SIGNIFICANT TREE ASSESSMENT

PAKENHAM EAST PRECINCT

PREPARED BY

Simon Howe

Consultant Arborist & Landscape Heritage Consultant

B.AppSci(Hort), GradDip Plan&Des (LandscpArch) *MELB*

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JOHN PATRICK PTY LTD

324 Victoria Street
Richmond, VIC 3121

T +61 3 9429 4855
F +61 3 9429 8211
admin@johnpatrick.com.au

ABN 62 952 638 242

LANDSCAPE ARCHITECTS

LANDSCAPE HERITAGE CONSULTANTS

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1 INTRODUCTION

1.1 This assessment has been prepared for Cardinia Shire Council to investigate specific trees identified in the *Pakenham East Post Contact Heritage Assessment* prepared by Context Pty Ltd, November 2013 (the Context Report).

1.2 A number of sites and individual trees have been identified in the Context Report suitable for further investigation as to their cultural and/or environmental significance. This report has been prepared to provide specific advice to Cardinia Shire Council on the significance of the identified trees, as well as their arboricultural viability. The information contained in this report supersedes the assessments contained within the Context Report.

2 METHODOLOGY

2.1 The study area, the Pakenham East Precinct, is located on the eastern side of the Pakenham Township, 20 kilometres east of the Narre Warren-Fountain Gate principal activity centre. The study area includes properties situated in the localities of Pakenham, Nar Nar Goon and Nar Nar Goon North. A map of the study area is indicated on Figure 1, below.

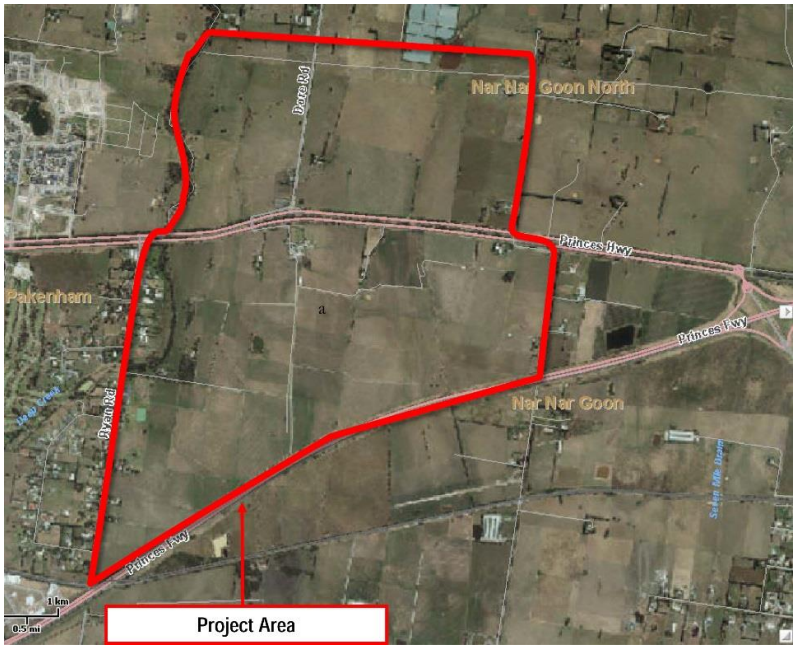

Figure 1 Map of study area

2.2 The specific methodology employed in the preparation of this study was:

1. Review of the Context Report and identification of specific sites requiring assessment. Six individual properties were identified and are listed in Table 1, below;
2. Site visits to each of the six properties, undertaking assessment of each tree or tree group identified in the Context Report. The results of the initial inspections are included in Section 4 *Results of Tree Assessment*;
3. Review of assessments and preparation of initial recommendations, summarised in Section 3 *Recommendations*;
4. Preparation of datasheets for trees identified to have significance within the Shire of Cardinia, utilising the methodology as established in the Cardinia Shire Council Significant Tree Study 2009;
5. Preparation of guidelines for the retention and protection of trees in a future urban precinct.

2.3 The following six properties were inspected following a review of the Context Report:

Table 1 List of sites reviewed

PSP Property No.	Address	Site Visit	Trees identified in the Context Report
6	15 Mount Ararat Road, Nar Nar Goon North	6/6/2013	English Oak
8	40 Dore Road, Nar Nar Goon	28/5/2013	Pair of Cypress; Pear; Canary Island Date Palm
11	45-55 Dore Road, Nar Nar Goon	28/5/2013	Various species of trees and shrubs
38	32 Mount Ararat South Road, Nar Nar Goon	28/5/2013	Quince
48	140 Ryan Road, Pakenham	6/6/2013	Monterey Cypress
50	180 Ryan Road, Pakenham	28/5/2013	Cherry Plum, Weeping Willow, Douglas Fir.

3 RECOMMENDATIONS

3.1 The following section summarises the findings of the individual tree assessments at each of the PSP properties identified in Table 1. Individual assessment reports are included in Section 4 *Results of Tree Assessment*.

PSP Property No 6.
15 Mount Ararat Road, Nar Nar Goon North

A single tree was assessed within the site

- An English Oak (*Quercus robur*) is located to the immediate north west of the northern homestead within the site. The tree does not warrant inclusion on the Shire of Cardinia Significant Tree Register, but should be retained and protected as part of future (potential) site development.

PSP Property No 8.
40 Dore Road, Nar Nar Goon

Three trees or tree groups were assessed within the site.

