for the development must acknowledge the role of the Project Arborist and the need to protect the retained trees. Sufficient notice must be given to the Arborist where his/her attendance is required. Should the proposed design change from that reviewed, additional arboricultural assessment will be required.
- 5.2.3 The Project Arborist should certify tree protection measures at key stages of the both Stage 1 and Stage 2 construction. Copies of the Certification should be sent to PCA. Key stages will need to be defined but should include:
- Prior to commencement of site preparation, tree removal or bulk earthworks
 - At completion of approved tree removal
 - At completion of bulk earthworks
 - At completion of Basement and ground floor slab construction
 - At completion of Building and Driveway construction (both Houses and Apartments)
 - Prior to Occupation Certificate (OC)
 - 12 months Post Occupation Certificate -OC.
- 5.2.4 **Tree Marking**
Prior to any site preparation, site clearing, weed removal or tree removal all retained trees are to be numbered and clearly identified by the Project Arborist (AQF 5).



5.2.5 Tree Removal

All approved tree removal works must comply with the Draft WorkCover Code of Practice for Tree Work. Every effort is to be made not to damage the above and below ground portions of adjacent retained trees. AQF 4 Contracting Arborist should undertake or supervise the tree removal works.

Manual dismantling of particular trees may be required to avoid damage to adjacent trees to be retained.

Woody weed removal as part of the Conservation Area rehabilitation works shall also be supervised by an AQF Level 4 Arborist. Machinery will be required to remove woody weeds. Machinery operators are to be instructed on the need for care when working near retained trees.

Tree removal of hollow bearing trees should only proceed following consultation with the Project Ecologist and Environmental Manager to confirm methods to minimise fauna impacts.

5.2.6 Tree Protection Fencing

Tree protection fencing as indicated and Figure 3 of the Details sheet of the TPP (Attachment D) should be erected to enclose as much of the TPZ as possible. The indicative layout of the fencing is also indicated on the TPP. Where this is not feasible due to construction access issues, the trunks are to be battened (as per Figure 4) to avoid bark wounding and ground protection provided with placement of mulch or additional boarding or steel plating.

The alignment of the tree protection fencing shall only be realigned or removed following consultation with the Project Arborist. The alignment of the fencing may need to be amended between Stage 1 and Stage 2 works.

Retained trees within the Conservation Area require additional fencing to that shown on LA01/P1 prior to the commencement of the WSUD works and VMP works.

5.2.7 Canopy Pruning

Canopy pruning is to comply with Australian Standard *AS4373-2007: Pruning of Amenity Trees*. Crown pruning required for construction including scaffolding erection, crane or material handling is to be confirmed by the Project Arborist following consultation with the site supervisor. Pruning should be minimised wherever possible.

Hazard reduction pruning including pruning of deadwood should be undertaken in areas to be used by people prior to issue of Occupation Certificates.

5.2.8 Earthworks

There shall be no soil batters within the TPZ of retained trees. Near vertical shoring or piling is to be undertaken to minimise the footprint of the earthworks as indicated on MP 53.01/B.

5.2.9 Stormwater Works

Stormwater trenching is to be installed as indicated on the *Concept Stormwater Drainage Plan August, 2015* prepared by NPC. All trenching within TPZs is to be monitored by the Project Arborist. Hand trenching or directional (trenchless) drilling may be required where trenching is adjacent to or within SRZ offsets. No roots >50mmØ are to be cut within TPZs unless authorised by the Project Arborist.



Stormwater works within the creekline are to be undertaken with care not to unnecessarily disturb ground lines within TPZs of retained trees. The weir locations, headwalls, stabilised discharge devices and other WSUD devices generally are located clear of trees with minor TPZ encroachment only. All creekworks undertaken within the TPZ of retained trees is to be monitored by the Project Arborist.

5.2.10 Ground Protection

Ground protection within TPZs may be required where machinery access or scaffolding is required. Ground protection as detailed in Figure 04 of the Tree Protection Plan – Details. Ground protection will be required within the TPZ of the following trees: Tree 172 and Tree 284.

5.2.11 Vegetation Management Plan (VMP) Works

Considerable woody weed removal work is required as part of the VMP. The contractor undertaking the VMP works is to liaise with the Project Arborist to ensure no unnecessary disturbance takes place within the TPZ of retained trees.

Following removal of woody weeds from the Conservation Area there will be a requirement for re-assessment of the condition and hazard potential of trees to be retained. As at June, 2015 fifty five (55) trees had not been assessed in detail due to accessibility constraints.

5.2.12 Other Tree Protection Measures

Other tree protection measures (Attachment C) including mulching, temporary irrigation, , prevention of soil compaction, prevention of soil profile inversion, should be implemented as required at the direction of the Project Arborist.

5.2.13 Tree Protection Plan (TPP)

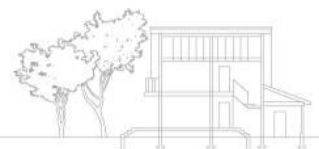
The TPP enclosed at Attachment D covers the entire site. More detailed 1:100 scale Planting Plan/Tree Protection Plans are being prepared by Taylor Brammer as part of the Landscape set. These will provide a greater level of detail of works adjacent to particular trees.

The TPP drawing should be kept in the site office during the construction period to guide tree protection procedures. A Log should be kept of activities within the TPZ of retained trees. This Log should be accessible to the Project Arborist on request.

The recommendations contained in the TPP should be incorporated into the Construction Environmental Management Plan and Sediment Control Plan. The TPP is to coordinate with the *Tree Retain and Removed Plan (MP 21.03/T)*.



Attachment A: Tree Schedule



1, 1A, 3 and 5 Avon Road, 4 and 8 Beechworth Road, Pymble

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m) 1.5	TPZ RADIUS (m) 2	% TPZ ENCROACHMENT	ULE	©SIG RATING	ⓃRETENTION INDEX	RECOMMENDATION	COMMENTS
1	Canary Island Date Palm, <i>Phoenix canariensis</i>	0.6	8	4	M	G	G	1.5	5.0	0%	L	2	A	R	Verge tree. Not within 10m of proposed buildings & roads.
2	Jacaranda, <i>Jacaranda mimosifolia</i>	0.2	8	3	SM	F	F	1.8	2.4	0%	M	4	C	R	Verge tree.
3	Brushbox, <i>Lophostemon confertus</i>	0.3, 0.6	11	5	M	F	G	3.0	8.4	3%	L	2	A	R	Ivy on trunk.
4	Brushbox, <i>Lophostemon confertus</i>	0.9	8	8	M	G	G	3.3	10.8	100%	L	1	A	Rm	Remove. Within proposed access drive off Beechworth Rd.
5	Coral Tree, <i>Erythrina x sykesii</i>	0.5				P	P	2.6	6.0		S	4	D	Rm	Stem base decay. On Beechworth verge. Environmental weed in KMC. Remove irrespective of proposed development pending Council permission. Within 10m of proposed driveway crossover.
6	Coral Tree, <i>Erythrina x sykesii</i>										S	4	D	R	Not within 10m of proposed buildings & roads. On Beechworth verge. Environmental weed in KMC.
7	Coral Tree, <i>Erythrina x sykesii</i>										S	4	D	R	Not within 10m of proposed buildings & roads. On Beechworth verge. Environmental weed in KMC.
8	Coral Tree, <i>Erythrina x sykesii</i>										S	4	D	R	Not within 10m of proposed buildings & roads. On Beechworth verge. Environmental weed in KMC.
9	Coral Tree, <i>Erythrina x sykesii</i>										S	4	D	R	Not within 10m of proposed buildings & roads. On Beechworth verge. Environmental weed in KMC.
10	Brush Box, <i>Lophostemon confertus</i>	0.8	12	5	M	G	F	3.1	9.6	10%	M	2	A	R+	Some deadwood. Within adjacent property. Significant cavity S side at major union. House 1 and Driveway within TPZ.
10A	Red Cedar, <i>Toona australis</i>	0.5	15	4	M	G	G	2.6	6.0	0%	M	2	A	R	On Adjacent Property. 1.5m from boundary. Not on Survey.
10B	Blackbutt, <i>Eucalyptus pilularis</i>	0.6	25	6	M	G	G	2.8	7.2	0%	L	2	A	R	On Adjacent Property. 1m from boundary. Not on Survey.
11	Liquidambar, <i>Liquidambar styraciflua</i>	0.8	18	10	M	G	G	3.1	9.6	21%	L	2	A	Rm	TPO Exempt when < 12m tall. Remove for landscape purposes. House 1 & 2 footprints within TPZ.
12	Small-leaved Lilly Pilly, <i>Syzygium luehmannii</i>	0.6 @g	14	4	M	P	P	2.7	7.2	0%	S	3	C	Rm	On proposed Lot 1. Poor condition. Not worthy of retention. Previously lopped. Decay.
13	Small-leaved Lilly Pilly, <i>Syzygium luehmannii</i>	1.0 @g	15	4	M	F	P	3.3	4.8	100%	Rm	3	D	Rm	Remove. Within proposed access drive off Beechworth Rd. Vines, cavity. Severe basal decay.
14	Cabbage Tree Palm, <i>Livistona australis</i>	0.4	10	2	M	G	G	1.0	3.0	0%	L	3	B	R	On proposed Lot 3. Incorrectly located on Survey - check/shift 1m W. On adjacent property.

