ARBORICULTURAL INSPECTION REPORT

TREE RETENTION AND REMOVAL PROPOSED FOR PRIVATE LOTS, ROAD RESERVE, TREE RESERVE AND WETLAND AREAS
MULLUM CREEK ESTATE
112-126 OLD WARRANDYTE ROAD, DONVALE

(REVISED FROM JUNE, 2014)

AUGUST 2014

Prepared by Stephen Fitzgerald
for:
Mullum Pty Ltd

ARBORICULTURE PTY LTD
36 THE CRESCENT SASSAFRAS 3787
abn: 33 139 546 357

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13/8/2014

REPORT 10531.62014

Arboricultural Report:

Tree Retention and Removal Proposed for Private Lots, Road Reserve, Tree Reserve and Wetland Areas, Mullum Creek Estate, 112-126 Old Warrandyte Road, Donvale

(revised 13/8/2014)

1. Brief

This report details trees nominated for removal and retention within lots in private realm areas, tree reserves, road reserves and areas marked as 'Wetland' within PCRZ (public conservation and resource zone) zoned areas within Mullum Creek Estate development.

The report specifically targets trees requiring a permit for removal under Significant Landscape Overlay schedule 8 (SLO 8) (trees within the private realms area) and Environmental Significance Overlay schedule 3 (ESO 3) (PCRZ area).

The following is an extract from Schedule 3 to *The Environmental Significance Overlay – 3 Permit Requirement*.

Vegetation:

A permit is only required to remove, destroy or lop:

- Victorian native vegetation.
- An Australian native tree that has either:
  - A trunk circumference of more than 0.35 metre measured at a height of 1.3 metres above natural ground level.
  - A height of more than 6 metres.
- A dead eucalypt tree that is both:
  - More than 20 metres from a building (excluding fences) to the base of the trunk.
  - Greater than 1 metre (approx 26cm DBH) in circumference, measured at a height of 1.3 metres above natural ground level.
- A permit is not required for:
- Dead vegetation except for dead eucalypt trees as specified above.
- A tree with its trunk within two metres of the roof (including eaves) of an existing building used for accommodation.

Any species listed as exempt from a permit requirement in the Table to the Schedule.

SLO Schedule 8 is similar to ESO 3 but applies to exotic as well as Australian native vegetation and does not require a permit for removal of dead

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vegetation or the pruning of trees for regeneration or ornamental shaping. ESO Schedule 3 does not exempt trees having trunks within two metres of the roof of an existing building used for accommodation.

Where trees are nominated for removal in this report they include *arboricultural* (determined by the arborist), *built form* (determined by project architects) and landscape vision (determined through various project consultants) justifications or combinations. The built form and landscape vision justifications are contributed by others and referenced as such.

2. Background

The Mullum Creek estate is located along the western bank of the Mullum Mullum Creek in Donvale, within the Manningham City Council. The site comprises 19.6 hectares of predominantly former farming land (orchard and grazing) of undulating topography. New residential allotments are confined to previously cleared land, and the creek frontage and remnant bushland (approximately 45% of the original property) will become a public reserve. The Mullum Creek Masterplan includes 56 lots that range from 1000 to 3500 sqm and is designed to sit within and enhance the natural features of the site, providing access to the reserves, the Linear Park and Bike Trail, and connecting with the surrounding neighbourhood that will continue to provide habitat for a wide variety of indigenous animals & plants (from *Landscape Vision* – Attachment 1).

The Mathew's family have owned, lived on and cultivated the Mullum Creek property for more than 50 years. Mr Steve Mathews is responsible for the wide variety and extent of amenity, farm forestry, revegetation and other plantings that exist throughout the property (see Appendix 4, *History of Mathews Property Tree Plantings* for further details).

Several arboricultural tree inspection surveys of the property have been carried out since an initial inspection survey by Stephen Fitzgerald in1999. Major updates of the initial survey were carried out in 2002 and 2010. These and a number of further detailed surveys as well as advice from other consultants has helped identify tree management issues and constraints during the planning of the current development.

