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Arboriculture Assessment & Management Statement

January 2021



Site: Lot 32 in DP 653913
79 Newton Road
STRATHFIELD, NSW

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1 Summary

John Mouawad representing the property owner (Elias Mouawad) commissioned the Growing My Way Tree Consultancy (GMW) to prepare an *Arboriculture Assessment & Management Statement* for trees damaging boundary infrastructure, (low level masonry retaining wall).

All four (4) discussed trees are located within the property known as 79 Newton Road (from herein the subject site).

The Strathfield Council (from herein SC) is the sole consent authority for 'Tree Management'.

All discussed trees are identified as being SC protected trees. The discussed trees have been identified as being protected by both species & size. Three (3) of the four (4) discussed trees are exotic species. The fourth tree is a short lived (by species) not locally indigenous but confirmed to be native tree species.

The subject site is NOT within an area subject to the provisions of the NSW Rural Fire Service 10/50 Vegetation Code of Practice.

The subject site & all adjoining common boundary sites are confirmed to NOT be within a 'Heritage Conservation Area', (see SC LEP Heritage Map Sheet HER_002). Nor is the subject site or any common boundary site a listed 'Heritage Item'.

The subject site plus all common boundary sites are zoned R2 'Low Density Residential' sites. All are developed to contain dwelling residences.

Motor vehicle access is only via Marion Street. Pedestrian access is via either Marion Street or Newton Road.

Information related to the discussed trees was gathered by onsite data collection (Saturday, 9 January 2021) with cross referencing to:

- SC "Local Environment Plan, 2012
- SC "Development Control Plan, 2005", Part O 'Tree Management' plus the SEPP 'Vegetation in Non-Rural Areas, 2017.

The aim of this report is:

1. To confirm the viability of the discussed trees, relating to health, vigour & condition taking into account the damage to infrastructure confirmed at the time of assessment as well as the soon to be proposed new approximately 1.00m to 1.40m tall new road reserves common boundary masonry boundary/retaining wall.
2. Provide list of suitable compliant Australian Standard (AS2303-2015) 'Tree stock for landscape use' replacement trees as well as post planting establishment/maintenance specifications.

Kyle A Hill (AQF level 5 & 8 Practicing/Consulting Arborist has prepared this report based on "Visual Tree Assessment" (VTA Stage 1) & 'Site Analysis' undertaken on Saturday, 9 January, 2021 in the presence of John Mouawad.

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2 Introduction

This report contains observations & recommendations intended to assist in the management of the four (4) trees identified as being close to the damaged infrastructure, (i.e., low level masonry boundary wall).

We acknowledge & confirm to be familiar with the ‘at the time of consent’ SC “*Tree Management Provisions*”.

The sole consent authority is SC.

The subject site & all common boundary sites are NOT within a SC designated “*Heritage Conservation Area*”. The four (4) discussed trees have no significance relative to the natural environment other than ‘landscape amenity’, (they are neither threatened nor endangered species) other than ‘landscape amenity’.

This document supports all four (4) being replaced on the basis the damaged infrastructure is proposed to be replaced with a new taller privacy creating boundary masonry structure/wall.

As discussed, onsite, new tree locations within the front yard will be specified to be planted in locations whereby their individual root systems can development in a 360° pattern with no reasonably predictable lowlihood of roots systems damaging above ground built form &/or infrastructure.

3 Methodology

Assessment of the trees has been from ground level by eye, using *Visual Tree Assessment** (VTA) techniques developed by Claus Mattheck. The principles of VTA are explained in his widely-used reference book “*The Body Language of Trees (1994)*”.

Assessment includes:

- *Individual tree’s current condition & likely future health. Species tolerance to root disturbance &/or development*
- *Damage Confirmed to date*
- *Tree’s amenity value, such as significance, screening & habitat.*

No root analysis, soil testing, ‘Resistograph’® drilling or aerial canopy inspection was undertaken. See the following Appendices for further information:

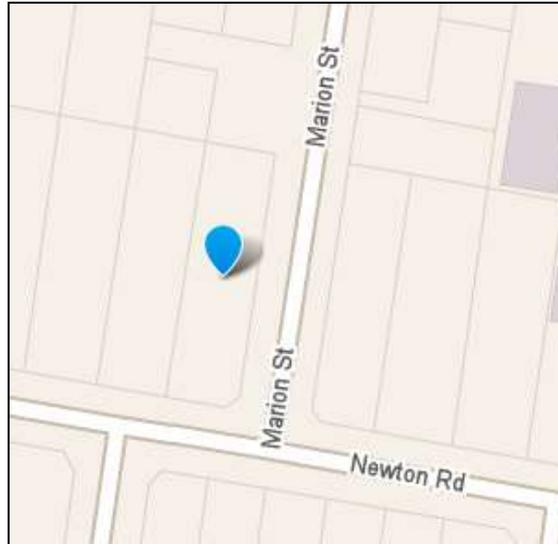
- *Appendix A Glossary of Common Arboreal terms*