1, 1A, 3 and 5 Avon Road, 4 and 8 Beechworth Road, Pymble

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m) 1.5	TPZ RADIUS (m) 2	% TPZ ENCROACHMENT	ULE	©SIG RATING	ⓃRETENTION INDEX	RECOMMENDATION	COMMENTS
14A	Juniper, <i>Juniperus</i> sp.	0.4	8	4	M	G	G	2.3	4.8	29%	L	3	B	R+	On Adjacent Property. 2m from boundary. Proposed Driveway within TPZ.
15	Queensland Firewheel Tree, <i>Stenocarpus sinuatus</i>	0.6	15	5	M	G	G	2.8	7.2	38%	L	2	A	Rm	On proposed Lot 3. Excessive TPZ encroachment from drive and building.
16	Cotton Palm, <i>Washingtonia robusta</i>	0.4	12	2	M	G	G	1.0	3.0	100%	L	3	B	Rm	Within proposed House 3 footprint. Vines on trunk.
16A	Cotton Palm, <i>Washingtonia robusta</i>	0.4	12	2	M	G	G	1.0	3.0	0%	L	3	B	R	On Adjacent Property. Not on Survey. Maintain existing ground levels within TPZ.
17	Jacaranda, <i>Jacaranda mimosifolia</i>	0.6	16	7	M	G	G	2.8	7.2	100%	L	2	A	Rm	Within proposed House 3 footprint.
18	Jacaranda, <i>Jacaranda mimosifolia</i>	0.3	7	2	SM	F	F	2.1	3.6	100%	M	3	B	Rm	Smothered in vine. Within proposed House 3 footprint.
19	Jacaranda, <i>Jacaranda mimosifolia</i>	0.4	18	5	SM	G	G	2.3	4.8	100%	M	3	B	Rm	Two trees 1m apart. Within proposed House 3 footprint.
23	Sydney Blue Gum, <i>Eucalyptus saligna</i>	1.3	35	16N, 13S, 5E, 14W	OM	F	F	3.8	15.0	10%	M	1	A	R+	Retain. Located within proposed Lot 3. Large deadwood. Crown skew to SW. Major bifurcations @ 5m & 10m. Trunk wound E side of eastern trunk @ 15m. No basal hollow. Significant sections of dieback. Hazard reduction pruning required. Approx. 10% TPZ encroachment from House 3 footprint and stormwater/sewer trenching. Cut / fill for building and stormwater works to be restricted within 10m.
24	Sydney Blue Gum, <i>Eucalyptus saligna</i>	0.6	25	7	SM	G	G	2.8	7.2	5%	L	3	B	R+	Retain. Twin trunks from 12m above grade. Located within proposed Lot 3. Cut / fill for building and landscaping to be restricted within TPZ. Minor TPZ encroachment from stormwater trenching.
25	Jacaranda, <i>Jacaranda mimosifolia</i>	0.3	14	2	SM	G	G	2.1	3.6	0%	L	3	B	R	Vines in crown.
27	Large-leaved Privet, <i>Ligustrum lucidum</i>	0.8 @g	16		M			3.0	9.6	7%	S	4	D	Rm	Noxious weed. Coral Tree 3m to NW. Remove irrespective of proposed development.
28	Large-leaved Privet, <i>Ligustrum lucidum</i>	0.8 @g	9					3.0	9.6	0%	S	4	D	Rm	Noxious weed. Smothered in vines. Remove irrespective of proposed development.
29	Large-leaved Privet, <i>Ligustrum lucidum</i>	0.3	6					2.1	3.6	0%	S	4	D	Rm	Noxious weed. Smothered in vines. Remove irrespective of proposed development.
30	Large-leaved Privet, <i>Ligustrum lucidum</i>	0.3	5					2.1	3.6	0%	S	4	D	Rm	Noxious weed. Smothered in vines. Remove irrespective of proposed development.

1, 1A, 3 and 5 Avon Road, 4 and 8 Beechworth Road, Pymble

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m) 1.5	TPZ RADIUS (m) 2	% TPZ ENCROACHMENT	ULE	©SIG RATING	ⓃRETENTION INDEX	RECOMMENDATION	COMMENTS
31	Coral Tree, <i>Erythrina x sykesii</i>	1.0 @g	15	5	M	F	P	3.3	12.0	0%	S	4	D	Rm	Environmental weed. Dangerous tree species. Remove irrespective of proposed development.
32	Coral Tree, <i>Erythrina x sykesii</i>	0.4, 0.6	15	5	M	F	P	3.1	8.4	0%	S	4	D	Rm	Environmental weed. Dangerous tree species. Remove irrespective of proposed development.
33	Coral Tree, <i>Erythrina x sykesii</i>	0.3	10	3	M	F	P	2.1	3.6	0%	S	4	D	Rm	Environmental weed. Dangerous tree species. Remove irrespective of proposed development.
34	Large-leaved Privet, <i>Ligustrum lucidum</i>	0.3	5					2.1	3.6	0%	S	4	D	Rm	Located on adjoining property. Noxious Weed.
36	Sydney Blue Gum, <i>Eucalyptus saligna</i>	1.2	32	10	M	G	G	3.7	14.4	0%	L	1	A	R	On adjoining property. Co-dominant at 8m a.g. Not within 10m of proposed buildings & roads.
37	Sydney Blue Gum, <i>Eucalyptus saligna</i>	0.8	30	7	M	G	F	3.1	9.6	0%	L	2	A	R	Not within 10m of proposed buildings & roads.
39	Sydney Blue Gum, <i>Eucalyptus saligna</i>	0.9	33	7	M	G	F	3.3	10.8	0%	M	2	A	R	Significant lean to SW. Not within 10m of proposed buildings & roads. Stormwater works at head of creek to be prohibited within 5m of trunk.
40	Coral Tree, <i>Erythrina x sykesii</i>	0.3	12	6		G	F	2.1	3.6	0%	S	4	D	Rm	Previous live branch failure. Dangerous tree species. Environmental weed in KMC. Not within 10m of proposed buildings & roads. Remove irrespective of proposed development.
41	Coral Tree, <i>Erythrina x sykesii</i>	0.3, 0.4	14	6		G	F	2.6	6.0	0%	S	4	D	Rm	Dangerous tree species. Environmental weed in KMC. Not within 10m of proposed buildings & roads. Remove irrespective of proposed development.
44	Sydney Blue Gum, <i>Eucalyptus saligna</i>	0.9	40	10		G	G	3.3	10.8	0%	L	2	A	R	Located outside rear boundary of Lot 3. Not within 10m of proposed buildings & roads.
45	Jacaranda, <i>Jacaranda mimosifolia</i>	0.4	15	3		G	F	2.3	4.8	0%	M	3	B	R	Within proposed Lot 4.
46	Inaccessible										S	4	D	Rm	Under vines. On proposed Lot 4.
47	Umbrella Tree, <i>Schefflera actinophylla</i>	0.4	13	3		G	F	2.3	4.8	0%	S	4	D	Rm	Remove. TPO Exempt species. Within proposed Lot 4.
48	Sydney Blue Gum, <i>Eucalyptus saligna</i>												PR	PR	Tree on adjoining property previously removed.
49	Sydney Blue Gum, <i>Eucalyptus saligna</i>	1.0, 1.0, 1.0	26	10	OM	P	P	4.4	15.0	100%	Rm	4	D	Rm	Poisoned tree, severe dieback. 2015 - Severe decline. Within proposed access driveway for House 4.

1, 1A, 3 and 5 Avon Road, 4 and 8 Beechworth Road, Pymble

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m) 1.5	TPZ RADIUS (m) 2	% TPZ ENCROACHMENT	ULE	©SIG RATING	©RETENTION INDEX N	RECOMMENDATION	COMMENTS
49A	Banyan Fig, <i>Ficus microcarpa</i>	1.1	25	15	M	G	F	3.6	13.2	42%	L	1	A	R+	On Adjacent Property. 1.5m from boundary. Not on Survey. Proposed Driveway to Lot 4 within SRZ. Driveway to be above grade.
49B	Small-leaved Lilly Pilly, <i>Syzygium luehmannii</i>	0.5	12	4	M	F	F	2.6	6.0	8%	M	3	B	R+	On Adjacent Property. 1.5m from boundary. Not on Survey. Proposed Driveway to Lot 4 within TPZ.
49C	Jacaranda, <i>Jacaranda mimosifolia</i>	0.7	15	5	M	G	F	3.0	8.4	0%	M	2	A	R	On Adjacent Property. 5m from boundary. Not on Survey.
50	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads.
52	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads.
53	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	May be affected by stormwater works - detail design to avoid excavation within TPZ.
54	Coral Tree, <i>Erythrina x sykesii</i>										S	4	D	Rm	Remove as part of VMP. Environmental weed in KMC.
55	Tallowwood, <i>Eucalyptus microcorys</i>												NI	R	Not within 10m of proposed buildings & roads. On adjacent property.
56	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads. On adjacent property.
57	Spotted Gum, <i>Corymbia maculata</i>												NI	R	Not within 10m of proposed buildings & roads. On adjacent property.
58	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads. On adjacent property.
59	Wattle, <i>Acacia sp.</i>												NI	R	Not within 10m of proposed buildings & roads. On adjacent property.
60	Spotted Gum, <i>Corymbia maculata</i>												NI	R	Not within 10m of proposed buildings & roads. On adjacent property.
61	Grey Ironbark, <i>Eucalyptus paniculata</i>												NI	R	Not within 10m of proposed buildings & roads.
62	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads. On adjacent property.
65	Camphor Laurel, <i>Cinnamomum camphora</i>										S	4	D	Rm	Not within 10m of proposed buildings & roads. Remove as part of VMP. Noxious weed.
67	Camphor Laurel, <i>Cinnamomum camphora</i>										S	4	D	Rm	Not within 10m of proposed buildings & roads. Remove as part of VMP. Noxious weed.

