Birds Tree Consultancy

Consulting Arborist AQF5 • Horticultural Consultancy • Project Management • Resistograph Testing

ARBORICULTURAL DEVELOPMENT IMPACT ASSESSMENT REPORT

Wests Mayfield NSW
REVISION A

25th of March 2021

Prepared for
WPP Group

Prepared by

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Executive Summary

This Arboricultural Development Impact Assessment Report has been commissioned by WPP Group to report on trees within the site of Wests Mayfield NSW. It has been commissioned to outline the health, condition, and stability of these trees as well as their viability for retention within the context of the proposed development. The scope of this report includes twenty trees along the eastern boundary that may be impacted by the proposed development.

The subject site is Wests Mayfield NSW and is located at 32 Industrial Drive, Mayfield. The site is currently a Rugby League training facility with the majority of the trees adjacent to the playing field. Trees 1 – 3 are adjacent to a car park. The subject trees are in a single row approximately 2.5m from the eastern boundary.

The subject trees are high retention value trees with high environmental and landscape value and are preserved by Newcastle City Council Development Control Plan 2012.

All of the subject trees are in good health and condition. All of the trees have a form with multiple co-dominant trunks from the base with the exception of Trees 13 and 14 which have single trunks. This form is common and typical of the species. The subject trees have tight acute primary junctions with some included bark and have a large proportion of the canopy as long horizontal end weighted branches. These characteristics are normal and typical of this species.

The subject trees have very broad canopies which has significant implications for the proposed development. The extent of the spread of the canopy towards the west (within the development area) is outlined within 6.0. The proposed development does not impact upon the existing canopies.

The Tree Protection Zones (TPZ) of Trees 19 and 20 are encroached by the proposed roadway construction and required earthworks by a total or major encroachment as defined by *AS4970-2009 Protection of Trees on Development Sites.* This encroachment is exacerbated by the existing concrete retaining wall approximately 2.5m east of the trunks of the trees. This retaining wall restricts any contiguous compensatory area for root development as required by *AS4970-2009* when a major encroachment is considered. These trees will not be viable to be retained and would be required to be removed under the proposed development.

All other trees are viable to be retained and are to be protected as defined below.

Recommendations for tree retention or removal are summarised as follows:

Tree no.	Species	Recommendations	Comments
1.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
2.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
3.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
4.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.

5.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
6.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
7.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
8.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
9.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
10.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
11.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
12.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
13.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
14.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
15.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
16.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
17.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
18.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
19.	*Ficus microcarpa*	Remove	Not viable to be retained due to the proposed development.
20.	*Ficus microcarpa*	Remove	Not viable to be retained due to the proposed development.

Contents

1.0 Scope of Works

This Arboricultural Development Impact Assessment Report has been commissioned by WPP Group to report on trees within the site of Wests Mayfield NSW. It has been commissioned to outline the health, condition, and stability of these trees as well as their viability for retention within the context of the proposed development. The scope of this report includes twenty trees along the eastern boundary that may be impacted by the proposed development.

On the 5th of June 2020, Glenn Bird of Birds Tree Consultancy attended site and inspected the subject trees from the ground. There was no aerial inspection carried out. A Visual Tree Assessment was undertaken in accordance with Visual Tree Assessment (VTA) guidelines (Mattheck and Breloer, 1994). Tree heights were measured using a Nikon Forestry 550 Heightmeter.

2.0 Site Analysis

2.1 Site

The subject site is Wests Mayfield NSW and is located at 32 Industrial Drive, Mayfield. The site is currently a Rugby League training facility with the majority of the trees adjacent to the playing field. Trees 1 – 3 are adjacent to a car park. The subject trees are in a single row approximately 2.5m from the eastern boundary.

2.2 Documentation

This Development Impact Assessment Report is based on EJE Architecture Site Plan, Basement Plan and Ground Floor Plans dated 12/02/2021.

2.3 Topography

The site is flat. The area in the vicinity of all trees is flat. The subject trees are all approximately 2.0-2.5m from a concrete retaining wall that retains a level change at the eastern boundary. This retaining wall will significantly impede root development east of the subject trees.

2.4 Identification

Trees are as identified in the attached inspection forms in Appendix C and shown in Tree location Plan A01 in Appendix D.

2.5 Soils

The A horizon was found to be a loamy sand. The western side of the root zone of the subject trees is irrigated as part of the adjacent playing field.

3.0 Existing Trees

The following trees were inspected from the ground and the following items identified. Please refer also to the attached inspection data in Appendix A.

3.1. Tree 1. *Ficus microcarpa*

This mature tree is approximately 18m tall with a canopy spread of 28m. It has a single trunk with a diameter at breast height (DBH) of 1250mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.2. Tree 2. *Ficus microcarpa*

This mature tree is approximately 19m tall with a canopy spread of 27m. It has multiple co-dominant trunks from the base with an aggregate DBH of 1140mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.3. Tree 3. *Ficus microcarpa*

This mature tree is approximately 20m tall with a canopy spread of 32m. It has multiple co-dominant trunks from the base with an aggregate DBH of 1510mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.4. Tree 4. *Ficus microcarpa*

This mature tree is approximately 21m tall with a canopy spread of 28m. It has multiple co-dominant trunks from the base with an aggregate DBH of 925mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.5. Tree 5. *Ficus microcarpa*