- The pair of Italian Cypress (*Cupressus sempervirens*) located in the paddock to the south of the existing dwelling are of limited viability and not worthy of specific controls or retention as part of (potential) site development.
- A Canary Island Palm (*Phoenix canariensis*) located to the west of the existing dwelling is a high amenity specimen, The tree does not warrant inclusion on the Shire of Cardinia Significant Tree Register, but should be retained and protected as part of future (potential) site development.
- A Pear (*Pyrus ?communis*) located to the west of the existing dwelling is recommended for inclusion on the Shire of Cardinia Significant Tree Register.

A datasheet for the Pear conforming to the methodology of *Cardinia Shire Council Significant Tree Study* 2009 is included in Appendix 1.

PSP Property No 11.
45-55 Dore Road, Nar Nar Goon

A single tree was assessed within the site.

- The Hoop Pine (*Araucaria cunninghamiana*) located to the west of the existing dwelling is a high amenity specimen. The tree does not warrant

inclusion on the Shire of Cardinia Significant Tree Register, but should be retained and protected as part of future (potential) site development.

- No other trees or shrubs were identified as being of potential significance within the site. This includes the senescent row of Monterey Cypress to the south of the site.

PSP Property No 38.
32 Mount Ararat South Road, Nar Nar Goon

A single tree was assessed within the site.

- The Quince (*Cydonia oblonga*) located to the south of the heritage dwelling is of limited viability and not worthy of specific controls or retention as part of (potential) site development.

PSP Property No 48.
140 Ryan Road, Pakenham

A single Monterey Cypress was assessed within the site.

- The Monterey Cypress (*Cupressus macrocarpa*) located to the east of the heritage dwelling is of limited viability and not worthy of specific controls or retention as part of (potential) site development.

PSP Property No 50.
180 Ryan Road, Pakenham

Three trees were assessed within the site.

- The tree identified as a Douglas Fir is a Deodar (*Cedrus deodara*). The tree, located to the west of the existing dwelling, is a high amenity specimen. The tree does not warrant inclusion on the Shire of Cardinia Significant Tree Register, but should be retained and protected as part of future (potential) site development.
- The two other trees identified within the site, a Cherry Plum (*Prunus cerasifera*) and Willow (*Salix* sp.) are in advanced decline and not viable. Both are considered to be environmental weeds.

Several other trees were identified within the site of high amenity value and are worthy of further investigation (see individual property report, Section 4, below).

4 RESULTS OF TREE ASSESSMENT

PSP Property No 6.

15 Mount Ararat Road, Nar Nar Goon North

Figure 2 View of tree PSP 6.1 from east

Tree–PSP 6.1	*Quercus robur*, English Oak		
Origin: Exotic	Type: Deciduous Broadleaf		Age: Semi-mature
DBH (cm): 65	Height: 12m	Width: 14m	TPZ: 7.8m
Crown class: Symmetrical	Health: Fair	Structure: Fair-Good	SULE: 20years
Amenity value: High	Comments: Wide-spreading specimen to north west of northern homestead. Prominent location near crown of hill. Tree of long-term future amenity value.		
Retention Value: High		Reason: High landscape contribution	
Recommendation: Retain and protect as part of future potential site development			

PSP Property No 8.

40 Dore Road, Nar Nar Goon

Figure 3 View of Tree PSP 8.1 from north

Tree–PSP 8.1	*Cupressus sempervirens*, Italian Cypress		
Origin: Exotic	Type: Evergreen Conifer		Age: Over mature
DBH (cm): 59	Height: 15m	Width: 8m	TPZ: 7.1m
Crown class: Symmetrical	Health: Fair-Poor	Structure: Fair	SULE: 0-10years
Amenity value: Medium	Comments: Pair of trees growing as discrete group, providing mutual protection. Western tree is in advanced decline with few live branches. Eastern tree has been clearance pruned for power supply cable.		
Retention Value: Low		Reason: Limited life expectancy	

Recommendation:

Not worthy of inclusion on Shire of Cardinia Significant Tree Register

Not worthy of retention.

Figure 4 View of Tree PSP 8.2 from north (with PSP 8.1 in the background)

Tree–PSP 8.2	*Phoenix canariensis*, Canary Island Date Palm		
Origin: Exotic	Type: Evergreen Palm		Age: Semi-mature
DBH (cm): 75	Height: 14 m	Width: 7 m	TPZ: 7m (canopy spread)
Crown class: Symmetrical	Health: Fair-Good	Structure: Fair-Good	SULE: 20years
Amenity value: High	Comments: On raised mound and in prominent location when viewed from south.		
Retention Value: High		Reason: High landscape contribution	

Recommendation:

Not worthy of inclusion on Shire of Cardinia Significant Tree Register

Retain and protect as part of future potential site development.

Figure 5 Tree PSP 8.3 from the east

Tree–PSP 8.3	*Pyrus communis*, Common Pear		
Origin: Exotic	Type: Deciduous Broadleaf		Age: Mature
DBH (cm): 90Measured low	Height: 13m	Width: 16m	TPZ: 10.8m
Crown class: Symmetrical	Health: Dormant	Structure: Fair	SULE: 20years
Amenity value: High	Comments: Very substantial, old specimen of taxon. Although dormant, no large deadwood evident, indicative of at least fair health. Typical, co-dominant form. Tree is afforded protection from west by developing row of Monterey Cypress.		
Retention Value: High	Reason: Heritage tree. Large example of taxon.		

Recommendation:

Worthy of inclusion on Shire of Cardinia Significant Tree Register

PSP Property No 11.