3. Method

3.1 Arboricultural Inspection Method

Trees located from survey plans provided within the defined areas were visually inspected[1] from ground level, their heights estimated and trunk diameters (DBH[2]) measured as per Australian Standard AS 4970, *Protection of trees on development sites*. No decay detection (apart from visual identification of fungal fruiting bodies) or intrusive investigation methods were carried out on the trees or their root systems.

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[1]Visual inspection in the case of tree assessment implies certain limitations. See Appendix 2 *Definitions and Methods* for further explanation.

[2] Diameter at breast height – 1.4m above ground level

Trees were labelled by a surveyor during a feature survey prior to the current tree inspection. Where labels were found to be missing a label was affixed to the tree using numbers from a previous tree inspection survey of the site. For this reason some trees will be marked with label tags with 'T' followed by a number (surveyor's number) and some without a letter prefix (numbering from the arborist's previous survey of the property). Occasionally duplicate surveyor's numbers were found on tree tags during the tree inspection survey. In such cases an 'x' was added as a suffix to one of the tags and recorded in the survey data to distinguish the trees. The numbering system does not always follow an orderly system on site due to this complication.

Where no tree survey point was found on the survey supplied (the tree had been missed by the surveyor), a geographical point was added to an electronic map using field GIS software application (ESRI Arcpad™) and a Trimble professional grade global navigation satellite system (GNSS) receiver with subscription differentia l correction yielding sub-metre accuracy.

Arboricultural maintenance requirements recommendations were made where appropriate to minimise risk and prolong the aesthetic and landscape life expectancy of the trees. Maintenance recommendations are prioritised as *low, medium, high* or *urgent* with perceived risk being the main determining factor. See Appendix 4 Definitions & Methods – Priority (action) for suggested minimum time schedules for each priority. Where trees were deemed not suitable for retention they were indicated for removal. Some trees were indicated as low retention value but not specifically indicated for removal. It is expected that most of these trees will be removed and replaced where appropriate some time over the next few years as the development proceeds.

Tree protection zones (TPZ) were calculated to Australian Standards Australia, 2009, Australian Standard *AS4970 – Protection of Trees on Development Sites,* NSW. As *AS4970* does not specifically prescribe TPZs for dead trees (TPZs are formulated to provide for the *viability* of the tree), a nominal structural root zone (SRZ) has been used in place to provide for the short-term stability (until the such time as its structural roots decay sufficiently for the tree to collapse) of the tree should it be retained.

Tree locations and TPZ area are shown in Attachment 3 - Tree Location Plan.

3.2 Defined Survey Areas

Two distinct survey inspection areas were defined and trees outside these areas are not included in this report.

The areas are defined as:

1. Public lot areas (Stage 1 and Stage 2) defined as lots on the survey plans provided;
2. Wetlands areas. Trees within the areas indicated in discussions and site meetings as possible extents of wetland areas (north and south). As the final wetland location areas were not defined at the

time of the tree inspection survey, additional trees close to but most likely unaffected by the proposed construction have been included in this report.

3.3 Retention Value

All trees inspected were assigned a 'retention value' to facilitate tree management decisions and inform the design process.

Factors contributing to retention value include:

- tree origin (indigenous self-propagated or remnant, or exotic);
- significance (other than indigenous);
- species suitability to the urban residential/naturalistic parkland situation, and,
- condition (health and structure).

Self-sown, remnant indigenous and planted indigenous trees of known local seed source were generally rated higher than trees from non-indigenous or unknown seed sources.

Trees considered as being in a potentially dangerous condition rated lowest regardless of their significance or origins although where it was thought appropriate comment was made that 'buffer zone' of a given distance may allow a particular tree to be retained. Tree specimens that rated low were mainly weedy species, tree species regarded as being inappropriate to the urban residential situation and specimens with low life expectancy. Young trees were generally rated medium or low retention reflecting that they are replaceable within a relatively short amount of time given planting or natural recruitment. As such, mature specimens where they were long-lived species, have greater amenity, ecological and other values were generally rated higher reflecting that a great period of time, management and protection is needed for their replacement.