This mature tree is approximately 20m tall with a canopy spread of 28m. It has multiple co-dominant trunks from the base with an aggregate DBH of 1490mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.6. Tree 6. *Ficus microcarpa*

This mature tree is approximately 22m tall with a canopy spread of 26m. It has multiple co-dominant trunks from the base with an aggregate DBH of 1490mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.7. Tree 7. *Ficus microcarpa*

This mature tree is approximately 21m tall with a canopy spread of 27m. It has multiple co-dominant trunks from the base with an aggregate DBH of 1840mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.8. Tree 8. *Ficus microcarpa*

This mature tree is approximately 23m tall with a canopy spread of 30m. It has multiple co-dominant trunks from the base with an aggregate DBH of

1200mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.9. Tree 9. *Ficus microcarpa*

This mature tree is approximately 24m tall with a canopy spread of 32m. It has multiple co-dominant trunks from the base with an aggregate DBH of 1600mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.10. Tree 10. *Ficus microcarpa*

This mature tree is approximately 24m tall with a canopy spread of 29m. It has multiple co-dominant trunks from the base with an aggregate DBH of 1530mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.11. Tree 11. *Ficus microcarpa*

This mature tree is approximately 22m tall with a canopy spread of 28m. It has multiple co-dominant trunks from the base with an aggregate DBH of 1480mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.12. Tree 12. *Ficus microcarpa*

This mature tree is approximately 21m tall with a canopy spread of 28m. It has multiple co-dominant trunks from the base with an aggregate DBH of 1360mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.13. Tree 13. *Ficus microcarpa*

This mature tree is approximately 19m tall with a canopy spread of 29m. It has multiple co-dominant trunks from the base with an aggregate DBH of 820mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.14. Tree 14. *Ficus microcarpa*

This mature tree is approximately 21m tall with a canopy spread of 16m. It has a single trunk with a DBH of 490mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.15. Tree 15. *Ficus microcarpa*

This mature tree is approximately 17m tall with a canopy spread of 32m. It has a single trunk with a prominent lean to the northwest and a DBH of 430mm. The canopy is unbalanced to the northwest due to crowding. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.16. Tree 16. *Ficus microcarpa*

This mature tree is approximately 19m tall with a canopy spread of 32m. It has multiple co-dominant trunks from the base with an aggregate DBH of 1510mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.17. Tree 17. *Ficus microcarpa*

This mature tree is approximately 20m tall with a canopy spread of 32m. It has multiple co-dominant trunks from the base with an aggregate DBH of 1320mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.18. Tree 18. *Ficus microcarpa*

This mature tree is approximately 22m tall with a canopy spread of 32m. It has multiple co-dominant trunks from the base with an aggregate DBH of 1380mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.19. Tree 19. *Ficus microcarpa*

This mature tree is approximately 23m tall with a canopy spread of 32m. It has multiple co-dominant trunks from the base with an aggregate DBH of 1280mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

3.20. Tree 20. *Ficus microcarpa*

This mature tree is approximately 22m tall with a canopy spread of 31m. It has multiple co-dominant trunks from the base with an aggregate DBH of 1375mm. This tree is in good health and condition with minimal deadwood and epicormic growth.

4.0 Landscape Significance of Trees

4.1 Landscape Significance

The significance of a tree within the landscape is a factor of the health and condition of the tree, vitality, the form of the tree, environmental, cultural, amenity and heritage value.

4.2 Methodology of Determining Landscape Significance

For the purpose of this report, the Significance of a Tree, Assessment Rating System (STARS) as developed by the Institute of Australian Consulting Arborists (IACA) has been implemented. Please refer to Appendix A for greater detail of this assessment system. This system defines Landscape Significance for individual trees as High, Medium or Low Significance.

4.3 Landscape Significance of Subject Trees

Based on our assessment of the subject trees and implementation of the IACA Significance of a Tree, Assessment Rating System, the Landscape Significance of the Subject Trees was determined as shown in Table 1.

Tree no.	Species	Landscape Significance
1.	*Ficus microcarpa*	High
2.	*Ficus microcarpa*	High

3.	*Ficus microcarpa*	High
4.	*Ficus microcarpa*	High
5.	*Ficus microcarpa*	High
6.	*Ficus microcarpa*	High
7.	*Ficus microcarpa*	High
8.	*Ficus microcarpa*	High
9.	*Ficus microcarpa*	High
10.	*Ficus microcarpa*	High
11.	*Ficus microcarpa*	High
12.	*Ficus microcarpa*	High
13.	*Ficus microcarpa*	High
14.	*Ficus microcarpa*	High
15.	*Ficus microcarpa*	High
16.	*Ficus microcarpa*	High
17.	*Ficus microcarpa*	High
18.	*Ficus microcarpa*	High
19.	*Ficus microcarpa*	High
20.	*Ficus microcarpa*	High

Table 1 - Landscape Significance

5.0 Subject Tree Retention Value

5.1 Tree Retention Value Methodology

For the purpose of this report, the Tree Retention Values have been assessed by incorporating Landscape Significance Values as determined in 4.0 with the Useful Life Expectancy of the subject trees and assessing the retention values based on the Tree Retention Value Priority Matrix as developed by the Institute of Australian Consulting Arborists (IACA). Please refer to Appendix B for greater detail of this Tree Retention Value Priority Matrix. This matrix defines Landscape Significance for individual trees as High, Medium or Low Retention Value as well as Priority for Removal.