1, 1A, 3 and 5 Avon Road, 4 and 8 Beechworth Road, Pymble

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m) 1.5	TPZ RADIUS (m) 2	% TPZ ENCROACHMENT	ULE	©SIG RATING	ⓃRETENTION INDEX N	RECOMMENDATION	COMMENTS
68	Camphor Laurel, <i>Cinnamomum camphora</i>										S	4	D	Rm	Not within 10m of proposed buildings & roads. Remove as part of VMP. Noxious weed.
69	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads. Pedestrian path to be at grade. May be affected by stormwater works - detail design to avoid excavation within TPZ.
70	Blackbutt, <i>Eucalyptus pilularis</i>												NI	R	Not within 10m of proposed buildings & roads. Pedestrian path to be at grade. May be affected by stormwater works - detail design to avoid excavation within TPZ.
72	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads. Pedestrian path to be at grade. May be affected by stormwater works - detail design to avoid excavation within TPZ.
74	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads. Pedestrian path to be at grade. May be affected by stormwater works - detail design to avoid excavation within TPZ.
75	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads. On adjacent property.
76	Blackbutt, <i>Eucalyptus pilularis</i>												NI	R	Not within 10m of proposed buildings & roads. On adjacent property.
77													NI	R	Not within 10m of proposed buildings & roads. On adjacent property.
78	Grey Ironbark, <i>Eucalyptus paniculata</i>												NI	R	Not within 10m of proposed buildings & roads.
79	Large-leaved Privet, <i>Ligustrum lucidum</i>										S	4	D	Rm	Not within 10m of proposed buildings & roads. Remove as part of VMP. Noxious weed.
80													NI	R	Not within 10m of proposed buildings & roads. On adjacent property.
81	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads. On adjacent property.
83	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads.
84	Large-leaved Privet, <i>Ligustrum lucidum</i>										S	4	D	Rm	Not within 10m of proposed buildings & roads. Remove as part of VMP. Noxious weed.
85	Port Jackson Fig, <i>Ficus rubiginosa</i>												NI	R	Not within 10m of proposed buildings & roads.

1, 1A, 3 and 5 Avon Road, 4 and 8 Beechworth Road, Pymble

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m) 1.5	TPZ RADIUS (m) 2	% TPZ ENCROACHMENT	ULE	©SIG RATING	©RETENTION INDEX N	RECOMMENDATION	COMMENTS
86	Large-leaved Privet, <i>Ligustrum lucidum</i>										S	4	D	Rm	Not within 10m of proposed buildings & roads. Remove as part of VMP. Noxious weed.
87	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads. On adjacent property.
88													NI	R	Not within 10m of proposed buildings & roads. On adjacent property.
89	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads.
90	Large-leaved Privet, <i>Ligustrum lucidum</i>										S	4	D	Rm	Not within 10m of proposed buildings & roads. Remove as part of VMP. Noxious weed.
91	Cocos Palm, <i>Syagrus romanzoffianum</i>										S	4	D	Rm	Not within 10m of proposed buildings & roads. TPO Exempt species. Remove as part of VMP.
93	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads.
94	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads.
94A	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads.
96	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads.
96A	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads.
98	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads.
102	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads.
119	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads.
122	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads.
124	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads.
125	Large-leaved Privet, <i>Ligustrum lucidum</i>										S	4	D	Rm	Noxious Weed. Remove as part of VMP.

1, 1A, 3 and 5 Avon Road, 4 and 8 Beechworth Road, Pymble

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m) 1.5	TPZ RADIUS (m) 2	% TPZ ENCROACHMENT	ULE	©SIG RATING	ⓃRETENTION INDEX N	RECOMMENDATION	COMMENTS
126	Large-leaved Privet, <i>Ligustrum lucidum</i>										S	4	D	Rm	Noxious Weed. Remove as part of VMP.
127	Camphor Laurel, <i>Cinnamomum camphora</i>										S	4	D	Rm	Not within 10m of proposed buildings & roads. Remove as part of VMP. Noxious weed.
128	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads.
129	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads.
130	Large-leaved Privet, <i>Ligustrum lucidum</i>										S	4	D	Rm	Not within 10m of proposed buildings & roads. Remove as part of VMP. Noxious weed.
131	Camphor Laurel, <i>Cinnamomum camphora</i>										S	4	D	Rm	Not within 10m of proposed buildings & roads. Remove as part of VMP. Noxious weed.
132	Large-leaved Privet, <i>Ligustrum lucidum</i>										S	4	D	Rm	Noxious Weed. Remove as part of VMP.
133	Large-leaved Privet, <i>Ligustrum lucidum</i>										S	4	D	Rm	Noxious Weed. Remove as part of VMP.
134	Large-leaved Privet, <i>Ligustrum lucidum</i>										S	4	D	Rm	Noxious Weed. Remove as part of VMP.
135	Cypress, <i>Cupressus</i> sp.	0.3 @g	15	1	M	F	P	2.0	3.6	0%	S	4	D	Rm	Previous codominant stem failure at base. Within Outlet #2 and GPT-Figure 2 Stormwater and Drainage Plan. Remove as part of VMP.
136	Common Lilly Pilly, <i>Acmena smithii</i>	0.5	15	10N, 0S, 10E, 0W	OM	F	P	2.6	6.0	0%	Rm	3	D	R+	Heavy crown skew to NE. Lowest limb 13m a.g. to E. Recent codominant trunk failure at base. Within Outlet #2 and GPT-Figure 7 Stormwater and Drainage Plan. Stormwater piping and GPT to be relocated beyond TPZ. Remedial pruning required if retained.
137	Large-leaved Privet, <i>Ligustrum lucidum</i>	0.4						2.3	4.8	0%	S	4	D	Rm	Noxious Weed. Remove as part of VMP.
138	Large-leaved Privet, <i>Ligustrum lucidum</i>	0.4						2.3	4.8	0%	S	4	D	Rm	Noxious Weed. Remove as part of VMP.
139	Large-leaved Privet, <i>Ligustrum lucidum</i>	0.4	18	3	SM	G	G	2.3	4.8	0%	S	4	D	Rm	Noxious Weed. Many suckers from base surrounding stem. Remove as part of VMP.
140	Large-leaved Privet, <i>Ligustrum lucidum</i>	0.3	18	3	SM	G	G	2.1	3.6	0%	S	4	D	Rm	Noxious Weed. Remove as part of VMP.

1, 1A, 3 and 5 Avon Road, 4 and 8 Beechworth Road, Pymble

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m) 1.5	TPZ RADIUS (m) 2	% TPZ ENCROACHMENT	ULE	©SIG RATING	©RETENTION INDEX N	RECOMMENDATION	COMMENTS
141	Camphor Laurel, <i>Cinnamomum camphora</i>	0.3, 0.4, 0.4	20	5	M	F	F	2.9	7.2	0%	M	4	C	Rm	Cluster of 3 stems in a row. Ivy in crown. Remove as part of VMP. Noxious weed.
142	Camphor Laurel, <i>Cinnamomum camphora</i>	1.2 @g	20	5	M	F	F	3.6	14.4	0%	M	4	C	Rm	Remove as part of VMP. Noxious weed.
143	Camphor Laurel, <i>Cinnamomum camphora</i>	0.8						3.1	9.6	0%	S	4	D	Rm	Remove as part of VMP. Noxious weed.
144	Camphor Laurel, <i>Cinnamomum camphora</i>	0.4						2.3	4.8	0%	S	4	D	Rm	Remove as part of VMP. Noxious weed.
148	Jacaranda, <i>Jacaranda mimosifolia</i>	0.6	18	7		G	G	2.8	7.2	0%	L	2	A	Rm	Remove as part of VMP.
149	Jacaranda, <i>Jacaranda mimosifolia</i>	0.3	15	5		G	F	2.1	3.6	0%	S	3	C	Rm	Remove as part of VMP.
151	Jacaranda, <i>Jacaranda mimosifolia</i>	0.4	12	5		F	F	2.3	4.8	0%	S	3	C	Rm	Lean to South. Suppressed form. Remove as part of VMP.
152	Japanese Cedar, <i>Cryptomeria japonia</i>	0.3	10	5		F	F	2.1	3.6	0%	S	4	D	Rm	Suppressed by Privet. Remove as part of VMP.
159	False Cypress, <i>Chamaecyparis sp.</i>	0.6	17	5		F	G	2.8	7.2	0%	M	3	B	Rm	Remove as part of VMP.
160	Box Elder, <i>Acer negundo</i>	0.5	15	5		G	G	2.6	6.0	0%	M	3	B	Rm	TPO Exempt species. Remove as part of VMP.
161	Bull Bay Magnolia, <i>Magnolia grandiflora</i>	0.5	17	6		G	G	2.6	6.0	0%	M	2	A	R	Tree provides inter-allotment screening. Not within 10m of proposed buildings & roads.
162	Monterey Pine, <i>Pinus radiata</i>	1.0	25	10	M	F	G	3.4	12.0	0%	M	2	A	R	On boundary of adjoining property. Not within 10m of proposed buildings & roads.
164	Jacaranda, <i>Jacaranda mimosifolia</i>	0.2, 0.3	7	3	M	F	P	2.3	4.8	0%	S	3	C	Rm	Heavy lean to W. Remove as part of VMP. Wounds on E side.
169	Jacaranda, <i>Jacaranda mimosifolia</i>	0.3	15	4	SM	G	F	2.1	3.6	0%	M	3	B	R	Trunk lean to SW. Not within 10m of proposed buildings & roads.
169A	Illawarra Flame Tree, <i>Brachychiton acerifolius</i>	0.4	15	2	SM	F	F	2.3	4.8	0%	M	3	B	R	Smothered in Ivy. Privet at base.
171	Jacaranda, <i>Jacaranda mimosifolia</i>	0.3, 0.3	5	4	SM	F	F	2.5	4.8	0%	S	4	D	Rm	Surrounded by Privet, heavy weed competition. Remove to favour Tree 172. Skewed to W.