Low Retention trees should have low priority compared to development considerations. Trees should be removed if recommended specifically in the Works field of the tree inspection record. Trees considered to have low retention value should, over time, be removed and replaced, if appropriate with more suitable specimens.

Medium Retention trees should be retained wherever desirable but could be removed to allow for development.

High Retention trees are mainly semi-mature and mature specimens assessed as being most appropriate to the intended purpose of the property and the environment. While these trees should be preserved wherever possible, a few may need to be removed where they impede reasonable use of the land and design possibilities are greatly constrained.

Very High Retention trees are mainly mature or overmature indigenous specimens (in the case of large, old remnant specimens). These trees are mostly remnant indigenous trees or exotic trees of particular significance.

These trees should be preserved wherever possible and usually justify special design or engineering where appropriate for their retention.

For further definition of retention value see Appendix 3, *Definitions*.

Photos were taken with a Panasonic digital camera (see Appendix 1).

3.4 The Arborist's Role in the Development Site Planning Process

This report follows the Australian Standard AS 4970-2009, *Protection of Trees on Development Sites*, Section 2: *Planning and the Tree Management Process* where appropriate. The following AS sections have been addressed in part or full in the preparation of this report:

2.3.2 - *Preliminary tree assessment*;

2.3.3 - *Preliminary arboricultural report;*

2.3.4 - *Development design and review;*

2.3.5 - *Arboricultural impact assessment*.

Where there is ongoing design and construction details to be ratified, no specific advice or recommendations for tree protection as indicated in the Australian Standard have been made as yet but general indications and principals have been established with the client. For example, at this stage of the development construction has been designed generally around TPZs of medium, high and very high retention value trees where practical and though a process of consultation with the project arborist, but no specific engineering and tree protection measures nominated (apart from tree T46 which has been treated in separate reports to the client). It is expected tree protection measures will be the subject of future *arboricultural impact assessment* report(s) as infrastructure engineering is finalised.

See Australian Standard AS 4970, Section 2 for further details.

4. Tree Removal justifications other than arboricultural

4.1 Landscape Vision

A number of trees require removal due to current and long-term landscape character and management issues outlined in a document entitled 'Landscape Vision'. These have been nominated under 'Removal justification' as 'Landscape Vision' and a brief explanation given in under 'Justification Reference" in the Appendix 1, Tree Inspection Records.

Landscape justifications are based on the Landscape Vision for the future development of the property authored by Mr Steve Mathews in consultation with Ecology Australia and Taylor Cullity Lethlean landscape architects and Scape architects.

The vision is concerned with the long-term amenity and ecological values of the site as well as its amenity and sustainable living given the development planned. Tree removal justifications given are varied but mainly fall under the categories of:

- Ecological considerations
  – trees specimens that are known to be of non-local provenance and present long-term genetic threats to locally indigenous species by interbreeding, trees that have been planted outside their ecological niche and thus have long-term survival issues or are inappropriate for urban lots (Potts, *et al*. , 2003);
- Landscape character
  – to preserve and enhance the natural character of the site afforded by its local indigenous vegetation while acknowledging the exotic cultural elements of the site and encouraging owners/residents to plant home orchard trees and other exotic, non-weedy exotic vegetation;
- Functional
  - retain and encourage the planting of trees that are not greatly out of scale with lot size, are well spaced from other trees such that they have the best opportunity to develop optimal form, health and longevity;
  - retain and plant exotic and indigenous species strategically to minimise fire risk while.

4.2 Built Form

Architectural firm, Scape, have reviewed the location and details of trees within the private realm area in relation to the proposed built environment. Taking into account details such as the trees arboricultural retention value and Australian Standard tree protection zone (TPZ) area they have justified removal of certain trees were design and engineering constraints will not allow them to be retained where without significant impacts.