5.2 Retention Value of Subject Trees

Based on our assessment of the subject trees and implementation of the IACA Tree Retention Value Priority Matrix, the Retention Values of the Subject Trees were determined as shown in Table 2.

Tree no.	Species	Retention Value
1.	*Ficus microcarpa*	High
2.	*Ficus microcarpa*	High
3.	*Ficus microcarpa*	High
4.	*Ficus microcarpa*	High
5.	*Ficus microcarpa*	High

6.	*Ficus microcarpa*	High
7.	*Ficus microcarpa*	High
8.	*Ficus microcarpa*	High
9.	*Ficus microcarpa*	High
10.	*Ficus microcarpa*	High
11.	*Ficus microcarpa*	High
12.	*Ficus microcarpa*	High
13.	*Ficus microcarpa*	High
14.	*Ficus microcarpa*	High
15.	*Ficus microcarpa*	High
16.	*Ficus microcarpa*	High
17.	*Ficus microcarpa*	High
18.	*Ficus microcarpa*	High
19.	*Ficus microcarpa*	High
20.	*Ficus microcarpa*	High

Table 2 – Tree Retention Value

6.0 Impact of Development

This Development Impact Assessment is based on EJE Architecture Drawings for Wests Mayfield Redevelopment dated 17.06.2020.

6.1 Tree Protection Zone

Tree Protection Zones (TPZs) have been defined for the subject trees in order to define the encroachment of the proposed development in accordance with *AS4970-2009*. The TPZs required have been taken as a circular area with a radius 12 x the diameter at breast height of the tree. This requirement is in line with Australian Standard AS 4970-2009 Protection of Trees on Development Sites. This standard defines a maximum of 10% encroachment to be minimal encroachment. Any encroachment over 10% requires the site arborist to give consideration as to the viability of the tree due to the proposed development.

6.2 Structural Root Zone

Structural Root Zone (SRZs) are defined by AS*4970-2009* as the area of root development required for the structural stability of the tree. The SRZ is required to be assessed when an encroachment greater than 10% is considered.

Tree no.	Species	TPZ Radius (m)	Encroachment (%)	SRZ Radius (m)	Canopy Spread West (m)
1.	*Ficus microcarpa*	15	0	4.52	14
2.	*Ficus microcarpa*	13.68	0	4.14	13.5

3.	*Ficus microcarpa*	15	13	4.65	16
4.	*Ficus microcarpa*	11.1	25	4.04	14
5.	*Ficus microcarpa*	15	26	4.56	14
6.	*Ficus microcarpa*	15	25	4.52	13
7.	*Ficus microcarpa*	15	28	4.19	13.5
8.	*Ficus microcarpa*	14.4	22	4.54	15
9.	*Ficus microcarpa*	15	28	4.82	16
10	*Ficus microcarpa*	15	25	4.94	14.5
11	*Ficus microcarpa*	15	27	4.70	14
12	*Ficus microcarpa*	15	26	4.22	14
13	*Ficus microcarpa*	9.84	12	3.63	14.5
14	*Ficus microcarpa*	5.88	0	2.61	8
15	*Ficus microcarpa*	5.16	40	2.51	16
16	*Ficus microcarpa*	15	50	4.65	16
17	*Ficus microcarpa*	15	38	3.87	16
18	*Ficus microcarpa*	15	47	4.52	16
19	*Ficus microcarpa*	15	27	4.24	16
20	*Ficus microcarpa*	15	45	4.33	15.5

6.3 Development Impact

6.3.1. Tree 1. *Ficus microcarpa*

The Tree Protection Zone (TPZ) of this tree in accordance with *AS 4970-2009 Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.

6.3.2. Tree 2. *Ficus microcarpa*

The Tree Protection Zone (TPZ) and canopy of this tree in accordance with *AS 4970-2009 Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.

6.3.3. Tree 3. *Ficus microcarpa*

The Tree Protection Zone (TPZ) and canopy of this tree in accordance with *AS 4970-2009 Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.

6.3.4. Tree 4. *Ficus microcarpa*

The Tree Protection Zone (TPZ) and canopy of this tree in accordance with *AS 4970-2009 Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.

6.3.5. Tree 5. *Ficus microcarpa*

The Tree Protection Zone (TPZ) and canopy of this tree in accordance with *AS 4970-2009 Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.

6.3.6. Tree 6. *Ficus microcarpa*

The Tree Protection Zone (TPZ) and canopy of this tree in accordance with *AS 4970-2009 Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.

6.3.7. Tree 7. *Ficus microcarpa*

The Tree Protection Zone (TPZ) and canopy of this tree in accordance with *AS 4970-2009 Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.

6.3.8. Tree 8. *Ficus microcarpa*

The Tree Protection Zone (TPZ) and canopy of this tree in accordance with *AS 4970-2009 Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.

6.3.9. Tree 9. *Ficus microcarpa*

The Tree Protection Zone (TPZ) and canopy of this tree in accordance with *AS 4970-2009 Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.

6.3.10. Tree 10. *Ficus microcarpa*

The Tree Protection Zone (TPZ) and canopy of this tree in accordance with *AS 4970-2009 Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.