1, 1A, 3 and 5 Avon Road, 4 and 8 Beechworth Road, Pymble

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m) 1.5	TPZ RADIUS (m) 2	% TPZ ENCROACHMENT	ULE	©SIG RATING	ⓃRETENTION INDEX N	RECOMMENDATION	COMMENTS
172	Kauri Pine, <i>Agathis robusta</i>	1.1	30	7N, 7S, 8E, 8W	M	G	G	3.6	13.7	18%	L	1	A	R+	Height to lowest limbs 10m E, 9m S. No crown pruning required for building or APZ. Acceptable TPZ encroachment considering the location of the existing tennis court.
175	Sydney Blue Gum, <i>Eucalyptus saligna</i>	0.5	26	5	M	G	G	2.6	6.0	100%	L	2	A	Rm	Within footprint Building 3.
176	Liquidambar, <i>Liquidambar styraciflua</i>	1.0	22	9	M	G	F	3.4	12.0	21%	M	2	A	Rm	Several previous live limb failures. Major encroachment from Building 3 and Basement. TPO Exempt when <12m tall.
176A	Liquidambar, <i>Liquidambar styraciflua</i>	0.3	12	5	SM	G	F	2.1	3.6	100%	M	3	B	Rm	TPO Exempt when <12m tall. Suppressed by Tree # 176. Within Basement footprint.
178	Atlas Cedar, <i>Cedrus Atlantica</i>	0.5	14	4	M	F	G	2.6	6.0	100%	L	3	B	Rm	Lantana in crown, heavy weed competition. Within Basement footprint.
180	Sydney Blue Gum, <i>Eucalyptus saligna</i>	0.3	20	5	SM	G	G	2.1	3.6	100%	L	3	B	Rm	Within Building 3 footprint.
181	Arizona Cypress, <i>Cupressus glabra</i>												D	Rm	Dead. 2015 - Tree has fallen.
182	Sydney Blue Gum, <i>Eucalyptus saligna</i>	0.9	35	10	M	G	F	3.3	10.8	0%	M	1	A	R+	Previous large co-dominant branch failure - internal diagnostic testing required if tree retention desired as remaining stem may impact proposed development - likely hollow. Lowest limb to E 16m a.g., crown spread symmetrical. May be affected by stormwater ponds - detail design to avoid excavation within TPZ.
184	Blackbutt, <i>Eucalyptus pilularis</i>												NI	R	Not within 10m of proposed buildings & roads. May be affected by stormwater ponds - detail design to avoid excavation within TPZ.
185	Blackbutt, <i>Eucalyptus pilularis</i>	1.1						3.6	13.2	0%	M	1	A	R	Not within 10m of proposed buildings & roads. May be affected by stormwater ponds - detail design to avoid trenching within TPZ.
188	Sydney Blue Gum, <i>Eucalyptus saligna</i>	0.9	35	10	M	G	F	3.3	10.8	0%	L	1	A	R+	Termite colony & wound 2m a.g. N side. Twin trunks from 6m a.g. 15m a.g. to lowest limb E side. Crown spread symmetrical. No crown pruning required for APZ. May be affected by stormwater works - detail design to avoid trenching within TPZ. Not accessible, not tagged.

1, 1A, 3 and 5 Avon Road, 4 and 8 Beechworth Road, Pymble

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m) 1.5	TPZ RADIUS (m) 2	% TPZ ENCROACHMENT	ULE	©SIG RATING	©RETENTION INDEX N	RECOMMENDATION	COMMENTS
193	Yellowwood, <i>Afrocarpus falcatus</i>	0.8	22	8	M	F	F	3.1	9.6	12%	L	2	A	Rm	Excessive TPZ encroachment and crown pruning within TPZ.
193A	Rose Apple, <i>Syzygium jambos</i>	0.1, 0.2, 0.3	8	5	M	G	F	2.3	4.8	35%	M	3	B	Rm	Excessive TPZ encroachment
193B	Rose Apple, <i>Syzygium jambos</i>	0.3, 0.3, 0.4	8	5	M	G	F	2.8	7.2	34%	M	3	B	Rm	Excessive TPZ encroachment.
194	Jacaranda, <i>Jacaranda mimosifolia</i>												NI	Rm	Not within 10m of proposed buildings & roads. Remove as part of VMP.
196	Lemon-scented Gum, <i>Corymbia citriodora</i>	0.4	20	5		G	F	2.3	4.8	0%	L	3	B	Rm	Not within 10m of proposed buildings & roads. Remove as part of VMP.
197	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads. May be affected by stormwater works - detail design to avoid trenching within TPZ.
198	Cabbage Tree Palm, <i>Livistona australis</i>												NI	R	Not within 10m of proposed buildings & roads.
199	Blackbutt, <i>Eucalyptus pilularis</i>												NI	R	Not within 10m of proposed buildings & roads. May be affected by stormwater works - detail design to avoid trenching within TPZ.
201	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads. May be affected by stormwater works - detail design to avoid trenching within TPZ.
203	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads.
206	Hills Fig, <i>Ficus microcarpa</i> var. <i>Hillii</i>												NI	Rm	Not within 10m of proposed buildings & roads. Remove as part of VMP.
208	Blackbutt, <i>Eucalyptus pilularis</i>												NI	R	Not within 10m of proposed buildings & roads.
209	Sydney Blue Gum, <i>Eucalyptus saligna</i>	0.8	25	0N, 10S, 6E, 6W	M	G	G	3.1	9.6	0%	L	2	A	R	Not within 10m of proposed buildings & roads. No crown pruning required within APZ. Bulge @10m. Vines at base cut.
210	Blackbutt, <i>Eucalyptus pilularis</i>	1.3	35	15	M	G	G	3.8	15.0	0%	L	1	A	R+	Crown spread to E 12m. Lowest limbs skewed to NE. Termites active. May be affected by stormwater works - detail design to avoid trenching within TPZ. No crown pruning required within APZ. Previous branch failures.

1, 1A, 3 and 5 Avon Road, 4 and 8 Beechworth Road, Pymble

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m) 1.5	TPZ RADIUS (m) 2	% TPZ ENCROACHMENT	ULE	©SIG RATING	©RETENTION INDEX N	RECOMMENDATION	COMMENTS
211	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads.
214	Coral Tree, <i>Erythrina x sykesii</i>										S	4	D	Rm	Not within 10m of proposed buildings & roads. Remove as part of VMP. Environmental weed.
218	Camphor Laurel, <i>Cinnamomum camphora</i>										S	4	D	Rm	Not within 10m of proposed buildings & roads. Within 1m of Boardwalk. Remove as part of VMP. Noxious weed.
219	Lemon-scented Gum, <i>Corymbia citriodora</i>												NI	Rm	Not within 10m of proposed buildings & roads. Remove as part of VMP.
222	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads. Confined crown spread.
224	Camphor Laurel, <i>Cinnamomum camphora</i>										S	4	D	Rm	Not within 10m of proposed buildings & roads. Remove as part of VMP. Noxious weed.
225	Camphor Laurel, <i>Cinnamomum camphora</i>										S	4	D	Rm	Not within 10m of proposed buildings & roads. Dead. Noxious weed.
226	Sydney Blue Gum, <i>Eucalyptus saligna</i>												NI	R	Not within 10m of proposed buildings & roads.
227	Dead tree												D	Rm	
228	Sydney Blue Gum, <i>Eucalyptus saligna</i>	0.4	20	5	M	F	F	2.3	4.8	0%	M	3	B	R	Suppressed. Previous failure. Not within 10m of proposed buildings & roads.
229	Sydney Blue Gum, <i>Eucalyptus saligna</i>	1.0	30	12N, 2S, 6E, 12W	M	G	P	3.4	12.0	2%	M	2	A	R+	Trunk lean to NW. Leader has failed at 15m. Building 4 within TPZ.
230	Sydney Blue Gum, <i>Eucalyptus saligna</i>	0.8	28	10N, 3S, 8E, 5W	M	G	G	3.1	9.6	2%	L	2	A	R+	Trunk lean to NE. On adjacent property. Building 4 within TPZ.
231	Dead Pine												D	Rm	
233	Jacaranda, <i>Jacaranda mimosifolia</i>	0.3, 0.4	10	4	SM	G	F	2.6	6.0	100%	L	3	B	Rm	Within footprint Building 4.
234	Jacaranda, <i>Jacaranda mimosifolia</i>	0.2	10	3	SM	G	G	1.8	2.4	100%	L	4	C	Rm	Within footprint Building 4.
235	Jacaranda, <i>Jacaranda mimosifolia</i>	0.3, 0.3	10	3	M	G	G	2.5	4.8	100%	L	3	B	Rm	Within footprint Building 4.