Justifications for tree removal based on this analysis has been nominated under 'Removal justification' as 'Built form' and an explanation code given in under column *Justification Reference* in the Appendix 2 – Tree Inspection Records. The justification category definitions are in Attachment 2 *Schedule to Built Form Analysis*.

Throughout both of the analysis Built form and Landscape Vision analysis the project arborist was involved in discussions, preliminary plan assessment and site meetings to help minimise impacts and removal of medium, high and very high retention trees.

In addition to the above reasons for tree removal construction within road reserves and proposed wetlands also necessitates the removal of trees (discussed below).

5. Tree Details Summary

Three-hundred and thirty-seven trees are included in the current inspection survey: approximately 30% of the 1124 surveyed trees existing throughout the greater property (not including numerous indigenous trees along the Mullum Creek not included in survey inspections).

See Tables 1 to 5 below for a breakdown of tree removal/retention decisions within different development areas.

Of the 515 trees included in this report 228 are within private allotments. All 4 high retention value trees listed for removal within the lots were Australian native (1 x Argyle Apple and 3 x Yellow Box) causing built form issues (access to lots, reasonable building envelope size, etc.) or not appropriate to the Mullum Creek Landscape Vision. The 19 medium retention value trees nominated for removal are mainly mixed planted Eucalypt species but also include an overmature Long-leaved Box and an Oak. The Long-leaved Box (tree T654) has suffered significant structural decline over the past decade or so and, in the opinion of the consultant, is beyond what would be considered reasonable arboricultural maintenance for a residential property owner to have to be responsible for given a short life expectancy for the tree.

The 89 low retention value trees listed for removal are mainly mixed Eucalypt species (many non-desirable species such as Blue Gum and Mahogany Gum) and exotics including the Cypress row on Lot 30 nominated for arboricultural reasons such as poor structure and/or health.

No very high retention value trees are to be removed due to road reserve construction (see Table 1 below).

Table 1 Tree retention/removal by retention value in private lots

Lots			
Retention Value	*Remove*	*Retain*	*Total*
Very High	0 (0%)	13 (100%)	13
High	4 (9%)	39 (91%)	43
Medium	19 (25%)	48 (75%)	67
Low	89 (84%)	16 (16%)	105
Total	112 (49%)	116 (51%)	228

Of the trees within the proposed wetlands development areas all (53) trees are proposed to be removed. Of the trees nominated for removal one (1) is a semi-mature Yellow Box assigned high retention value, 19 are mixed Eucalypts (mainly Yellow Box, River Peppermint, Manna Gum and Red Gum) assigned medium retention value and 33 mixed Eucalypts assigned low retention value (see Table 2 below).

Table 2 Tree retention/removal by retention value in the PCRZ reserve within proposed wetlands sites

PCRZ (wetlands areas)			
Retention Value	*Remove*	*Retain*	*Total*
Very High	0	0	0
High	1	0	1
Medium	19	0	19
Low	33	0	33
Total	53	0	53

In selecting the wetland areas care was taken to site them where minimum impact would be caused to very high and high retention value trees. Areas immediately surrounding the wetlands developments will require some tree protection actions. The trees surrounding the wetlands are included in the report to highlight trees being retained near the wetlands and the need for protection during wetland development.

Of the 68 trees near (but not within) the proposed wetlands development areas ten (10) trees are proposed to be removed due to either impact of the wetland development or for arboricultural reasons. Of the trees nominated for removal none are very high or high retention value, 10 are mixed Eucalypts assigned medium or low retention value (see Table 3 below).