45-55 Dore Road, Nar Nar Goon

Figure 6 View of Tree 11.1 from the west

Tree–PSP 11.1	*Araucaria cunninghamii*, Hoop Pine		
Origin: Australian Native	Type: Evergreen Conifer		Age: Semi-mature
DBH (cm): 68	Height: 18 m	Width: 12 m	TPZ: 8.2m
Crown class: Symmetrical	Health: Fair-Good	Structure: Fair	SULE: 20years
Amenity value: High	Comments: Developing co-dominant stem at 1.6m. Crown has opened up on west side.		
Retention Value: High	Reason: High landscape contribution		

Recommendation:

Not worthy of inclusion on Shire of Cardinia Significant Tree Register

Retain and protect as part of future potential site development.

No other trees or shrubs were identified of potential significance within the site, including a senescent row of Monterey Cypress in the south of the site.

Figure 7 Row of senescent Monterey Cypress in the south of the site

PSP Property No 38.

32 Mount Ararat South Road, Nar Nar Goon

Figure 8 View of Tree PSP 38.1 from the north

Tree–PSP 38.1	*Cydonia oblonga*, Quince		
Origin: Exotic	Type: Deciduous Broadleaf		Age: Mature
DBH (cm): Multi-stemmed	Height: 3m	Width: 6m	TPZ: 3m
Crown class: Symmetrical	Health: Fair	Structure: Poor	SULE: 10-20years
Amenity value: Low	Comments: Effectively a shooting mass of stems from messy base. Some dead stems evident in canopy.		
Retention Value: Low		Reason: Low amenity value	

Recommendation:

Not worthy of inclusion on Shire of Cardinia Significant Tree Register

Not worthy of retention.

PSP Property No 48.

140 Ryan Road, Pakenham

Figure 9 View of Tree PSP 48.1 from the south west

Tree–PSP 48.1	*Cupressus macrocarpa*, Monterey Cypress		
Origin: Exotic	Type: Evergreen Conifer		Age: Over mature
DBH (cm): >125	Height: 19m	Width: 20m	TPZ: 0m
Crown class: Symmetrical	Health: Fair	Structure: Fair-Poor	SULE: 0-10years
Amenity value: Medium	Comments: One of a number of over-mature cypress through site, characterised by history of observable limb shed and portions of dieback through crown.		
Retention Value: Low		Reason: Limited life expectancy	

Recommendation:

Not worthy of inclusion on Shire of Cardinia Significant Tree Register

Not worthy of retention.

PSP Property No 50.

180 Ryan Road, Pakenham

Figure 10 View of Tree PSP 50.1 from the north

Tree–PSP 50.1	*Cedrus deodara*, Deodar		
Origin: Exotic	Type: Evergreen Conifer		Age: Semi-mature
DBH (cm): 72	Height: 16.00m	Width: 13.00m	TPZ: 8.6m
Crown class: Symmetrical	Health: Fair-Good	Structure: Fair-Good	SULE: 20years
Amenity value: High	Comments: Tree of long-term future amenity value. Good symmetrical form.		
Retention Value: High		Reason: High landscape contribution	

Recommendation:

Not worthy of inclusion on Shire of Cardinia Significant Tree Register

Retain and protect as part of future potential site development.

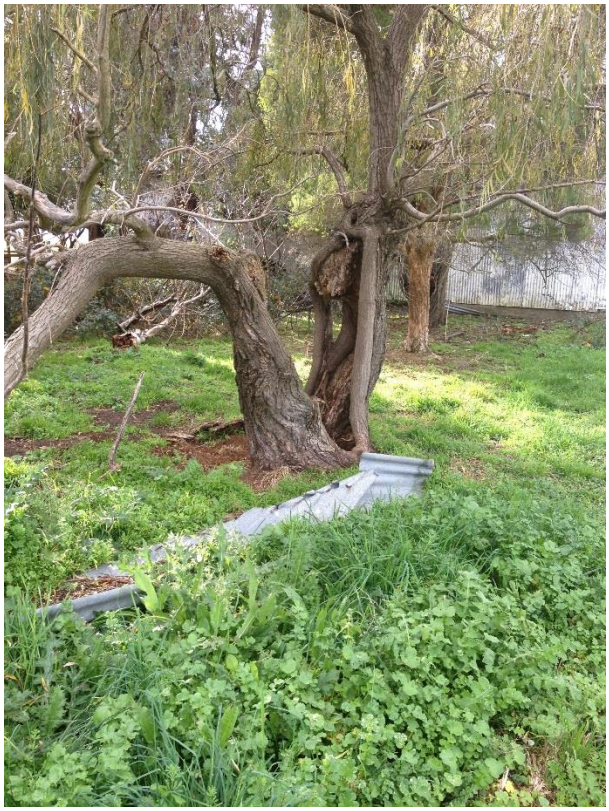

Figure 11 View of Tree 50.2 from the south west

Tree– PSP 50.2	*Salix* sp, Willow		
Origin: Exotic weed	Type: Deciduous Broadleaf		Age: Senescent
DBH (cm): n/a	Height: 9.00m	Width: 12.00m	TPZ: 0m
Crown class: Asymmetrical	Health: Poor	Structure: Poor	SULE: 0years
Amenity value: Very Low	Comments: Main tree has failed and apparently rotted out. What remains is effectively two sides of the tree with secondary scaffolds on east and west sides. West side with single live shoot.		
Retention Value: Low		Reason: Poor condition	

Recommendation:

Not worthy of inclusion on Shire of Cardinia Significant Tree Register

Not worthy of retention.