1, 1A, 3 and 5 Avon Road, 4 and 8 Beechworth Road, Pymble

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m) 1.5	TPZ RADIUS (m) 2	% TPZ ENCROACHMENT	ULE	©SIG RATING	©RETENTION INDEX N	RECOMMENDATION	COMMENTS
236	Jacaranda, <i>Jacaranda mimosifolia</i>	0.2, 0.3	10	3	SM	G	G	2.3	4.8	100%	L	3	B	Rm	Within footprint Building 4.
237	Camellia, <i>Camellia sasanqua</i>	0.2 @g	4	3	M	G	G	1.7	2.4	100%	L	4	C	Rm	Within footprint Building 4.
239	Atlas Cedar, <i>Cedrus Atlantica</i>	0.4	12	6	SM	F	F	2.3	4.8	0%	M	3	B	Rm	Suppressed. SRZ within footprint of Building 4.
240	Atlas Cedar, <i>Cedrus Atlantica</i>	1.0	20	7	M	F	G	3.4	12.0	100%	L	2	A	Rm	Large deadwood in lower crown. Within footprint Building 4.
242	Atlas Cedar, <i>Cedrus Atlantica</i>	0.5	15	5	M	F	G	2.6	6.0	100%	L	3	B	Rm	Low deadwood. Vines in lower crown. Within footprint Building 4.
245	Atlas Cedar, <i>Cedrus Atlantica</i>	0.7	20	6	M	G	G	3.0	8.4	100%	L	2	A	Rm	Within footprint Building 3.
246	Small-leaved Lilly Pilly, <i>Syzygium luehmannii</i>	0.5	10	3	M	G	F	2.6	6.0	100%	M	3	B	Rm	Within footprint Building 3.
250	Canary Island Date Palm, <i>Phoenix canariensis</i>	1.0	6	4	SM	G	G	1.5	5.0	0%	M	3	B	Rm	Within Basement footprint.
250A	Cypress, <i>Cupressus</i> sp.	0.2	6	3	SM	G	G	1.8	2.4	100%	L	4	C	Rm	Recently cleared of surrounding weeds. Within Basement footprint.
252	Camellia, <i>Camellia sasanqua</i>	0.4 @g	6	3	M	G	G	2.3	4.8	100%	M	4	C	Rm	Within Basement footprint.
254	Camellia, <i>Camellia sasanqua</i>	0.5 @g	7	4	M	G	G	2.5	6.0	100%	M	3	B	Rm	Within Basement footprint.
256	Cypress, <i>Cupressus</i> sp.	0.3	9	4	M	G	F	2.1	3.6	100%	M	3	B	Rm	Within Basement footprint.
260	Silky Oak, <i>Grevillea robusta</i>	0.4	18	8	M	F	P	2.3	4.8	100%	S	3	C	Rm	Heavy skew to W. Within Basement footprint.
261	Camellia, <i>Camellia sasanqua</i>	0.4 @g	6	2	M	G	G	2.3	4.8	100%	M	4	C	Rm	Within Basement footprint.
264	Turpentine, <i>Syncarpia glomulifera</i>	0.7	18	4	M	G	F	3.0	8.4	100%	L	2	A	Rm	Within Basement footprint.
265	Turpentine, <i>Syncarpia glomulifera</i>	0.7	18	4	M	G	F	3.0	8.4	100%	L	2	A	Rm	Within Basement footprint.
266	Turpentine, <i>Syncarpia glomulifera</i>	0.5	18	3	M	F	F	2.6	6.0	9%	L	3	B	Rm	Suppressed by adjacent trees. Basement footprint within TPZ.

1, 1A, 3 and 5 Avon Road, 4 and 8 Beechworth Road, Pymble

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m) 1.5	TPZ RADIUS (m) 2	% TPZ ENCROACHMENT	ULE	©SIG RATING	©RETENTION INDEX N	RECOMMENDATION	COMMENTS
267	Turpentine, <i>Syncarpia glomulifera</i>	0.4	18	4	M	F	F	2.3	4.8	28%	M	2	A	Rm	SRZ cut for Building 1 footprint.
267A	Brush Box, <i>Lophostemon confertus</i>	0.9	16	7N, 6S, 5E, 8W	M	G	G	3.3	10.8	35%	L	2	A	Rm	SRZ cut for Basement footprint.
267B	Bunya Pine, <i>Araucaria bidwillii</i>	0.9	25	8N, 6S, 7E, 6W	M	G	G	3.3	10.8	20%	L	1	A	Rm	Excessive TPZ encroachment for Basement. Substantial crown pruning required for building façade. Ongoing cone drop management avoided if tree removed.
267C	Brushbox, <i>Lophostemon confertus</i>	0.9	22	7	M	G	F	3.3	10.8	22%	M	2	A	Rm	Remove and replant in new landscape east of Building 1.
267D	Cooks Pine, <i>Araucaria columnaris</i>	0.5	22	3	M	G	G	2.6	6.0	100%	L	2	A	Rm	Within Building 1 footprint.
267E	Crab Apple, <i>Malus floribunda</i>	0.2	4	4	SM	G	G	1.8	2.4	100%	M	4	C	Rm	Within Building 1 footprint.
267F	Smoke Bush, <i>Cotinus coggygria</i>	0.2	5	5	M	F	F	1.8	2.4	0%	M	4	C	Rm	Remove for landscape purposes.
268	Yellowwood, <i>Afrocarpus falcatus</i>	0.3, 0.3, 0.3, 0.4	10	5	M	F	F	2.9	8.4	100%	M	3	B	Rm	Within grading for new landscape adjacent Heritage building.
269	Hinoki Cypress, <i>Chamaecyparis obtusa</i>	0.4	10	3	M	F	F	2.3	4.8	100%	M	3	B	Rm	Within grading for new landscape.
270	Rose Apple, <i>Syzygium jambos</i>	1.1 @g	8	5	M	G	F	3.4	13.2	100%	L	3	B	Rm	Within footprint Building 4.
271	Lemon-scented Myrtle, <i>Backhousia citriodora</i>	0.5	15	4	M	G	F	2.6	6.0	100%	M	3	B	Rm	Within footprint Building 4.
273	Jacaranda, <i>Jacaranda mimosifolia</i>	0.2, 0.3, 0.4	15	5	M	G	G	2.7	6.0	100%	L	3	B	Rm	Within footprint Building 4
275	Jacaranda, <i>Jacaranda mimosifolia</i>	0.1, 0.3	10	4	M	G	G	2.2	3.6	100%	L	3	B	Rm	Within footprint Building 4.
277	Port Wine Magnolia, <i>Michelia figo</i>	0.5 @g	5	3	M	F	F	2.5	6.0	17%	M	4	C	Rm	Within regrading Building 4.
277A	Tibouchina, <i>Tibouchina</i> sp.	0.2 @g	5	3	M	F	F	1.7	2.4	100%	S	4	D	Rm	Within footprint Building 4. Not tagged, inaccessible.

Tree Schedule -
1, 1A, 3 and 5 Avon Road, 4 and 8 Beechworth Road, Pymble

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m) 1.5	TPZ RADIUS (m) 2	% TPZ ENCROACHMENT	ULE	©SIG RATING	©RETENTION INDEX N	RECOMMENDATION	COMMENTS
280	Maidenhair Tree, <i>Ginkgo biloba</i>	0.4	16	4	M	G	G	2.3	4.8	100%	L	2	A	Rm	Within Building 4. Dead stubs.
281	Dead tree												D	Rm	
282	Brush Box, <i>Lophostemon confertus</i>	0.9	18	6	M	G	F	3.3	10.8	18%	M	2	A	Rm	Co-dominant from 1.6m a.g. On adjoining railway land. Excessive TPZ & SRZ encroachment and crown pruning required adjacent Building 4.
283	Large-leaved Privet, <i>Ligustrum lucidum</i>	0.1	5	2	SM	G	P	1.5	2.0	0%	S	4	D	Rm	Noxious weed.
284	Brush Box, <i>Lophostemon confertus</i>	0.8 @1.0	16	6	M	G	G	3.0	9.6	15%	L	2	A	R+	On adjoining railway land. Not shown on Survey. Retain as part of landscape treatment of northern boundary. Minor fill required as per the Excavation Plan. Crown pruning required.
285	Large-leaved Privet, <i>Ligustrum lucidum</i>	0.1, 0.1, 0.1, 0.1	4					1.8	2.4	0%	S	4	D	Rm	Remove. Noxious weed.
291	Brush Box, <i>Lophostemon confertus</i>	1.0	13	6	M	G	F	3.4	12.0	0%	L	2	A	R	Retain as part of landscape treatment of northern boundary.
292	Brush Box, <i>Lophostemon confertus</i>	0.5	12	5	M	F	F	2.6	6.0	0%	L	2	A	R	Retain as part of landscape treatment of northern boundary.
293	Brush Box, <i>Lophostemon confertus</i>	0.7 @g	12	6	M	G	F	2.8	8.4	0%	L	2	A	R	Retain as part of landscape treatment of northern boundary. Inaccessible, not tagged.
295	Monterey Pine, <i>Pinus radiata</i>	1.2	22	10	M	F	G	3.7	14.4	41%	M	1	A	R+	Verge tree. Proposed optional Turning Head to be deleted.
296	Monterey Pine, <i>Pinus radiata</i>	0.8	22	6	OM	F	F	3.1	9.6	38%	S	2	B	R+	Verge tree. Dead top. Existing surface root damage. Proposed optional Turning Head to be deleted.
297	Monterey Pine, <i>Pinus radiata</i>	0.5	18	4	M	G	G	2.6	6.0	40%	L	3	B	R+	Verge tree.
299	Monterey Pine, <i>Pinus radiata</i>	1.2	20	6	M	F	F	3.7	14.4	35%	M	2	A	R+	Verge tree. Proposed Driveway to match existing.
300	Camphor Laurel, <i>Cinnamomum camphora</i>	0.4	10	4	SM	G	F	2.3	4.8	36%	M	3	B	R+	Verge tree. Proposed Driveway to match existing.
301	Jacaranda, <i>Jacaranda mimosifolia</i>	0.2	6	3	SM	G	F	1.8	2.4	0%	M	4	C	R	Verge tree. Lean to N. Retain as part of landscape treatment of northern boundary.
302	Tupelo, <i>Nyssa sylvatica</i>	0.3	5	5	M	F	F	2.1	3.6	0%	M	4	C	R	Verge tree. Lopped under wires. Retain as part of landscape treatment of northern boundary.