Table 3 Tree retention/removal by retention value in the PCRZ reserve near proposed wetlands sites

PCRZ (near wetlands areas)			
Retention Value	*Remove*	*Retain*	*Total*
Very High	0	9	9
High	0	30	30
Medium	3	12	15
Low	7	7	14
Total	10	58	68

Of the 129 trees existing within the proposed road reserve areas, 34 high retention value trees are to be removed due to unavoidable significant impacts to the TPZs (in many case total TPZ removal). These are mainly young to semimature Yellow Box, Swamp Gum, other Eucalypt species and three exotic conifers (two Mexican Cypress and one large, mature Monterey Cypress).

No very high retention value trees are to be removed due to road reserve construction (see Table 4 below).

Table 4 Tree retention/removal by retention value in the Road reserves

Road Reserve			
Retention Value	*Remove*	*Retain*	*Total*
Very High	0	2	2
High	34	11	45
Medium	33	5	38
Low	44	0	44
Total	111	18	129

Thirty six trees exist in areas allocated as tree reserves. Of the trees indicated for removal seven were nominated for arboricultural reasons such as defects and short life expectancy and three for landscape vision

reasons (weedy species). All high and very high retention value trees in the tree reserves are to be retained (see Table 5 below).

Table 5 Tree retention/removal by retention value in the Tree reserves

Tree Reserve (Stage 1 & 2)			
Retention Value	*Remove*	*Retain*	*Total*
Very High	0	4	4
High	0	15	15
Medium	3	7	10
Low	7	0	7
Total	10	25	36

Overall most trees are indicated for removal for arboricultural reasons (126 trees) followed by road reserve construction reasons (75 trees). A large portion of the trees nominated for removal for road reserve construction have also been recommended for arboricultural reasons (37 trees). Road construction is the reason for the removal of the greatest number of high retention value trees (34 trees). Issues with trees restricting built form is the reasoning for the removal of 4 high retention value trees. Wetlands construction will necessitate the removal of 1 high retention value trees.

See Table 6 below and Figure 1 (following page) for a summary of reasons for tree removal decisions for each tree retention value. Table 7 below summarises the overall number of trees nominated for removal by tree retention category.

Table 6 Reasoning for tree removals for each retention value (see Figure 1 below)

Retention Value / **Reason for tree removal**	Very High	High	Medium	Low
Arborist recommendation	0	1*	5	120
Road reserve construction	0	34	34	7
Wetland construction	0	1	21	34
Built form	0	4	16	3
Landscape vision	0	0	1	16

* One tree, T900, is to be removed due to sewer infrastructure works following discussion with Landplan engineers

Table 7 Tree retention/removal by retention value overall (not including PCRZ areas not covered in this report)

Trees overall			
Retention Value	*Remove*	*Retain*	*Total*
Very High	0	28	28
High	40	94	134
Medium	77	72	149
Low	180	24	204
Total	297	218	515