* **VTA–Visual Tree Assessment**, as referenced is a systematic inspection of a tree for indicators of structural defects that may pose a risk due to failure. Stage 1 is made from ground level (i.e., no aerial inspection is undertaken). An aerial inspection (Stage 2) is undertaken when there are easily identified visual indicators that suggest such an inspection is merited. Visual indicators are outlined within *The Body Language of Trees (Mattheck & Breloer, 1994)*. VTA is a broadly used relatively standardised approach. More complex (can be invasive) diagnostic fault detection equipment may be recommended once visual indicators of potential defects are confirmed.

4 Observations

4.1 *The Site*

The report discusses trees only within the subject site. The subject site by SixMaps® area calculation tool is approximately 963.00m² in size. Two (2) common boundary properties are developed to contain single dwelling residences. The subject site shares boundaries with two (2) public roads.



Map & Aerial photograph courtesy of Whereis.com (website tool) & Sixmaps.com (website tool)

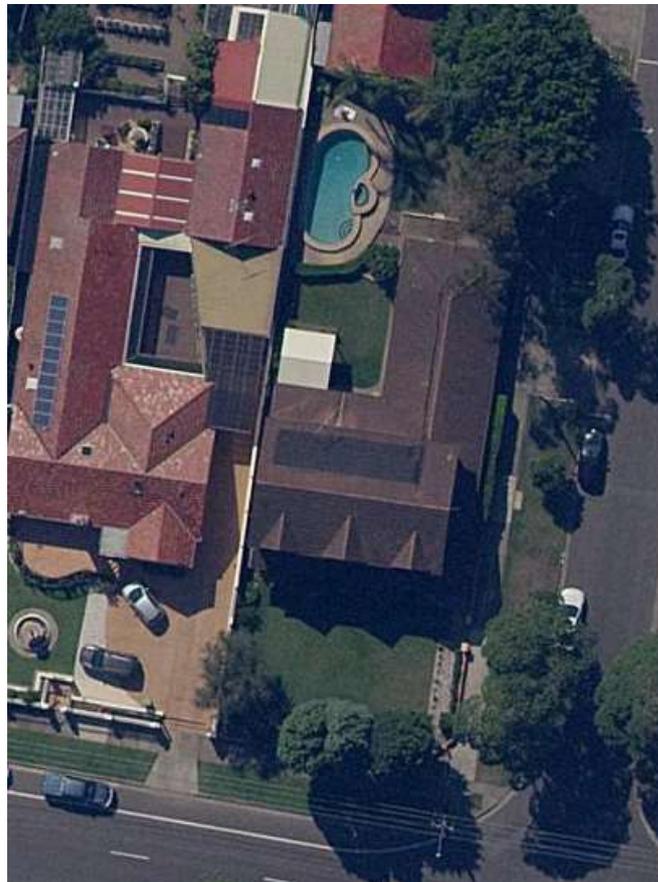




Figure 1: Above confirms Land Zoning (SC LEP 2012).

The subject site is NOT within a SC designated “Heritage Conservation Area”, see below.

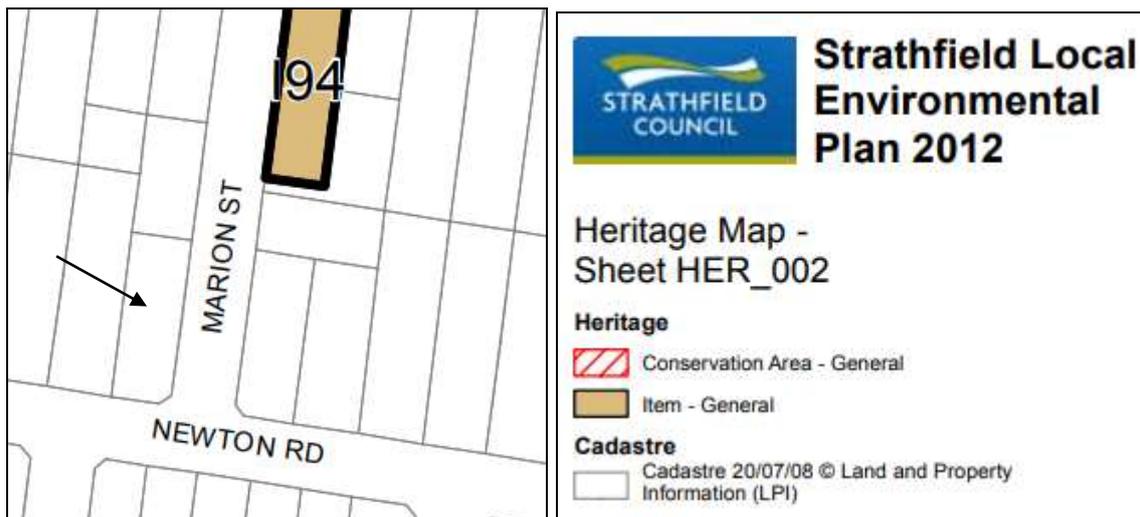


Figure 2: Above confirms Heritage Status (SC LEP 2012).