1, 1A, 3 and 5 Avon Road, 4 and 8 Beechworth Road, Pymble

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m) 1.5	TPZ RADIUS (m) 2	% TPZ ENCROACHMENT	ULE	©SIG RATING	ⓃRETENTION INDEX	RECOMMENDATION	COMMENTS
303	Crepe Myrtle, <i>Lagerstroemia indica</i>	0.2 @g	4	3	SM	F	F	1.7	2.4	0%	L	4	C	R	Verge tree. Retain as part of landscape treatment of northern boundary.
304	Japanese Maple, <i>Acer palmatum</i>	0.2 @g	3	2	SM	G	G	1.7	2.4	0%	L	4	C	R	Verge tree. Retain as part of landscape treatment of northern boundary.
305	Weeping Bottlebrush, <i>Callistemon viminalis</i>	0.3	6	4	M	F	P	2.1	3.6	0%	S	4	D	R	Verge tree. Heavy skew to N. Lopped. Retain as part of landscape treatment of northern boundary.
306	Bunya Pine, <i>Araucaria bidwillii</i>	0.3, 0.4	6	5	M	G	P	2.6	6.0	0%	M	4	C	R	Verge tree. Heavy lopped under wires. Retain as part of landscape treatment of northern boundary.
307	Maidenhair Tree, <i>Ginko biloba</i>	0.3, 0.3	8	4	M	G	F	2.5	4.8	0%	M	3	B	R	Verge tree. Retain.
307A	Maidenhair Tree, <i>Ginko biloba</i>	0.3, 0.3	12	4	M	G	F	2.5	4.8	0%	M	2	A	R	Verge tree. Retain.
308	Rhododendron, <i>Rhododendron sp.</i>	0.2, 0.2	7	5	M	G	G	2.1	3.6	0%	M	3	B	Rm	Remove as part of Avon Road frontage landscape treatment.
308A	Trident Maple, <i>Acer buergerianum</i>	0.3	8	5	OM	F	P	2.1	3.6	0%	S	3	C	R	Verge tree. Retain.
309	Canary Island Date Palm, <i>Phoenix canariensis</i>	0.8	10	4	M	G	G	1.5	5.0	0%	L	3	B	T	Potential transplant. Transplant as part of Avon Road frontage landscape treatment.
310	Cocos Palm, <i>Syagrus romanzoffianum</i>	0.3	16	3	M	G	G	1.0	4.0	0%	M	3	B	T	Exempt species under KMC TPO. Transplant as part of Avon Road frontage landscape treatment.
311	Gordonia, <i>Franklinia axillaris</i> syn. <i>Gordonia axillaris</i>	0.7 @g	9	5	M	G	G	2.8	8.4	42%	L	3	B	Rm	Remove. Building 1 footprint within SRZ.
315	Jacaranda, <i>Jacaranda mimosifolia</i>	0.5	10	4	M	F	F	2.6	6.0	100%	M	3	B	Rm	Ivy smothered crown. Within Building 1 footprint.
316	Himalayan Cedar, <i>Cedrus deodora</i>	0.5	20	5	M	F	G	2.6	6.0	100%	L	2	A	Rm	Significant lean over adjacent 3 Avon Rd. Within Building 1 footprint.
316A	Camellia, <i>Camellia sasanqua</i>	0.2	5	2	SM	G	G	1.8	2.4	100%	M	3	B	Rm	Within Building 1 footprint.
316B	Camellia, <i>Camellia japonica</i>	0.2 @g	5	2	SM	G	G	1.7	2.4	100%	M	3	B	Rm	Within Building 1 footprint.
318	Brush Cherry, <i>Syzygium australe</i>	0.2, 0.5, 0.6	18	6	M	G	F	3.2	9.6	100%	M	2	A	Rm	Within Building 1 footprint.
318A	Trident Maple, <i>Acer buergerianum</i>	0.3	10	3	SM	G	F	2.1	3.6	100%	L	3	B	Rm	Vines in crown. Within Building 1 footprint.

1, 1A, 3 and 5 Avon Road, 4 and 8 Beechworth Road, Pymble

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m) 1.5	TPZ RADIUS (m) 2	% TPZ ENCROACHMENT	ULE	©SIG RATING	ⓃRETENTION INDEX	RECOMMENDATION	COMMENTS
319	Monterey Cypress, <i>Cupressus macrocarpa</i> 'cv.'												D	Rm	Co-dominant - 1 leader dead. Within Basement footprint. 2015 - Tree has failed from base.
320	Liquidambar, <i>Liquidambar styraciflua</i>	0.6	20	6	M	G	F	2.8	7.2	100%	M	2	A	Rm	Within Basement footprint. TPO Exempt when <12m tall. Previous leader failure.
321	Monterey Cypress, <i>Cupressus macrocarpa</i> 'cv.'	1.0	20	7	OM	F	P	3.4	12.0	100%	S	2	B	Rm	Within Basement footprint. Significant stem failure in situ.
322	Liquidambar, <i>Liquidambar styraciflua</i>	0.5	20	7	M	G	G	2.6	6.0	100%	L	2	A	Rm	Within Basement footprint. TPO Exempt species when <12m tall.
323	Himalayan Cedar, <i>Cedrus deodora</i>	0.3	10	4	M	P	F	2.1	3.6	100%	S	4	D	Rm	Within Basement footprint. Top 5m dead.
324	Jacaranda, <i>Jacaranda mimosifolia</i>	0.2, 0.4	12	6	M	G	F	2.5	4.8	100%	L	3	B	Rm	Within Basement footprint.
324A	Camellia, <i>Camellia japonica</i>	0.1 @g	3	1	SM	G	G	1.5	2.0	100%	L	4	C	Rm	Within Basement footprint. Transplantable.
324B	Hinoki Cypress, <i>Chamaecyparis obtusa</i>	0.2, 0.2	8	2	SM	G	F	2.1	3.6	100%	M	4	C	Rm	Within Basement footprint.
325	Coral Tree, <i>Erythrina x sykesii</i>	1.0	15	8	OM	F	F	3.4	12.0	9%	S	4	D	Rm	Previous live limb failure. Dangerous tree species. Environmental weed. Remove irrespective of proposed development. Basal borer damage/decay.
325A	Jacaranda, <i>Jacaranda mimosifolia</i>	0.3, 0.6	16	6	M	G	G	3.0	8.4	0%	L	2	A	R	Located adjacent 7 Avon Rd boundary.
325B	Chinese Elm, <i>Ulmus parvifolia</i>	0.2	5	3	SM	F	F	1.8	2.4	0%	M	4	C	Rm	Within Basement footprint.
326	Himalayan Cedar, <i>Cedrus deodora</i>	0.6	18	6	M	F	F	2.8	7.2	18%	M	2	A	Rm	Previous multiple live limb failure. Hangers. Excessive amount of cut for Basement within TPZ. Remove.
327	Brush Box, <i>Lophostemon confertus</i>	0.7	16	6	M	G	G	3.0	8.4	16%	L	2	A	Rm	Small deadwood. Remove. SRZ cut for Basement footprint.
327A	Common Lilly Pilly, <i>Acmena smithii</i>	0.2, 0.3	6	4	OM	F	P	2.3	4.8	1%	S	4	D	Rm	Dieback/decline. Within Basement footprint.
328	Port Jackson Fig, <i>Ficus rubiginosa</i>	1.2 @g	15	6	M	F	P	3.6	14.4	23%	S	3	C	Rm	Poor condition - growing on old dead tree. Not worthy of retention. TPZ cut for Basement footprint. Major basal decay. Significant hangers. Advanced Dieback.
328A	Brush Cherry, <i>Syzygium australe</i>	0.3, 0.3, 0.3	15	4	M	F	F	2.7	6.0	100%	M	3	B	Rm	Remove. Within Building 1 footprint.