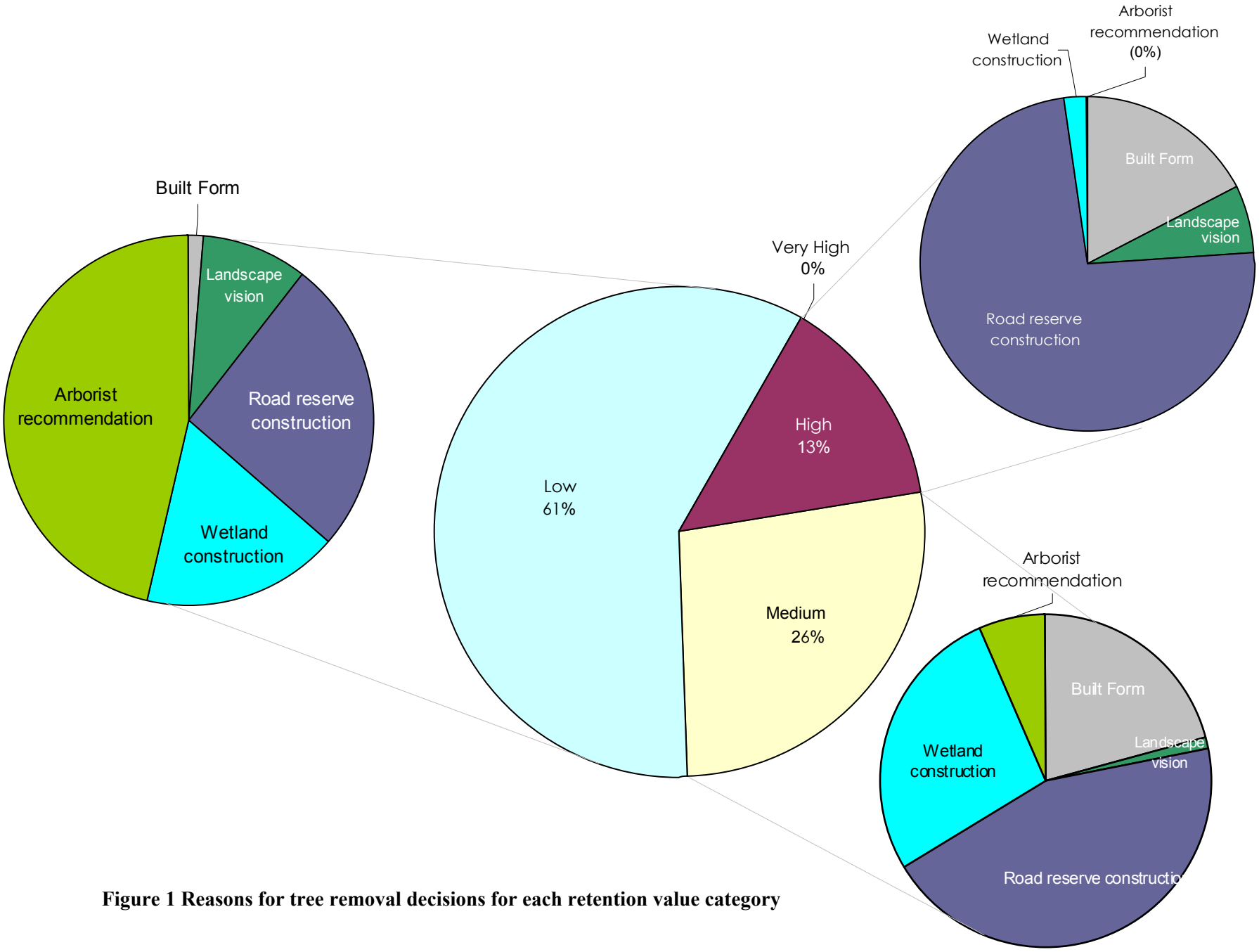

Figure 1 Reasons for tree removal decisions for each retention value category

5.1 Noteworthy tree specimens

Twenty-two trees were assessed as being very high retention value (13 Yellow Box within allotments and 2 Yellow Box, 2 Candle-bark and 5 Manna Gum within the PCRZ reserve). The Yellow Box trees are considered the 'signature trees' of the estate with some most likely in excess of 200 years old.

The old Cypress row running across lots 26 and 30 is of landscape significance due to its size and elevated location. The trees are most likely a windbreak or outgrown hedge planted around 100 or so years ago to screen the old farm homestead building (see Appendix 1, Photo 11). The trees are currently overmature and in structural decline. Arboricultural management to retain the trees with reasonable safety would be onerous and expensive and most likely only yield a few more years of landscape life expectancy before they suffered major collapse events in windy weather. The trees have been recommended for removal for this reason.

Tree T654 is an overmature specimen of *Eucalyptus goniocalyx* (Long-leaved Box). The tree would be an indigenous remnant of the local area but has unfortunately suffered accelerated structural decline in the past 5 or so years (see Appendix 1, Photo 1). Retaining the tree with reasonable safety on a residential allotment would require ongoing and onerous inspection and pruning and possibly landscaping to reduce the likelihood of people or property being within its fall zone. The tree has been recommended for removal for arboricultural, Landscape Vision and Built Form reasons.