6.3.11. Tree 11. *Ficus microcarpa*

The Tree Protection Zone (TPZ) and canopy of this tree in accordance with *AS 4970-2009 Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.

6.3.12. Tree 12. *Ficus microcarpa*

The Tree Protection Zone (TPZ) and canopy of this tree in accordance with *AS 4970-2009 Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.

6.3.13. Tree 13. *Ficus microcarpa*

The Tree Protection Zone (TPZ) and canopy of this tree in accordance with *AS 4970-2009 Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.

6.3.14. Tree 14. *Ficus microcarpa*

The Tree Protection Zone (TPZ) and canopy of this tree in accordance with *AS 4970-2009 Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.

6.3.15. Tree 15. *Ficus microcarpa*

The Tree Protection Zone (TPZ) and canopy of this tree in accordance with *AS 4970-2009 Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.

6.3.16. Tree 16. *Ficus microcarpa*

The Tree Protection Zone (TPZ) and canopy of this tree in accordance with *AS 4970-2009 Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.

6.3.17. Tree 17. *Ficus microcarpa*

The Tree Protection Zone (TPZ) and canopy of this tree in accordance with *AS 4970-2009 Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.

6.3.18. Tree 18. *Ficus microcarpa*

The Tree Protection Zone (TPZ) and canopy of this tree in accordance with *AS 4970-2009 Protection of Trees on Development Sites* will not be further encroached by the proposed development. This tree will be viable to be retained under the proposed development.

6.3.19. Tree 19. *Ficus microcarpa*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will be encroached by the proposed new driveway by 35% which is significantly greater than the minor encroachment as defined by AS 4970-2009. This tree will not be viable to be retained under the proposed development.

6.3.20. Tree 20. *Ficus microcarpa*

The Tree Protection Zone (TPZ) of this tree in accordance with AS 4970-2009 Protection of Trees on Development Sites will be totally encroached by the proposed development. This tree will not be viable to be retained under the proposed development.

7.0 Recommendations and Conclusions

The subject trees are high retention value trees with high environmental and landscape value and are preserved by Newcastle City Council Development Control Plan 2012.

All of the subject trees are in good health and condition. All of the trees have a form with multiple co-dominant trunks from the base with the exception of Trees 13 and 14 which have single trunks. This form is common and typical of the species. The subject trees have tight acute primary junctions with some included bark and have a large proportion of the canopy as long horizontal end weighted branches. These characteristics are normal and typical of this species.

The subject trees have very broad canopies which has significant implications for the proposed development. The extent of the spread of the canopy towards the west

(within the development area) is outlined within 6.0. The proposed development does not impact upon the existing canopies.

Figure 1 - Canopy spread and branching habit of subject trees

The Tree Protection Zones (TPZ) of Trees 19 and 20 are encroached by the proposed roadway construction and required earthworks by a total or major encroachment as defined by *AS4970-2009 Protection of Trees on Development Sites.* This encroachment is exacerbated by the existing concrete retaining wall approximately 2.5m east of the trunks of the trees. This retaining wall restricts any contiguous compensatory area for root development as required by *AS4970-2009* when a major encroachment is considered. These trees will not be viable to be retained and would be required to be removed under the proposed development.

All other trees are viable to be retained and are to be protected as defined below.

Recommendations for tree retention or removal are summarised as follows:

Tree no.	Species	Recommendations	Comments
1.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
2.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
3.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
4.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
5.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
6.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
7.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
8.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
9.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
10.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
11.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
12.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
13.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
14.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
15.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
16.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
17.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
18.	*Ficus microcarpa*	Retain	Retain and protect in accordance with 8.0.
19.	*Ficus microcarpa*	Remove	Not viable to be retained due to the proposed development.
20.	*Ficus microcarpa*	Remove	Not viable to be retained due to the proposed development.

8.0 Pre-Construction Tree Protection Measures

8.1 General

All tree protection works shall be carried out before excavation, grading and site works commence. Tree protection works shall be inspected and approved by a Consulting Arborist meeting AQF Level 5 prior to construction works commencing.

Storage of materials, mixing of materials, vehicle parking, disposal of liquids, machinery repairs and refueling, site office and sheds, and the lighting of fires, stockpiling of soil, rubble or any debris shall not be carried out within the TPZ of existing trees. No backfilling shall occur within the TPZ of existing trees. Trees shall not be removed or lopped unless specific instruction is given in writing by the Superintendent.

8.2 Identification

All trees to be protected shall be clearly identified and all TPZs surveyed.

8.3 Site Arborist

Prior to all site works commencing, a Site Arborist is to be appointed with the responsibility of implementing all Tree Protection Measures in this report as well as compliance with AS4970-2009 Protection of Trees on Development Sites. The Site Arborist is to hold qualifications equivalent of AQF Level 5.

8.4 Protective Fence

Fencing is to be erected around existing trees to be retained. In addition to this protective fencing within the site, Protective Fencing is to be installed to the full extent of the TPZs within the site. This fencing is to be erected prior to any materials being brought on site or before any site, civil works or construction works commence. The fence shall enclose a sufficient area so as to prevent damage to the TPZ as defined on Appendix D Tree Protection Plan and as defined in 5.1 above. Fence to comprise 1800mm high chain wire mesh fixed to 50mm diameter Galvanised steel posts. Panels should be securely fixed top and bottom to avoid separation. No storage of building materials, tools, paint, fuel or contaminants and the like shall occur within the fenced area.