1, 1A, 3 and 5 Avon Road, 4 and 8 Beechworth Road, Pymble

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m) 1.5	TPZ RADIUS (m) 2	% TPZ ENCROACHMENT	ULE	©SIG RATING	©RETENTION INDEX N	RECOMMENDATION	COMMENTS
328B	Brush Cherry, <i>Syzygium australe</i>	0.3, 0.3	14	4	M	F	F	2.5	4.8	29%	M	3	B	Rm	Remove. SRZ cut for Basement footprint.
329	Common Lilly Pilly, <i>Acmena smithii</i>	0.4 @g	8	3	OM	P	P	2.3	4.8	0%	S	4	D	Rm	Remove as part of new landscape treatment on Avon Rd frontage.
330	Dead Camphor Laurel	1.0 @g						3.3	12.0	100%	R	4	D	Rm	Within Path.
331	Rough Barked Angophora, <i>Angophora floribunda</i>	0.3						2.1	3.6	0%			NI	R	Not within 10m of proposed buildings & roads. Located in SW corner. Retain under VMP.
331A	Sydney Blue Gum, <i>Eucalyptus saligna</i>	0.5						2.6	6.0	0%			NI	R	Not within 10m of proposed buildings & roads. Located in SW corner. Retain within VMP.
332	Sydney Blue Gum, <i>Eucalyptus saligna</i>	0.3						2.1	3.6	0%			NI	R	Not within 10m of proposed buildings & roads. Retain under VMP.
333	Camellia, <i>Camellia sasanqua</i>	0.2, 0.2, 0.2, 0.3	9	5	M	G	G	2.5	6.0	0%	M	3	B	R+	Retain as part of Avon Rd landscape treatment.
334	Port Wine Magnolia, <i>Michelia figo</i>	0.6 @g	4	2	M	G	F	2.7	7.2	0%	M	4	C	Rm	Remove as part of new landscape treatment on Avon Rd frontage.
335	Tupelo, <i>Nyssa sylvatica</i>	0.4	16	7	M	G	G	2.3	4.8	0%	L	2	A	Rm	Remove as part of new landscape treatment on Avon Rd frontage.
336	Camellia, <i>Camellia sasanqua</i>	0.3 @g	6	4	M	F	F	2.0	3.6	0%	M	4	C	Rm	Remove as part of new landscape treatment on Avon Rd frontage. Smothered in vines.
337	Camellia, <i>Camellia sasanqua</i>	0.3 @g	6	4	M	F	F	2.0	3.6	0%	M	4	C	Rm	Remove as part of new landscape treatment on Avon Rd frontage.
338	Chinese Elm, <i>Ulmus parvifolia</i>	0.3	12	5	M	G	G	2.1	3.6	0%	L	3	B	Rm	Remove as part of new landscape treatment on Avon Rd frontage. Vines on trunk and in crown.
339	Jacaranda, <i>Jacaranda mimosifolia</i>	0.3, 0.3	15	4	M	G	G	2.5	4.8	0%	L	3	B	Rm	Remove as part of new landscape treatment on Avon Rd frontage. Inaccessible, not tagged.
340	Jacaranda, <i>Jacaranda mimosifolia</i>	0.3	11	3	SM	G	G	2.1	3.6	25%	L	3	B	Rm	Inaccessible, not tagged. Cut within SRZ for Basement footprint.
341	Trident Maple, <i>Acer buergerianum</i>	0.3	10	3	SM	G	G	2.1	3.6	0%	L	3	B	Rm	Remove as part of new landscape treatment on Avon Rd frontage.
341A	Trident Maple, <i>Acer buergerianum</i>	0.1, 0.2	8	3	OM	P	P	1.9	2.4	0%	S	4	D	Rm	Remove as part of new landscape treatment on Avon Rd frontage.
342	Camellia, <i>Camellia sasanqua</i>	0.1, 0.2, 0.2, 0.3	9	4	M	G	G	2.5	4.8	100%	M	3	B	Rm	Remove. Within Basement footprint.
342A	Camellia, <i>Camellia sasanqua</i>									100%			NI	Rm	Remove. Within Basement footprint.

1, 1A, 3 and 5 Avon Road, 4 and 8 Beechworth Road, Pymble

TREE No.	COMMON NAME/ GENUS SPECIES	DBH (m)	HEIGHT (m)	CANOPY RADIUS (m)	AGE CLASS	VIGOUR	CONDITION	SRZ RADIUS (m) 1.5	TPZ RADIUS (m) 2	% TPZ ENCROACHMENT %	ULE	©SIG RATING	ⓃRETENTION INDEX N	RECOMMENDATION	COMMENTS
343	Sydney Blue Gum, <i>Eucalyptus saligna</i>	0.4	18	6	SM	G	G	2.3	4.8	100%	L	3	B	Rm	Semi-mature. No significant defects. Located within proposed Drive for House 2.
344	Native Daphne, <i>Pittosporum undulatum</i>	0.2, 0.4	15	4	M	G	G	2.5	4.8	0%	M	3	B	R	Located within landscape SE corner. Retain as part of VMP.
345	Illawarra Flame Tree, <i>Brachychiton acerifolius</i>	0.3	10	3	SM	F	F	2.1	3.6	100%	M	4	C	Rm	Remove. Within regrading for new landscape between Building 1 and Heritage Building. Smothered in vines.
268															

1, 1A, 3 and 5 Avon Road, 4 and 8 Beechworth Road, Pymble

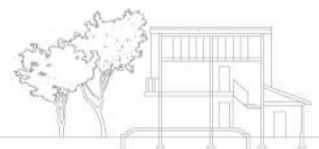
Summary Data

©RETENTION INDEX	NO. OF TREES
A	56
B	61
C	30
D	65
PR	1
NI	55
Total	268

RECOMMENDATION	NO. OF TREES
R	90
R+	20
T	2
Rm	155
PR	1
Total	268

©RETENTION INDEX	RECOMMENDATION			
	R	R+	T	Rm
A	18	12	0	26
B	9	7	2	43
C	7	0	0	23
D	5	1	0	59
NI	51	0	0	4

Attachment B: Definition of Terms



COMMON NAME/GENUS SPECIES CULTIVAR – Common names can vary with selected texts. Where species is unknown, “sp.” indicated after genus. Where cultivar is unknown “cv” indicated after species. The number in brackets e.g. (x9) after the species indicates the number of trees in this tree group.

DBH – Diameter at Breast Height. Tree trunk diameter measured at breast height (1.4 metres above ground level). Fabric diameter tape is used which assumes a circular cross section. Multiple measurements indicate multiple trunks. More than three trunks are indicated as “multi”. Where DBH measurement cannot be taken at 1.4m the height at which it has been taken is indicated in the Comments column.

CANOPY SPREAD RADIUS – Average canopy radius (widest + narrowest ÷ 2). Circular canopy depictions on Tree Plan/Survey are indicative only. Where canopy spread was significantly skewed, all four cardinal point measurements were recorded.

AGE CLASS – Immature (IM), Semi-mature (SM), Mature (M), Over-mature (OM). Assessment of the tree’s current Age. A **Mature (M)** tree has reached a near stable size (biomass) above and below ground. Trees can have a Mature age class for >90% of life span. **Over-mature (OM)** trees show symptoms of irreversible decline and decreasing biomass.

VIGOUR – Good (G), Fair (F) or Poor (P). The general appearance of the canopy/foilage of the tree at the time of inspection. Vigour can vary with the season and rainfall frequency. A tree can have Good vigour but be hazardous due to Poor condition. A tree in Good vigour has the ability to sustain its life processes. Vigour is synonymous with health.

CONDITION – Good (G), Fair (F) or Poor (P). The general form and structure of the trunk/s and branching. Trunk lean, trunk/branch structural defects, canopy skewness or other hazard features are considered.

SRZ RADIUS – Structural Root Zone. The area around a tree required for tree stability. Earthworks should be prohibited within the SRZ. The area is calculated from the formula and graph at Figure 1 of AS4970-2009. The SRZ graph has been adapted from the work of Claus Mattheck (1994). DBH + 10% has been used for the calculation of SRZ. Where DBH is measured at grade or at a height other than 1.4m above grade, 10% has not been added.

TPZ RADIUS – Tree Protection Zone. Radial offset (m) of twelve times (12x) trunk DBH measured from centre of trunk (for trees less than 0.3 metre DBH minimum TPZ is 2.0 metres). To satisfactorily retain the tree, construction activity (both soil cut and fill) must be restricted within this offset. TPZ offsets are rounded to the nearest 0.1 metre. Existing constraints to root spread can vary. Generally an area equivalent to the TPZ should be available to the tree post development. Encroachment occupying up to 10% of the TPZ area is acceptable without detailed rootzone assessment. Encroachments greater than 10% require specific arboricultural assessment.

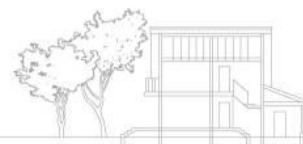
SULE – Safe Useful Life Expectancy. A systematic pre-development tree assessment procedure developed by Jeremy Barrell, Hampshire, England. The SULE method used in this assessment has been adapted for simplified use within the field. It gives a length of time that the Arborist feels a particular tree can be retained with an acceptable level of risk based on the information available at the time of the inspection. SULE ratings are **Long** (retainable for 40 years or more with an acceptable level of risk), **Medium** (retainable for 16-39 years), **Short** (retainable for 5-15 years) and **Removal** (tree requiring immediate removal due to imminent hazard or absolute unsuitability).

©SIG. RATING – ©Significance Rating Scale (see notes over)

©RETENTION INDEX (see notes over)

RECOMMENDATIONS – Retain (R) No TPZ encroachments, Retain Plus (R+) Acceptable levels of TPZ encroachment, Transplant (T) or Remove (Rm).

COMMENTS – Comments relating to the location, surroundings and hazard potential of the trees at the time of inspection and where applicable the reason for removal.