Figure 12 View of Tree PSP 50.3 from the south

Tree–PSP 50.3	*Prunus* sp., Plum		
Origin: Exotic	Type: Deciduous Broadleaf		Age: Senescent
DBH (cm): 35, 49	Height: 9.00m	Width: 17.00m	TPZ: 0m
Crown class: Asymmetrical	Health: Poor	Structure: Poor	SULE: 0years
Amenity value: Low	Comments: Massive basal cavity. Large scaffold failures across adjacent shed and on west side of tree. Most of primary structure has failed at some point.		
Retention Value: Low		Reason: Poor condition	

Recommendation:

Not worthy of inclusion on Shire of Cardinia Significant Tree Register

Not worthy of retention.

Figure 13 Cavity in base of Tree PSP 50.3

In addition to the three trees assessed as part of this study, a number of other trees of some amenity value were noted within the site and may be worthy of retention within the scope of site development: a Red-Flowering Gum (*Corymbia ficifolia*), a Smooth Arizona Cypress (*Cupressus glabra*) and a row of what appear to be Mexican Cypress (*C. lusitanica*), all located in the west of the property.

5 TREE RETENTION AND PROTECTION GUIDELINES

5.1 A number of trees assessed as part of this study are suitable for retention as part of future urban development within the precinct. These trees are listed in the Table 2, below:

Table 2 List of trees recommended for retention within the study area

PSP Property No.	Address	Name	Tree Protection Zone (TPZ) (m)
6	15 Mount Ararat Road, Nar Nar Goon North	English Oak (*Quercus robur*)	7.8m
8	40 Dore Road, Nar Nar Goon	Pear (*Pyrus communis*); Canary Island Date Palm (*Phoenix canariensis*)	10.8m 7m
11	45-55 Dore Road, Nar Nar Goon	Hoop Pine (*Araucaria cunninghamii*)	8.2m
50	180 Ryan Road, Pakenham	Deodar Cedar (*Cedrus deodara*)	8.6m

5.2 The potential for damage to trees to be retained as part of a subdivision is high and requires careful design and management. This includes not only consideration of physical works but also careful planning and urban design to ensure trees worthy of retention are afforded sufficient room for future growth.

5.3 The following guidelines provide measures to ensure the successful retention and integration of the above trees into future urban precincts.

1. Planning and Subdivision Layout

5.4 Proposals for urban development should demonstrate that sufficient space is provided for the successful retention of trees during subdivision, as well as for potential future growth.

5.5 Ideally, established trees should be retained within public open space where generous room well beyond the calculated TPZ can be accommodated around the tree, maximising the potential for successful retention.

5.6 The success of retention is further enhanced by the potential for ongoing management by the Shire Council, which has in-house arboricultural expertise as well as sufficient resources to provide appropriate ongoing maintenance inputs.

5.7 Established trees also provide immediate amenity within a park or reserve that can be enjoyed by the local community.

5.8 In contrast, the potential for damage and decline of established trees to be retained within a proposed road reserve is high. The proximity to construction vehicles for road making as well as service installation greatly increases the potential for damage.

2. Construction

5.9 Regardless of the setting, trees to be retained within a subdivision should be afforded minimum protection based a Tree Management Plan (TMP) conforming to AS4970-2009 *Protection of Trees on Development Sites*, including establishment of a robust, fenced area that includes the calculated TPZ as well as additional canopy protection, if required.

5.10 Encroachment by works into a TPZ should be assessed by a suitably qualified arborist and set out in the TMP. As well as specifications for fencing and mulching to trees to be retained as part of development, the TMP should also include provisions for:

- Limiting excavation for road and pavement construction, service installation and building construction. The TMP can specify sensitive methods for construction, such as horizontal boring, root sensitive footings etc, where these can be appropriately managed and not impact on the viability of the tree;
- Exclusion of material storage, including fuels and other chemicals;
- Exclusion of vehicles, including parking wherever possible, and mechanisms for temporary access into a TPZ if required;
- Appropriate pruning standards;
- Inspections by the Responsible Authority.

3. Future Plantings

5.11 Consideration is required for new plantings adjacent to an established tree, especially if the tree is retained in a park setting.

5.12 New plantings proximal to retained trees should be limited to small shrubs and herbaceous species to minimise direct competition, especially for solar access, and to allow the form of the tree to be best appreciated rather than obscured by developing plantations of large shrubs or trees.

5.13 Wherever possible, and subject to careful planting design, the area of the calculated TPZ should remain mulched and free of substantial under plantings. Establishment of turf within the drip zone of established trees should be avoided.

6 DESCRIPTORS

Tree Number: Refers to location of tree as per PSP Property Number.

Botanical Name: Botanical name of species, based on nomenclature and spelling used by Spencer in *Horticultural Flora of South Eastern Australia* (vols 1-5). Where *Eucalyptus spp*. are not found in this source, nomenclature is based on *Euclid: Eucalypts of Australia* (2006). Eucalypt subspecies information is also based on this source.

While accurate tree identification is attempted, and uncertainties are indicated, some inaccuracies in tree identification may still be present – especially in certain, difficult to determine, genera (e.g. *Cotoneaster* and *Ulmus*) and with cultivars which can have similar characteristics.

Where a doubt as to exact species is indicated, the common name and origin are based on the listed species, and would change if the species were found to be incorrect.