8.5 Mulching

Install mulch to the extent of all tree protection fencing. Use a leaf mulch conforming to AS 4454 which is free of deleterious and extraneous matter such as soil, weeds, sticks and stones and consisting of a minimum of 90% recycled content compliant with AS 4454 (1999) and AS 4419 (1998). All trees marked as to be removed on the proposed development are to be chipped and reused for this purpose. Place mulch evenly and to a depth of 100mm.

8.6 Signage

Prior to works commencing, tree protection signage is to be attached to each tree protection zone, displayed in a prominent position and the sign repeated at 10 metres intervals or closer where the fence changes direction. Each sign shall contain in a clearly legible form, the following information:
Tree protection zone.

- This fence has been installed to prevent damage to the trees and their growing environment both above and below ground and access is restricted.

- No Access within Tree Protection Zone
- The name, address, and telephone number of the developer.

The name and telephone number of the Site Arborist.

9.0 Site Management Issues

9.1 Soil Compaction

Plant and pedestrian traffic during the construction period will cause significant soil compaction. This will be exacerbated by increased water expected on these soils as result of adjacent construction and weather. Compaction of the soil within the TPZ will reduce the voids between soil peds or particles therefore will reduce the gaseous exchange capacity of the root system which will slow critical metabolic processes such as respiration which produces Adenosine Triphosphate (ATP) which provides energy for the photosynthesis, which in turn provides photosynthates such as glucose. These photosynthates provide the carbohydrates required for tree extension growth, girth expansion, reproduction and pest and disease resistance. No pedestrian or plant access is permissible to the TPZ.

9.2 Site Access

Sufficient access is required to enable efficient construction. It is essential to delineate access zones or corridors which will provide suitable access without damaging the existing trees to be retained or causing compaction to the root zone.

9.3 Excavation within Tree Protection Area

No excavation is to be carried out within the TPZs of retained trees without the permission and supervision of the site arborist (AQF5)

9.4 Possible Contamination / Storage of Materials

The construction site will require the use of many chemicals and materials that are possible contaminants which if not managed will pose a risk to the existing trees. These possible contaminants include fuels, herbicides, solvents and the like. A site-specific Environmental Management Plan shall be provided, and this specific risk identified and addressed.

10.0 Tree Protection Measures During Construction

10.1 Maintenance of Pre-Construction Tree Protection Measures

The Pre-Construction Tree Protection Measures identified in 5.0 above are to be maintained in good and serviceable condition throughout the construction period.

10.2 Possible Contaminants

Do not store or otherwise place bulk materials and harmful materials under or near trees. Do not place spoil from excavations within the TPZs. Prevent wind-blown materials such as cement from harming trees. All possible contaminants are to be stored in a designated and appropriate area with secure chemical spill measures such as a bund in place.

10.3 Physical Damage

Prevent damage to tree. Do not attach stays, guys and the like to trees. No personnel, plant, machinery or materials are to be allowed within the tree protection fencing.

10.4 Compaction

No filling or compaction shall occur over tree roots zones within tree protection fenced areas. Where construction occurs close to or the TPZ of trees to be retained it shall be necessary to install protection to avoid compaction of the ground surface. This protection is to be planks supported clear of the ground fixed to scaffolding.

10.5 Trenching

No Trenching should be necessary within the TPZs or within tree protection fencing. No further trenching is to be carried out without the approval of the Superintendent. Should any further trenching be required within the TPZs identified, this work is to be carried out by hand and under the supervision of a qualified Arborist.

10.6 Irrigation/Watering

Contractor is to ensure that soil moisture levels are adequately maintained. Apply water at an appropriate rate suitable for the species during periods of little or no rainfall.

10.7 Site Sheds / Amenities/ Storage

Site sheds, site amenities, ablutions and site storage shall be in the area clear of all TPZ. Chemicals and potential contaminants are to be stored appropriately and this storage area is to be enclosed by a chemical spill bund to prevent the potential run off of contaminants in the event of a spillage or accident.

11.0 Environmental / Heritage/ Legislative Considerations

None of the subject trees are identified as threatened species or elements of endangered ecological communities within the Threatened Species Conservation Act 1995.

12.0 References

Mattheck, C. Breloer, K. 1993, The Body Language of Trees: A Handbook for Failure Analysis, 12th Impression 2010 The Stationery Office.
AS4970-2009 Protection of Trees on Development Sites: Standards Australia

13.0 Disclaimer

This Appraisal has been prepared for the exclusive use of the Client and Birds Tree Consultancy.
Birds Tree Consultancy accepts no responsibility for its use by other persons. The Client acknowledges that this Appraisal, 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 Birds Tree Consultancy and referred to in the Appraisal. The Client should rely on the Appraisal, and on its contents, only to that extent.

Every effort has been made in this report to include, assess, and address all defects, structural weaknesses, instabilities, and the like of the subject trees. All inspections were made from ground level using only visual means and no intrusive or destructive means of inspection were used. For many structural defects such as decay and inclusions, internal inspection is required by means of Resistograph or similar. No such investigation has been made in this case. Trees are living organisms and are subject to failure through a variety of causes not able to be identified by means of this inspection and report.