6. Discussion

6.1 Tree species requiring special consideration given site conditions and environment

Tree species existing on the Mathews Property that are considered inappropriate to the intended purpose of the property (identified either in the Landscape Vision or arboricultural assessment or both) include weedy species and those with undesirable traits for retention on residential allotments. A number of tree species were identified throughout the property as having specific problems: in particular:

- *Eucalyptus camaldulensis* (River Red Gum);
- *E. globulus* (Blue Gum);
- *E. elata* (River Peppermint);
- *E. botryoides* (Mahogany Gum, also including the closely retaliated *E. robusta* (Swamp Mahogany) and *E. saligna* (Sydney Blue Gum));
- *E. cladocalyx*;
- *E. ovata* (Swamp Gum), and;
- *Pinus radiata* (Radiata Pine).

E. camaldulensis (Red Gum), although an attractive long lived landscape tree, has several traits considered undesirable in urban situations. In particular the tendency of mature specimens to shed large limbs without warning and their susceptibility to insect infestation. Their particularly large mature size makes them problematic when in close proximity to development. Research[3] has also linked a fungus growing naturally on Red Gums with a meningitis-like disease in humans although it is not known at this stage whether this is prevalent enough to be of concern. Of the specimens inspected none were considered to be indigenous specimens and the species does not occur naturally in the area.

E. elata (River Peppermint) originates from lowland coastal regions of southeastern Australia where temperatures are generally cooler and rainfall higher than that in the Mullum Creek estate. Early tree surveys of the property found many of the specimens existing on the property apparently growing vigorously. Since then several specimens have died, are dying or failed due to defects and what is most likely drought damage. The species is not suitable for the local climate or conditions.

E. globulus (Blue Gum) and E. botryoides (Mahogany Gum) are very fast growing large species that are prone to insect borer infestation and wood-rot decay. A number of affected Blue Gums have failed since the initial tree inspection in 1999 (see Appendix 1, Photos 3, 7 and 8). Examples of Blue Gums and other specimens (E. *botryoides, E. viminalis* and *E. ovata*) likely to fail due to wood rot caused by fungi (mainly *Phellinus sp.*) occur throughout the property and are reviewed a greater length previous reports, see Appendix 1, Photos 4 for a typical example).

Blue Gum species has great weed potential in the area and could, due to its quick growth rate, out-compete indigenous trees. Self-sown seedlings were noted during the inspection survey (see Appendix 1, Photos 5). Most Blue Gum specimens were assessed as having low retention value and should eventually be replaced by more appropriate species.

E. ovata (Swamp Gum) is indigenous to the area and important in providing hollows and nesting opportunities for indigenous vertebrates and non-vertebrates. The species grows fairly quickly but is highly prone to decay fungi and defects that lead to tree failure. The species is best suited to the PCRZ reserve areas an not residential allotments (see Appendix 1, Photos 9 for example).

E. cladocalyx (Sugar Gum) is considered a threat to riparian (and other) vegetation in Victoria (Carr et al., 1992). Approximately 22 mainly mature and semimature trees exist on the property (not all included in the current report), most being found in the PCRZ path area to the north of lot 1 where they appear to be self-sowing freely. The species is listed in Manningham City Council's *Weeds* document (2006, Manningham City Council) as causing problems in the region.

Pinus radiata (Radiata Pine) has many traits making it unsuitable for urban parks and gardens. Some of these include, drying and acidifying of soil,

[3] Reported in the Sunday Herald 28/7/96 p.28

constant needle shedding, weedy nature in bushland situations and dense shade. Most of the large radiata pines have been removed in the past year with a few well formed, large specimens preserved for their landscape contribution and historic context.

Acacia species found on the Mathews property and indigenous to the area (*A. dealbata, A. mearnsii, A. melanoxylon, A. pycnantha*) were generally assigned a maximum of medium retention value. This is due to the species' relatively short life cycle, tendency to naturally regenerate prolifically if conditions are suitable and its sensitivity to construction damage. It is recommended that Acacias are managed in such a way as to encourage their growth in appropriate areas such as the PCRZ and tree reserves and remove unwanted, senescent or poor specimens as needed, making sure that enough mature specimens of each species exist to disperse seed.