From time to time taxonomists revise plant classification, and name changes are assigned. If it is known names have been revised post the publication of the relevant above listed source, the new nomenclature has been used.

Common Name: Common names are based primarily on names and spelling used by Spencer in *Horticultural Flora of South Eastern Australia* (vols 1-5). The source of common names is taken in the following order:

1. Single name supplied in *Horticultural Flora of South Eastern Australia*;
2. First in list of names supplied in *Horticultural Flora of South Eastern Australia*, unless another name in the list is deemed more appropriate;
3. As per name supplied in *Trees of Victoria and Adjoining Areas*;

4. Then by best known common name if not available in either source.

Common names are provided for thoroughness; the botanical name should be used when referring to the tree taxon.

Origin:

Exotic: Tree origin is from outside the Australian mainland, Tasmania or near islands.

Australian Native: Origin is from within the Australian mainland or near islands, but outside Victoria.

Victorian Native: Origin is from within Victoria but outside the Melbourne region. This includes trees whose native range extends beyond Victoria into other states.

Melbourne: Origin is from within Melbourne, as defined by plants listed in the *Flora of Melbourne*. This includes trees also found outside Melbourne, and those only within the area at the far extent of their range.

Locally Indigenous: Tree's range includes the local area.

Weed: Trees known to show tendencies to weediness within Victoria. Based on the City of Knox weed list, Department of Primary Industries (Victoria) weed list and past experience. Trees with the addition of "(nox.)" indicate a declared noxious weed; refer to the Department of Primary Industries website for further information.

Type:

Broadleaf: Tree is a dicotyledon flowering plant.
Conifer: Tree is a cone bearing non-flowering plant.
Palm: Tree is a monocotyledon Palm (that is *Arecaceae*).
Palm Like: Tree is a monocotyledon, but is not a palm (that is not *Arecaceae*).

Deciduous: Tree seasonally loses its leaves in Victoria.
Evergreen: Tree maintains its leaves throughout the year.

	Semi-deciduous: Tree may or may not lose its leaves, or may only partially lose them.
Age:	Juvenile: Tree is actively growing and is still in its establishment phase. Tree currently makes little contribution to the amenity of the landscape. Trees of this age are possible candidates for relocation during development.
	Semi-mature: Tree is still actively growing but has reached an age and size where it is starting to make a contribution to the landscape. The size of the tree would still be expected to increase considerably given no significant changes to the current situation.
	Mature: Tree growth has slowed, and the size of the tree would not be expected to increase considerably without significant changes to the current situation (e.g. vegetation removal). Tree is not exhibiting any major signs of health or structural weakness as a result of age.
	Over mature: Tree is no longer actively putting out extension growth, and is starting to show decline in health or structural stability as a result of age.
	Senescent: Tree is senescing. Trees in this category may not be especially large or old, but are reaching the end of their expected life, often indicated by extreme poor health.
Height:	Estimate of the tree's height in metres
DBH:	The tree's trunk Diameter at Breast Height (1.4m above ground) unless specified as having been taken lower. This can be either estimated or measured as specified in the report.
	Stems of multi-stemmed trees may be listed individually, or a measurement given at a lower point where the tree still has one stem. In some cases, especially where trees are not considered worthy of retention or stems are too numerous the DBH may simply be listed as "multi-stemmed".

Health:

The tree's health is rated as Good, Fair and Poor as listed below. Tree ratings of Fair-Good and Fair-Poor indicate that the tree falls between the two categories. Dead trees are not given a rating, but are listed as Dead.

Ratings generally meet the following descriptions:

Good: *Tree is showing no obvious signs of poor health or stress* with a dense canopy that is free of dieback. Rot or pathogens are not obvious or are not considered to be a threat to the tree. Growth rates are acceptable.

Fair: *Tree is showing signs of reduced health or stress*. This is apparent through moderate foliage density, minor dieback, moderate stress response growth, minor to moderate rot, moderate pathogen infestation, stunted growth or a combination of the above symptoms.

Poor: *Tree is showing signs of poor health and/or severe stress.* This is apparent through either low foliage density, moderate to large-scale dieback, severe stress response growth, severe rot, severe pathogen infestation, failure of wounds to heal, overall tree decline or a combination of the above symptoms.

Note on Deciduous Species: Assessment of deciduous species can be problematic and results may vary depending on the time of year of assessment. Descriptor comments in relation to foliage density do not apply to deciduous trees assessed when dormant or entering or exiting dormancy. Time of leaf drop or bud burst and extent of bud swell may be considered in the health rating of these trees.

The ratings indicate that certain characteristics listed have, or have not been observed. Inspections do not assess the whole tree in detail for each characteristic. The comments category should be referred to for further information.

Structure: The tree's structure is rated as Good, Fair and Poor. Tree ratings of Fair-Good and Fair-Poor indicate that the tree falls between the two categories.

As a general rule, the structure rating is based on the tree's likelihood of failure. However, it must be noted that this is not a full hazard or failure assessment of the tree.

Good: Tree has no obvious structural defects and is therefore not considered likely to fail.

Fair: Tree has at least one obvious structural defect, but this is considered to be manageable and of only moderate failure risk or the piece likely to fail may be small. Structural defects that may contribute to a fair rating are as follows:

- Poor branch attachment (including deadwood and large epicormics);
- Bifurcated, but with a join that is considered to be solid;
- Moderate trunk lean but without other defects;
- Minor damage to the trunk base;
- Rot or other damage starting to compromise the structure;
- History of shedding minor branches.