Appendix A Landscape Significance

IACA Significance of a Tree, Assessment Rating System (STARS) ©
(IACA 2010) ©

In the development of this document IACA acknowledges the contribution and original concept of the Footprint Green Tree Significance & Retention Value Matrix, developed by Footprint Green Pty Ltd in June 2001.

The landscape significance of a tree is an essential criterion to establish the importance that a particular tree may have on a site. However, rating the significance of a tree becomes subjective and difficult to ascertain in a consistent and repetitive fashion due to assessor bias. It is therefore necessary to have a rating system utilising structured qualitative criteria to assist in determining the retention value for a tree. To assist this process all definitions for terms used in the *Tree Significance - Assessment Criteria* and *Tree Retention Value - Priority Matrix*, are taken from the IACA Dictionary for Managing Trees in Urban Environments 2009.

This rating system will assist in the planning processes for proposed works, above and below ground where trees are to be retained on or adjacent a development site. The system uses a scale of *High*, *Medium* and *Low* significance in the landscape. Once the landscape significance of an individual tree has been defined, the retention value can be determined.

Tree Significance - Assessment Criteria

1. High Significance in landscape

- The tree is in good condition and good vigour;
- The tree has a form typical for the species;
- The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age;
- The tree is listed as a Heritage Item, Threatened Species or part of an Endangered ecological community or listed on Councils significant Tree Register;
- The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity;
- The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values;
- The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa *in situ* - tree is appropriate to the site conditions.

2. Medium Significance in landscape

- The tree is in fair-good condition and good or low vigour;
- The tree has form typical or atypical of the species;
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street,
- The tree provides a fair contribution to the visual character and amenity of the local area,
- The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa *in situ*.

3. Low Significance in landscape

- The tree is in fair-poor condition and good or low vigour;
- The tree has form atypical of the species;
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings,
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area,
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen,
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa *in situ* - tree is inappropriate to the site conditions,
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms,
- The tree has a wound or defect that has potential to become structurally unsound.

Environmental Pest / Noxious Weed Species

- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties,
- The tree is a declared noxious weed by legislation.

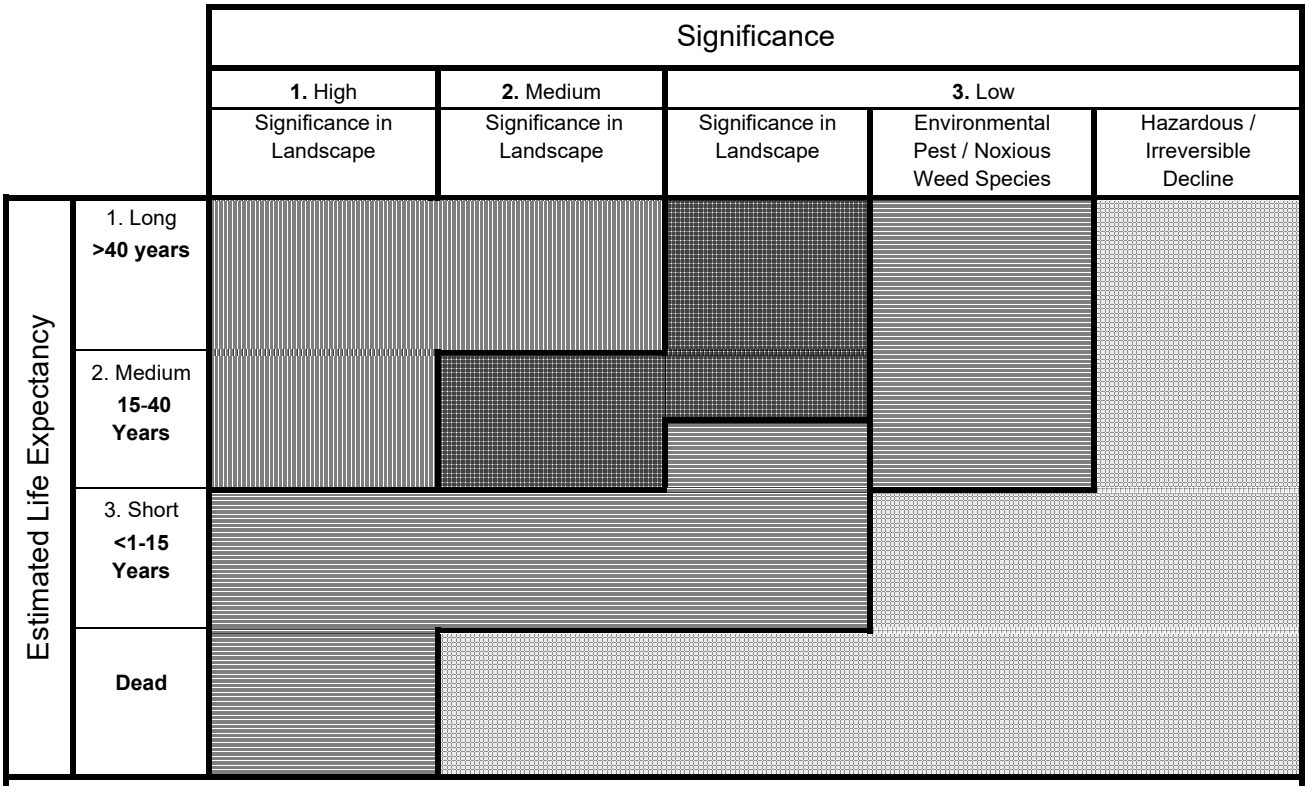
Hazardous/Irreversible Decline

- The tree is structurally unsound and/or unstable and is considered potentially dangerous,
- The tree is dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.