©SIG. RATING – ©Significance Rating Scale. A site specific qualitative evaluation of a tree relative to the existing land use developed by Tree Wise Men® Australia Pty Ltd. Takes into consideration the impact of the tree on the surrounding landscape, streetscape and bushland. Rarity, habitat value, historical/cultural value and structural form of the tree are considered in this rating system. It is possible for a tree to have a Short SULE and a ©Significance Rating of 1. Likewise it is possible for a tree to be given a Long SULE and a ©Significance Rating of 4 (e.g. weed species). The ©Significance Ratings used in this Report are as outlined in Table 1.

Table 1: ©Significance Rating Characteristics

Rating	Significance	Characteristics (some or all)
©Sig. Rating 1	Exceptional	<ul style="list-style-type: none"> ▪ Major contribution to site amenity ▪ Remnant specimen ▪ Heritage Listed ▪ Listed on Significant Tree Register ▪ Threatened Species ▪ Good vigour and condition ▪ Cultural significance ▪ Possible habitat tree for threatened fauna ▪ Excellent, well formed specimen ▪ Rare or unusual species ▪ Large above ground biomass ▪ Unique within the site and surrounds
©Sig. Rating 2	High	<ul style="list-style-type: none"> ▪ Considerable contribution to site amenity ▪ Remnant specimen ▪ Good vigour and condition ▪ Threatened Species ▪ Cultural significance ▪ Possible habitat tree for threatened fauna ▪ Well formed specimen ▪ Rare or unusual species ▪ Large or moderate above ground biomass ▪ Other specimens with similar characteristics within the site and surrounds
©Sig. Rating 3	Moderate	<ul style="list-style-type: none"> ▪ Minor contribution to site amenity ▪ Remnant or planted ▪ Fair or Poor vigour and condition ▪ Potential for growth ▪ Well formed or asymmetrical form ▪ Other specimens with similar characteristics within the site and surrounds
©Sig. Rating 4	Low	<ul style="list-style-type: none"> ▪ Small/poor specimen ▪ Poor vigour and condition ▪ Inappropriate for the location ▪ Minor contribution to landscape amenity ▪ Easily replaced ▪ Weed species or TPO Exempt ▪ Hazardous ▪ Previously ©Sig. Rating 5 tree



©RETENTION INDEX. A site specific assessment of an individual tree’s retention value developed by Tree Wise Men® Australia Pty Ltd. Incorporating SULE and ©Significance Rating each tree is allocated a retention value of A, B, C or D. The ©Retention Index values can be described as follows:

©Retention Value A	Should be retained	<ul style="list-style-type: none"> ▪ Major redesign may be required (e.g. movement of building footprint, re-alignment of roadway).
©Retention Value B	Could be retained	<ul style="list-style-type: none"> ▪ Minor redesign may be required (e.g. level changes, pavement detail).
©Retention Value C	Could be removed	<ul style="list-style-type: none"> ▪ Should not constrain proposed development.
©Retention Value D	Should be removed (or permanently fenced off)	<ul style="list-style-type: none"> ▪ Should not constrain proposed development: <ul style="list-style-type: none"> ○ potentially hazardous or ○ poor specimen or ○ environmental or noxious weed

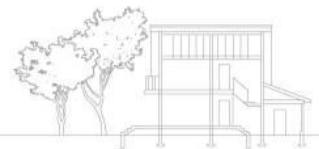
©Retention Index		©Significance Rating			
		1	2	3	4
SULE Rating	Long (40+ years)	A	B	C	
	Medium (15-40 years)				
	Short (5-15 years)	B		C	D
	Remove (< 5 years)	D			

IMPORTANT PROJECT-SPECIFIC NOTE

It should also be noted that an **NI** category has been added to the ©Retention Index for this project. **NI** equates with **No Information due to inaccessibility**. Comprehensive data has not been collected for these trees due to their inaccessibility on the site.



Attachment C: Tree Protection Requirements (Generic)



TREE PROTECTION REQUIREMENTS (GENERIC)

The following generic tree protection requirements (1-12) should be implemented to minimise the impact of the proposed development on the retained trees. These requirements shall be implemented during the construction period in the event that no site-specific requirements are detailed in this document. Tree Protection Requirements should comply with *Section 4 Tree Protection Measures of AS4970-2009 Protection of trees on development sites* and the Tree Protection Plan (TPP) attached to this document.

1. Arborist Involvement – An Arborist (the project Arborist) with minimum AQF Level 5 qualifications, experienced in tree protection on construction sites shall be engaged prior to the commencement of work on the site. The Arborist's tasks will be to monitor and report regularly to the PCA and the Applicant on the condition of the retained trees for the duration of works on site. The Project Arborist shall be present to certify tree protection measures and to supervise any excavation, trenching or tunnelling within the TPZ of any retained trees.

The schedule of works for the development shall acknowledge the role of the Project Arborist and the need to protect the retained trees. Sufficient notice shall be given to the Project Arborist where his/her attendance is required. Should the proposed design change from that reviewed, additional arboricultural assessment will be required.

2. Tree Pruning and Removal – All tree pruning (including root pruning) and tree removal shall be carried out by a qualified and experienced Arborist (minimum AQF Level 3 qualification) to Australian Standard *AS4373-2007 Pruning of amenity trees* and the Work Cover Code of Practice for the Amenity Tree Industry, 1998.

When tree stumps are within the TPZ of retained trees, stump grinding of rootballs shall be performed rather than complete "grubbing". This will minimise unnecessary root damage to the retained trees. Unnecessary damage often occurs to retained trees when undertaken by earthmoving machinery.

3. Mulching – If construction activity is proposed within TPZ offsets mulching is required. Mulch to a depth of 100 millimetres using partially composted green waste mulch. The mulch should be free of weed seeds and other contaminants. Should constant access be required within the trees' TPZs, outside the protective fencing, heavier mulch should be spread to a depth no greater than 100 millimetres to reduce soil compaction.

4. Temporary Irrigation – Where construction related activity or root cutting is proposed within the TPZ of retained trees, temporary irrigation or water cart access may need to be provided to the remaining unimpacted TPZ areas to maintain adequate soil moisture levels. Delivery volumes are to allow for mulch layer and recent rainfall. The Project Arborist is to monitor soil moisture levels.



5. Tree Protection Fencing – The retained trees shall be protected by means of fencing as per Figure 3 of AS4970-2009 or as detailed in the TPP prior to commencement of demolition or bulk earthworks.

It should be constructed from 1.8 metre high chain link wire or welded mesh suspended by galvanised steel pipe or equivalent and enclose as much of the TPZ as practicable allowing for building alignments.

The location of the fence may need to be altered from that indicated on the Tree Protection Plan at a project meeting between the Civil Contractor and the Project Arborist. The area enclosed shall be mulched (3) and irrigated (4) and kept free from all building materials, contaminants and other debris and shall not be used for storage of any building materials or parking of vehicles or plant. If scaffolding (8) is required within a tree protection zone, the ground is to be mulched prior to erection of scaffolding.

6. Trunk Protection – Trunk and branch protection is to comply with Figure 4 of AS4970-2009 or as detailed in the TPP. Lengths of timber (75mm x 50mm x 2000mm) shall be used to protect a tree's trunk if construction or traffic is proposed within its SRZ and the tree cannot be fenced. The lengths of timber should be fastened around the trunk at 200 millimetre centres with hoop iron strapping or similar.

7. Signs – Signs complying with Figure C1 of AS4970-2009 should be placed at regular intervals (min. 1 per 15 metres) on tree protection fencing.

8. Scaffolding – If scaffolding or hoarding is required within the TPZ, install as per Figure 5 of AS4970-2009 or as detailed in the TPP. Installation is to be prior to demolition or bulk earthworks.

9. Bulk Earthworks – To prevent unnecessary root damage, walk machinery within defined haul routes beyond TPZs wherever possible. The excavation shall be carried out under the supervision of the Project Arborist. All roots within TPZ of retained trees are to be hand cut prior to machine cutting. Immediately following excavation, the face of the cut within the TPZ shall be draped and maintained moist until backfilled. This should be done using a 10mm thick jute matting or equivalent, pinned at ground level and allowed to cover the full depth of the rootzone excavation.

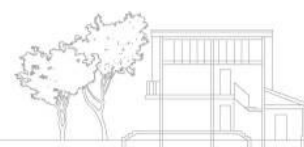
There is to be no soil battering or unnecessary over excavation within TPZ offsets. Topsoil stripping should be prohibited within TPZ offsets unless approved by the Project Arborist.

10. Prevention of Soil Compaction – During the construction period there may be considerable traffic movement associated with general building activities. The resultant soil compaction and possible contamination of the soil can have an equally detrimental impact on the tree as the severing of roots during excavation.

Specific machinery access tracks should be determined through consultation between the Civil Contractor and the project Arborist. Should heavy vehicle movement be required within a retained tree's TPZ, a track should be formed at grade using large diameter (up to 100mm) aggregate over geofabric or a corduroy of heavy timbers.

11. Prevention of Soil Inversion – Care shall be taken to avoid inversion of the soil layers on the site and particularly within TPZs. Clays placed over coarse textured soils reduces water infiltration, creating a perched water table, resulting in decline and/or death of underlying tree roots due to moisture stress.

12. Services – Trenching for services is to be regarded as "construction". Trenching within TPZ offsets should be avoided wherever possible to ensure <20% root loss (of TPZ) occurs on retained trees. Directional ("trenchless") boring or suspension of services should be used wherever possible. Where trenching is to occur within TPZ offsets, it is to be undertaken by hand to rock with no roots >50mm to be cut, under supervision of the Project Arborist.



Attachment D: Tree Protection Plan (Prepared by Taylor Brammer Landscape Architects)