Poor: Tree has at least one structural defect that is severe and considered to have a relatively high risk of failure. If targets are present then defect(s) require treatment, or alternatively the tree should be removed. In some cases removal may be the only option for these trees. Structural defects that may contribute to a poor rating are as follows:

- Poor branch attachment (including deadwood and large epicormics);
- Bifurcated with swelling and/or included bark;

- Severe trunk lean associated with other defects such as injury in the plane of lean of root plate lift;
- Major damage to the trunk base or root system;
- Rot or other damage severely compromising the structure;
- History of shedding large branches.

The ratings indicate that certain characteristics listed have, or have not been observed. Inspections do not assess the whole tree in intense detail for each characteristic. The comments category should be referred to for further information.

Crown class:

Symmetrical: For the most part canopy received light from all four sides and has to potential for even foliage distribution. Canopy may or may not be symmetrical, but is not suppressed.

Asymmetrical: Canopy is shaded or suppressed with one or more sides and dominant when compared to the remainder of the tree. Also includes crowns damaged by previous shading.

Intermediate: Canopy is only receiving light from top, and while shape may be even the upper portions of the canopy dominate over the lower.

Suppressed: Canopy is completely shaded by surrounding vegetation, buildings etc.

Regrowth: Canopy comprised of regrowth. This can be from the base, but also includes branches covered with small, stress related epicormics.

Trained: Canopy has been specifically trained. This may include trees that are pollarded, coppiced or espaliered.

Trees may exhibit a combination of the characteristics above (e.g. a symmetrical canopy of basal regrowth), or may fall

between two categories. The characteristic listed is considered to be the best fit at the time.

Amenity value: Very Low: Tree makes little or no contribution to the amenity value of the site or surrounding area. In some cases the tree may be detrimental to the area's amenity value (e.g. unsightly, risk of weed spread).

Low: Tree makes some contribution to the amenity value of the site, but makes no contribution to the amenity value of the surrounding area. Removal of the tree would result in little loss of amenity. Juvenile trees (including street trees) are generally included in this category, however they may have the potential to supply increased amenity in the future.

Medium: Tree makes a moderate contribution to the amenity of the site and/or may contribute to the amenity of the surrounding area.

High: Tree makes a significant contribution to the amenity value of the site, or tree makes a moderate to significant contribution to the amenity vale of the larger landscape.

The amenity value rating considers the impact the tree has on any neighbouring sites as being of equal importance to that supplied to the subject site. However, trees that contribute to the amenity of the general area (e.g. streetscape) are given greater weight.

Comments: Any additional comments in relation to the above categories.

SULE: The Safe, Useful, Life Expectancy of the tree from a health, structure, amenity and weediness viewpoint given no significant changes to the current situation. This category is difficult to determine, and should be taken as an estimate only, in addition to this, factors not observed at the time of inspection can lead to tree decline.

	0: Tree is a hazard or a weed and should be removed immediately.
	0-10: Estimated SULE of less than 10 years.
	10-20: Estimated SULE of 10 to 20 years.
	20: Estimated SULE of 20 years or greater.
Recommendation:	Remove: Tree is either not worthy of retention or requires removal (e.g. weed species).
	Retain or Remove: Tree does not require removal, but is of low retention value.
	Retain if practical: Tree has a moderate retention value and should be retained if possible during any development of the site.
Notes:	Dead: Tree is dead and should therefore be removed.
	Good condition: Tree is worthy of retention based on its condition. Trees may still have some structural or health problems, but are generally worth retaining.
	Good development potential: Tree is of a small size, but is considered to have a high potential to develop well. Retention of these trees should be considered as they should develop more quickly than new plantings.
	Hazardous: Tree should be removed as it is hazardous.
	Heritage tree: Tree is of heritage significance. Refer to the introduction for further information on any trees of heritage significance.
	High landscape contribution: Tree is worthy of retention based on its contribution to the site or landscape (associated with amenity value).

Inappropriate location: The tree is not in an appropriate location for its species, size etc. Includes trees too large for their current location.

Juvenile – simple to replace: Tree does not have a high retention value as a similarly sized replacement specimen could be obtained. Alternatively, the tree is a candidate for relocation.

Limited life expectancy: Tree is in decline, or is expected to start to decline within a relatively short time period. As a result, it is not sensible to implement extensive tree protection measures to save the tree unless there are extenuating circumstances (e.g. outside ownership).

Low Amenity Value: Tree is unsightly, or has little potential to add to site amenity (e.g. a non-canopy fruit tree).

Outside ownership: Tree is located outside the subject site, and is therefore owned by another party. The tree may be in a neighbouring private property or fall within the council managed nature strip/road reserve.

It is assumed that the owner of the tree wishes to retain it, and the trees are listed as retain for that reason. The owner should be contacted for discussions if the removal of the tree is wanted. Recommendation of retention of any of these trees is based solely on the above mentioned reason, and is no indication of the tree's general worthiness for retention.

Poor condition: Tree's poor condition makes it unworthy of retention.

Rare / unusual species: Tree is of a species, cultivar or form (trained or otherwise) which is unusual, at least in the local area, and which has some retention value (usually amenity value). Trees of this nature may also classify as a "heritage tree".

Remnant Indigenous: The tree is a remnant indigenous specimen and therefore has environmental value. Trees of this nature, in reasonable condition are usually recommended for retention.

Senescent: Tree should be removed as it is dying.