The tree is to have a minimum of three (3) criteria in a category to be classified in that group.

Note: The assessment criteria are for individual trees only, however, can be applied to a monocultural stand in its entirety e.g. hedge.

Appendix B Tree Retention Values



Legend for Matrix Assessment

INSTITUTE OF AUSTRALIAN CONSULTING ARBORICULTURISTS
IACA
MANAGING URBAN TREES ®

Priority for Retention (High) - These trees are considered important for retention and should be retained and protected. Design modification or re-location of building/s should be considered to accommodate the setbacks as prescribed by the Australian Standard AS4970 *Protection of trees on development sites*. Tree sensitive construction measures must be implemented e.g. pier and beam etc if works are to proceed within the Tree Protection Zone.

Consider for Retention (Medium) - These trees may be retained and protected. These are considered less critical; however their retention should remain priority with removal considered only if adversely affecting the proposed building/works and all other alternatives have been considered and exhausted.

Consider for Removal (Low) - These trees are not considered important for retention, nor require special works or design modification to be implemented for their retention.

Priority for Removal - These trees are considered hazardous, or in irreversible decline, or weeds and should be removed irrespective of development.

REFERENCES

Australia ICOMOS Inc. 1999, *The Burra Charter – The Australian ICOMOS Charter for Places of Cultural Significance*, International Council of Monuments and Sites, www.icomos.org/australia

Draper BD and Richards PA 2009, *Dictionary for Managing Trees in Urban Environments*, Institute of Australian Consulting Arboriculturists (IACA), CSIRO Publishing, Collingwood, Victoria, Australia.

Footprint Green Pty Ltd 2001, *Footprint Green Tree Significance & Retention Value Matrix*, Avalon, NSW Australia, www.footprintgreen.com.au