Bursaria spinosa (Sweet Bursaria) is another indigenous tree/shrub species that self propagates readily on the Mathews property. In general, Bursaria trees were given medium or high retention values depending on their condition. Where trees are found to be in conflict with proposed construction, they could be removed, or if specimens are small, transplanted. As with Acacias, Bursaria regeneration should be encouraged to grow in appropriate areas by making sure enough seed trees are always present. It has been noted during past tree surveys of the site that Sweet Bursaria freely self-sows in areas where slashing of grass cannot be done or has ceased. Sweet Bursaria is capable of longer life than the Acacia species found on the Mathews property and as such, should be managed for the longer term.

Most of the Eucalypt species assessed as not being suitable for the location and environment, especially given its development into residential allotments, are Australian native species that were planted and grown as farm forestry trials by Mr Steve Mathews.

6.2 Tree Defects

Bifurcation defects and stem decay caused by wood decay fungi were the most common defects recorded during the inspection survey (see Appendix 1, Photos 2 – 4 and 6 – 9). The defects were seen in indigenous and non-indigenous planted specimens although decay defects were most prominent in Blue Gum and Mahogany Gum. Decay defects can be seen as open wounds or stem swellings indicating reactive growth to internal hollowing. Where fungal fruiting bodies ('punks' or 'conks') are seen on stems then decay will be present in the stem.

Poor stem to height ratio is a tree form defect that many planted trees have developed as a result of being planted and grown in close proximity to each other. Planting trees in close proximity is common in silviculture and farm forestry practices to minimise side branching of the trees. The lots are thinned at an early age to then allow the remaining trees to form better stem taper. Thinning had not occurred in this case and the trees have become prone to failure once exposed. Several semimature Eucalypt specimens suffering poor stem to height ratios failed in the vicinity of lot 8 recently due to exposure following removal of large radiata

pine trees along Old Warrandyte Road property boundary late last year (see Appendix 1, Photo 10 for example).

Structural decline is a natural process suffered by trees in their overmature or senescent stages of life. Cypress trees T144 to T154 (see Appendix 1, Photo 11) are examples of 27 trees assessed as being overmature in the current inspection survey. While it may be possible to prolong the lives of many large overmature trees, it can be prohibitively expensive and management intensive, often with only a few years added to the landscape life expectancy of the tree.

7. Recommendations

It is recommended that permits be sought from Manningham City Council for the removal the trees indicated for removal in the *Retention Decision* column of Appendix 2 of this report including 12 trees indicated as 'Retain' but having low retention value (to be removed at the discretion of the developer as or if the need arises).

Where trees are to be retained, it is recommended that:

- Actions recommended for individual trees in Appendix 2, *Tree Inspection Records,* should be carried out as per priority schedules recommended (suggested maximum time periods for each priority are given in Appendix 3, *Definitions and Methods*);
- Contract arborists should be briefed to report any significant defects (defects likely to lead to failures) found during works and to take immediate appropriate actions if deemed necessary;
- All pruning should be done to Australian Standards (AS 4373, Pruning of Amenity Trees) as far as possible. Lopping of trees must not be allowed;
- Tree pruning work should be carried out by suitably qualified and experienced arborists (Arboriculture Certificate Level III minimum and 3 years practice) with sufficient public liability insurance;
- The trees should be inspected by a suitably qualified arborist (Arboriculture Certificate Level IV minimum and 5 years practice and holding sufficient professional indemnity insurance) again 1 year from the inspection date of this report (i.e. trees should be inspected again around June, 2015);
- Tree protection strategies and low impact construction techniques should be sought where construction is likely to impact TPZs (as detailed for each tree in Appendix 2) of trees being retained.

Should any matters in this report require clarification please contact me,

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