Significant tree: The tree has been declared a significant tree by the local council, and retention is likely to be a permit requirement.

Unlikely to develop well: Tree is immature with a severe defect which will prevent its form developing as it should or tree has a severe defect, the correction of which will result in a tree shape that is unlikely to redevelop well .

Weed species: Tree should be removed due to weedy nature of the species.

TPZ: The Tree Protection Zone of the tree, measured as a radial distance in metres from the centre of the trunk. The TPZ is calculated using the method specified in *Australian Standard AS4970-2009 Protection of trees on development sites.*

TPZs are not listed for trees that are recommended for removal.

7 APPENDIX 1 – DATASHEET FOR CARDINIA SIGNIFICANT TREE ASSESSMENT

EUROPEAN PEAR,
40 DORE ROAD, NAR NAR GOON NORTH

TREE NO: 02-3812-01

Botanical Name:		*Pyrus ?communis*
Common Name:		European Pear
Address:		40 Dore Road
Suburb/Township:		Nar Nar Goon North
Setting/Position:		Single specimen tree on west side of garden setting
Number of Trees:		1
Public/Private:		Private
GPS Location:		370955, 5786384
Height:		14m
Canopy spread	N-S:	16m
	E-W:	12m
Trunk	girth:	282cm
	DBH:	90cm (at 600 mm)
Approximate Age:		>70 years
Projected amenity period:		Medium/Long
TPZ:		10.8m

EUROPEAN PEAR,
40 DORE ROAD, NAR NAR GOON NORTH

TREE NO: 02-3812-01

Figure 1: View of tree from east

History:	Crown allotment 21 was purchased by John Dore in 1861 and shortly thereafter transferred to Edward Dore. The farm, known as The Range was occupied from this time, and a wattle and daub dwelling occupied the site at least until the 1930's. Fruiting Pears are potentially long-lived trees, and the size of this specimen suggests it dates from at least the early 20th century.
Integrity:	Good. The tree is reasonably well structured and although dormant at the time of assessment, was not showing indictors of reduced health.
Significant Features:	The tree is notable for its outstanding size.
Comparative Analysis:	Orchards, especially cultivation of apples, were a major industry within the district from the 19th century onwards. This particular tree appears to have been planted as a single specimen within a domestic garden, rather than for commercial purposes. The tree is the largest known specimen of this taxon within the Shire of Cardinia.

EUROPEAN PEAR,
40 DORE ROAD, NAR NAR GOON NORTH

TREE NO: 02-3812-01

Statement of Significance:	What is significant? A mature European Pear tree forming a speciumen within a farm garden setting. How is it significant? The tree is of local significance to Cardinia Shire. Why is it significant? The European Pear is of local significance as an outstanding example of this species within Cardinia. The tree is associated with the early history of the site, and the Dore family.
Level:	Local
Categories of Significance:	A1C Association with the early property, The Range D1N Outstanding example of the species
Tree Condition:	The tree was assessed during the dormant winter season. Re-assessment during the active growing season is recommended.
Threats/Risks:	▪ Removal of the tree as part of subdivision. ▪ Removal of the Monterey Cypress row to the west which affords protection from prevailing summer winds
Management Prescriptions:	▪ Regular assessment and if required, maintenance.
Extra Research:	None noted.
Tree Rating:	Four (4)
References:	*Post-Contact Heritage Assessment. Pakenham East Precinct*. Prepared for Shire of Cardinia by Context Pty Ltd. March 2013
Assessed By:	SH-JPLA
Date:	28th May 2013

8 APPENDIX 2 – CARDINIA SHIRE COUNCIL SIGNIFICANT TREE STUDY ASSESSMENT CRITERIA

Table 1 – Cardinia Shire Council Significant Tree Study Assessment Criteria

Criterion	Description (Adapted from Heritage Victoria)	Significance	Cultural significance		Natural significance	
			Code	Description	Code	Description
A	The historical importance, association with or relationship to the history of a place or object.	Historic	A1C	Trees with an association with the history of an historic object such as houses, buildings, town centres, streetscapes or parks. **E.g.** Trees forming the early planting structure of the Fitzroy gardens		N/A
			A2C	Trees with an historical importance, other than associations coming from A1C above or A3C below. **E.g.** The separation tree in the Royal Botanic Gardens, Melbourne. The "Dig" tree (Burke and Wills)		N/A
			A3C	Commemorative plantings. Includes trees planted by well known public figures, or planted to mark an historic occasion, person or event. **E.g.** The Bunya Pine planted by Governor Stanley in Harcourt The Federal Oak, Parliament Gardens, Melbourne		N/A
			A4C	Trees or groups which demonstrate an historic planting style which is not of scientific significance. Implies a degree of rarity. **E.g.** The Avenue of Lemon Scented Gums at Cruden Farm.		N/A
			A5C	Trees which are indicative of a past land use, with this land use being associated with the history of the area **E.g.** remnant orchard trees and windrows in Manningham	A6N	Trees which are indicative of a past natural vegetation cover, which is now largely removed **E.g.** Red Gums within the carpark of the MCG, Melbourne