Appendix C - Tree Inspection Data

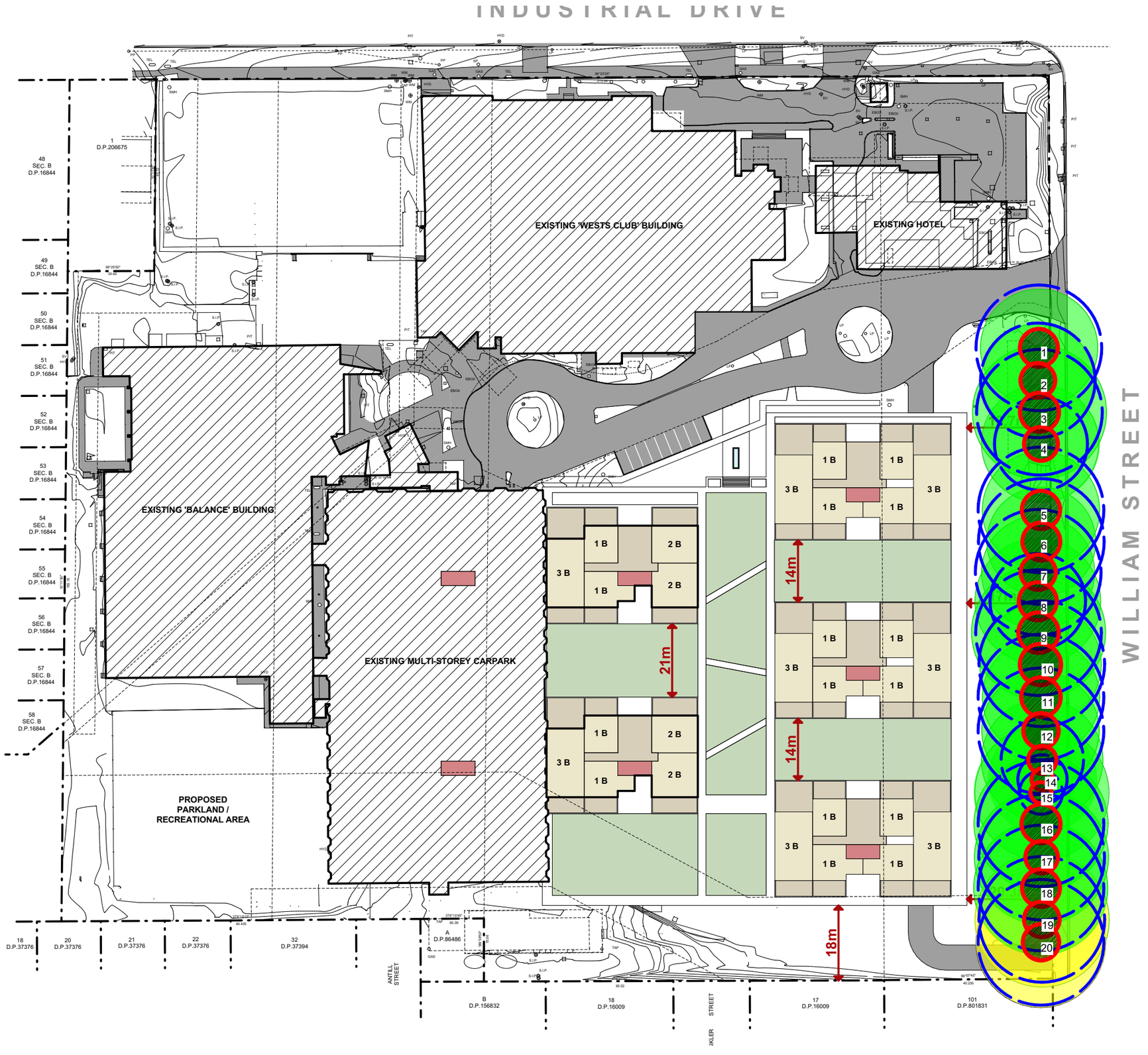
Birds Tree Consultancy

Consulting Arborist• Project Management • Horticultural Consultancy • Landscape Management

Inspection Data 5-Jun-20
Wests Mayfield

Tree no.	Species	Height (m)	Spread(m)	DBH (mm)	TPZ Radius (m)	DAB (mm)	SRZ Radius (m)	Maturity	Trunk (single, twin, multiple @)	Trunk lean	Form/Crown shape	Branching Habit	Crown Distribution	Distortion Due	Stability	Branching Structure	Pruning History	Defects	Damage	Overall Health & Vigour	Canopy Density	Foliage	Deadwood	Epicormic Growth	Pest Infestation	Disease	Life expectancy	Env. & Landcape significance	Retention Value	Notes/Comments
1	Ficus microcarpa	18	28	1250	15	2100	4.52	Mature	Single	NIL	Normal	Normal	Balanced		Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	High	High	
2	Ficus microcarpa	19	27	1140	13.68	1700	4.14	Mature	Multiple @ base	NIL	Normal	Normal	Balanced		Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	High	High	
3	Ficus microcarpa	20	32	1510	15	2250	4.65	Mature	Multiple @ base	NIL	Normal	Normal	Balanced		Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	High	High	
4	Ficus microcarpa	21	28	925	11.1	1610	4.04	Mature	Multiple @ base	NIL	Normal	Normal	Balanced		Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	High	High	
5	Ficus microcarpa	20	28	1490	15	2150	4.56	Mature	Multiple @ base	NIL	Normal	Normal	Balanced		Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	High	High	
6	Ficus microcarpa	22	26	1490	15	2100	4.52	Mature	Multiple @ base	NIL	Normal	Normal	Balanced		Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	High	High	
7	Ficus microcarpa	21	27	1840	15	1750	4.19	Mature	Multiple @ base	NIL	Normal	Normal	Balanced		Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	High	High	
8	Ficus microcarpa	23	30	1200	14.4	2120	4.54	Mature	Multiple @ base	NIL	Normal	Normal	Balanced		Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	High	High	
9	Ficus microcarpa	24	32	1600	15	2450	4.82	Mature	Multiple @ base	NIL	Normal	Normal	Balanced		Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	High	High	
10	Ficus microcarpa	24	29	1530	15	2600	4.94	Mature	Multiple @ base	NIL	Normal	Normal	Balanced		Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	High	High	
11	Ficus microcarpa	22	28	1480	15	2300	4.70	Mature	Multiple @ base	NIL	Normal	Normal	Balanced		Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	High	High	
12	Ficus microcarpa	21	28	1360	15	1780	4.22	Mature	Multiple @ base	NIL	Normal	Normal	Balanced		Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	High	High	
13	Ficus microcarpa	19	29	820	9.84	1250	3.63	Mature	Multiple @ base	NIL	Normal	Normal	Balanced		Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	40y+	High	High	
14	Ficus microcarpa	21	16	490	5.88	570	2.61	Mature	Single	NIL	Normal	Normal	Balanced		Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	40y+	High	High	
15	Ficus microcarpa	17	32	430	5.16	520	2.51	Mature	Single	Prominent NW	Normal	Normal	NW	Crowding	Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	High	High	
16	Ficus microcarpa	19	32	1510	15	2250	4.65	Mature	Multiple @ base	NIL	Normal	Normal	Balanced		Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	High	High	
17	Ficus microcarpa	20	32	1320	15	1450	3.87	Mature	Multiple @ base	NIL	Normal	Normal	Balanced		Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	High	High	
18	Ficus microcarpa	22	32	1380	15	2100	4.52	Mature	Multiple @ base	NIL	Normal	Normal	Balanced		Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	High	High	
19	Ficus microcarpa	23	32	1280	15	1800	4.24	Mature	Multiple @ base	NIL	Normal	Normal	Balanced		Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	High	High	
20	Ficus microcarpa	22	31	1375	15	1900	4.33	Mature	Multiple @ base	NIL	Normal	Normal	Balanced		Stable	Stable	No evidence	Nil	Nil	Good	Normal	Normal	<5%	<5%	No evidence	No evidence	15-40y	High	High	

Appendix D Tree Location Plans



Legend

- Tree to be Retained - Canopy Spread
- Tree to be Removed
- Tree Not Viable to be Retained due to Proposed Development - Canopy Spread
- Tree Protection Zone (TPZ) in accordance with AS4970-2009
- Structural Root Zone (SRZ) in accordance with AS4970-2009

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Project: Wests Mayfield
Client: WPP Group
DWG: A01 REV A
Plan: Tree Location Plan
Date: 25 Mar 2021 Scale : 1:1000 @ A3