4.2 *The Proposal/Tree & Site Images*

The proposal is to replace the four (4) discussed trees as part of the demolition of the old masonry boundary/retaining wall & construction of new taller masonry boundary/retaining wall soon to be commenced project.





Figure 3: Above & previous page illustrates damage to the proposed to be replaced infrastructure relative to tree locations.

4.4 The Trees – Summary Table

Read this table in conjunction with Appendix A-Common Arboreal Terms

Trees Recommended for removal								Trees Recommended for retention			
Exempt species								Trees retainable but of low amenity			
	Identification	Height (m)	Crown (m)	DBH (m)	TPZ (m)	SRZ (m)	Age	Health/Vigour	Significance/Retention Value	Form/Habit	Comments
1	<i>Leptospermum petersonii</i> Lemon Scent Tea Tree	<5.50	<4.00	0.15	2.00	1.50	SM	Fair & Fair	L/L	Typical but suppressed by competition	<u>Replace.</u>
2	<i>Cupressus sempervirens</i> Italian Cypress	<12.00	<15.00	0.38	4.60	2.20	M	Fair to Good & Fair to Good	M/M	Typical but with partial canopy missing	<u>Replace.</u>
3	<i>Cupressus sempervirens</i> Italian Cypress	<13.00	<4.50 T1, T2 & T3 canopies are linked	0.44 estimated	5.30	2.40	M	Fair to Good & Fair to Good	M/M	Typical but with partial canopy missing. Atypical at ground level	<u>Replace.</u>
4	<i>Cupressus sempervirens</i> Italian Cypress	<11.500	<15.00 T1, T2 & T3 canopies are linked	0.53 estimated	6.50	2.60	M	Fair to Good & Fair to Good	M/M	Typical but with partial canopy missing	<u>Replace.</u>

- H/H: Tree is considered to be of High Significance & High Retention Values.
- M/M: Tree is considered to be of Moderate Significance & Moderate Retention Values.
- L/L: Tree is considered to be of Low Significance & Low Retention Values.

5 Discussion

This document is presumed to be required to be linked to a Development Application for the demolition & construction of a new taller masonry boundary/retaining wall. The new structure must have adequate drainage incorporated into its design so as to take out the previously discussed 'soil saturation & swelling' potential to contribute to any future damage to the new infrastructure.

The three (3) discussed same species trees (Tree #2, Tree #3 & Tree #4) are assessed to be long term planted, i.e., greater than twenty-five (25) years. Tree #1 is significantly younger; it is possibly self-sown by a 'bird dropping'.

Damage to the existing & proposed to be replaced road reserve common boundaries masonry retaining walls is obvious. Whilst in almost all situations it is impossible to establish a 'primary cause' to damaged infrastructure it is obvious by damage locations the discussed trees are significant contributing factors. It is also likely the masonry retaining wall was built with insufficient drainage so as to relieve pressure to the structure from saturated soils (medium clay in the local area) swelling & pushing against the total structure. This is the most likely the most significant contributing factor relative to the rotation of the masonry retaining wall sections. Simply, the as can be seen from page 8 photographs confirming the presence of the PVC plastic pipes randomly inserted are not likely to be part of the original structure.

Whilst acknowledging the importance of 'tree canopy density', in this situation it is considered as easily able to be re-established for potentially up the very long term, i.e., for way longer than the discussed trees already compromised by infrastructure & tree architecture defects compromised individual 'Useful Life Expectancy'. New trees located within areas where they have the ability to develop a text book typical 'root system' with little likelihood of the damage to infrastructure confirmed being repeated is a way more sustainable outcome than attempting to build the soon to be constructed new (taller) masonry retaining wall.

Additionally, concern for 'public safety' was discussed at the time of on-site assessment relative to the many school children as well as children in general 'walking on top of a potentially unstable stable structure. There is a without challenge possibility of the existing masonry boundary/retaining wall structure failing when used as a pathway or part of a pathway. As advised on site, it is this documents author opinion this is an unacceptable 'risk to persons' that could easily be mitigated by construction of a new masonry boundary/retaining wall with new trees planted to re-establish any short-term canopy loss.