Criterion	Description (Adapted from Heritage Victoria)	Significance	Cultural significance		Natural significance	
			Code	Description	Code	Description
B	The importance of a tree in demonstrating rarity or uniqueness.	Aesthetic, Historic, Scientific & Social	B1C	Trees of a species, cultivar or sport which is rare/ unusual and has a specific social or historic significance associated with this. **E.g.** Rare conifers distributed by Ferdinand von Mueller as part of experimental early plantings	B1N	Trees of a species, cultivar or sport which is rare, or unusual, but which does not have a specific social or historic significance. **E.g.** Unusual, naturally occurring hybrids. Trees with characteristics which could contribute to breeding programs (e.g. hardiness).
			B2C	Trees which are particularly old or venerable, in a social or historic context. **E.g.** Very old orchard trees. Trees planted soon after European settlement of an area.	B2N	Indigenous trees which are particularly old or venerable, but without a cultural connection. (NB. Non-indigenous trees would fulfill criteria B2C) **E.g.** The River Red Gums at The Greenery, Templestowe, thought to be over 300 years old.
				N/A	B3N	Trees of an outstanding size. This can be in terms of height, trunk girth or canopy spread. Smaller trees of an outstanding size for the species may also be considered. **E.g.** The Ada tree in Gippsland, (an extreme example)
				N/A	B4N	Trees located at the extremities of their natural range, and therefore of botanical interest. Includes disjunct communities. **E.g.** the Red Ironbark in Warrandyte, thought to be the only known natural specimen south of the Yarra.
C	The tree's potential to educate, illustrate or provide further scientific investigation in relation to cultural heritage.	Scientific & Historic	C1C	Trees or groups which demonstrate an historic scientific planting style or husbandry technique. Implies a degree of rarity or uniqueness. **E.g.** The Hawthorn at Buda, Castlemaine with a graft that is not now used commercially		N/A

Criterion	Description (Adapted from Heritage Victoria)	Significance	Cultural significance		Natural significance	
			Code	Description	Code	Description
D	The importance of a tree in exhibiting the principal characteristics or the representative nature of a tree as part of a class or type of tree.	Aesthetic	D1C	Tree is an outstanding example of a planting style or cultivation technique. **E.g.** The Cypress hedge at Buda, Castlemaine.	D1N	Tree is an outstanding example of the taxon **E.g.** The Golden Elm on the corner of Punt Road and Alexandra Ave, Melbourne
E	The importance of the tree or group of trees in exhibiting good design or aesthetic characteristics and/or in exhibiting a richness, diversity or unusual integration of features.	Aesthetic	E1C	Trees which make an aesthetic contribution to a culturally significant landscape in a way which adds to its cultural significance. **E.g.** trees which frame an historically significant building. Trees which line streets in heritage areas.	E1N	Trees which make a significant contribution to the aesthetics of a landscape which is not in itself culturally significant. Implies a degree of rarity or uniqueness. **E.g.** The only large tree in a recent subdivision. Trees which frame a natural view. Outstanding street trees.
			E2C	Trees of outstanding aesthetic value due to abnormal/curious growth as a result of human manipulation. **E.g.** Elms at Heidelberg Park which have been manipulated into an Arch	E2N	Trees of outstanding aesthetic value due to abnormal/curious growth as a result of natural processes **E.g.** River Red Gum at Boortkic in Victoria's western district which is growing horizontally.
F	The importance of the tree in demonstrating or being associated with scientific or technical innovations or achievements.	Scientific	F1C	Trees, used in scientifically significant breeding programs. This includes rare examples of the developed plants. **E.g.** Pre 1934 pear trees within the field station of Burnley Gardens.		N/A
			F2C	Trees associated with significant scientific studies or innovations **E.g.** Trees within the System Garden at Melbourne University, Parkville		N/A

Criterion	Description (Adapted from Heritage Victoria)	Significance	Cultural significance		Natural significance	
			Code	Description	Code	Description
G	The importance of the tree in demonstrating social or cultural associations.	Social	G1C	Trees which are important landmarks **E.g.** Canary Island Date Palms on Mount Alexander Road, Essendon		N/A
			G2C	Trees which are important to a social or cultural group **E.g.** The Ballarat Avenue of Honour, The Canoe scar tree at Heide, the Plane within the Melbourne Club		N/A
H	Any other matter which is considered relevant to the determination of cultural heritage or natural significance.	Aesthetic, Historic, Scientific & Social	H2C	Any other tree which is considered to be of aesthetic, historic, social or scientific cultural significance but does not fit one of the above categories.	H2N	Any other tree which is considered to be of aesthetic, historic or scientific natural significance but does not fit one of the above categories.

Note: Any terms stated in plural are also applicable in the singular and vice versa. The term "tree" refers to a single tree or group assessed as a single entity.

Significance Definitions

The definitions of cultural significance below are taken from the Heritage Victoria Landscape Assessment Guidelines with some modifications. The exception to this is the Natural Significance criteria, as items of natural significance are not recognised by Heritage Victoria which focuses on the cultural heritage significance as defined by the Heritage Act, 1995 and the Burra Charter.

Aesthetic significance accommodates all the sensory values of the place (but privileges the visual especially) and is often encapsulated in architectural terms, such as through a particular style.

Historical significance relates to the value of a place's association with important historical events, eras or individuals, people. Historic value 'underlies' aesthetic, social and scientific value (Marquis-Kyle and Walker 1992: 23).

Scientific significance relates to the technical achievements associated with a place, or for its educational potential. Generally, scientific significance may relate to a variety of places, from industrial sites such as mines to bridges or dams.

Social significance may include places of significance to groups and communities, especially through use.

Natural significance covers trees which fulfill the Aesthetic, Scientific or (natural) History criteria without and cultural (human) connections. Trees which fit the Social criteria, have by implication a connection to people.