All four (4) discussed trees calculated 'Structural Root Zone' radial distances are breached by the existing masonry boundary/retaining wall. By best practice 'Arboriculture Management Principles' this is not considered to be a sustainable situation relative to mitigating 'risk to the public'.

Below is a list of considered to be potentially new tree species as replacements for the four (4) discussed trees.

- *Elaeocarpus angustifolius* (Blue Quandong)
- *Glochidion ferdinandi* (Cheese Tree)
- *Banksia integrifolia* (Coast Banksia)

- *Acacia binervia* (Coast Myall)
- *Alphitonia excelsa* (Red Ash)
- *Backhousia myrtifolia* (Grey Myrtle)
- *Backhousia citriodora* (Lemon Scent Myrtle)
- *Melaleuca linariifolia* (Snow in Summer)

6 Site Specific “Tree Management Plan”

Stage 1:

- Source ‘*AS2303-2015 Tree stock for landscape use*’ replacement trees with compliantly produced new tree specimens. (We suggest at least two (2) different genera/species be used.)
- Professionally plant the four (new) replacement trees.
- Isolate the new trees from the DA determined works by installation of ‘temporary metal mesh fencing panels with above ground feet’.
- Maintain regular water to the four (4) new establishing trees at least weekly when reliable rainfall by weather record statistics becomes inconsistent.

Stage 2:

- Prior to the commencement of major works inspect & sign off as *AS4970-2009 Protection of trees on development sites* compliance for the ‘temporary TPZ protection fencing’. This is to be in writing with supporting photographic evidence & provided to the sites appointed ‘Principle Certifying Authority’.
- Maintain regular water to the four (4) new establishing trees at least weekly when reliable rainfall by weather record statistics becomes inconsistent.
- Demolish the existing infrastructure, i.e., common boundary with public roads low masonry boundary/retaining wall.
- Remove the discussed four (4) trees in compliance with the ‘Code of Practice: Amenity Tree Industry-SafeWork NSW’ document. Photographs are recommended to be taken whilst such works are being undertaken.
- Mechanically remove the four (4) tree stumps. Import suitable new soil/garden bed media. Stump grinding is an option, just not the ‘Arboriculture Best Practice’ preferred one. The reason being, when stumps are ground, they are mostly ‘out of sight as opposed to out of existence’. Secondly, any stump grinding woody tissue that mixes with surrounding soil is incompatible with any new tree roots until totally composted. (This takes at least a minimum of eighteen (18) months.) Lastly, if stump grinding does actually remove all major ‘root plate woody tissue’ it is likely to mix topsoil (A horizon) with subsoil (B horizon). This definitely not best practice to allow this to happen.
- At the completion of major works inspect & sign off as *AS4970-2009 Protection of trees on development sites* compliance for the ‘temporary TPZ

protection fencing'. This is to be in writing with supporting photographic evidence & provided to the sites appointed 'Principle Certifying Authority'.

- Retained, managed & protected trees must be watered at least weekly when natural rainfall events are not sufficient or consistent with normal Sydney rainfall patterns.
- No building material of any description (including loose soil) is to be stored within the new trees established 'isolation area'.
- Any accidental event that damages any not discussed but retained tree trunk or branches must be managed & documented then provided to the sites retained Principle Certifying Authority by the sites retained Practicing/Consulting Arborist.
- Retained, managed & protected trees must be watered at least weekly when natural rainfall events are not sufficient or consistent with normal Sydney rainfall patterns.

Stage 3:

- Maintain regular water to the four (4) new establishing trees at least weekly when reliable rainfall by weather record statistics becomes inconsistent.
- Reassess & document with supporting photographic evidence of the four (4) new trees at six (6) & twelve (12) month intervals post planting.
- Apply 'balanced slow release fertiliser' post first full growing season (mid August through early June) following planting

7 Conclusions/Recommendations

- With implementation of the described/specified Site Specific 'Tree Management Plan' there is no reason to doubt that the four (4) new trees will over time provide &/or exceed current canopy density temporary loss in a manner for potentially way longer than the expected Useful Life Expectancy (considered to be compromised) of the four (4) discussed trees.

If you have any questions relating to this report or implementation of recommendations, please contact Kyle Hill on 0412-221-962.

Yours faithfully,



(Kyle A. Hill, AQF level 5 & level 8 Practicing & Consulting Arborist)

8 Limitations on the use of this report

This report is to be utilised in its entirety only. Any written or verbal submission, report or presentation that includes statements taken from the findings, discussions, conclusions or recommendations made in this report, may only be used where the whole of the original report (or a copy) is referenced in, & directly attached to that submission, report or presentation.

9 Assumptions

Care has been taken to obtain information from reliable resources. All data has been verified insofar as possible; however, Growing My Way Tree Services, can neither guarantee nor be responsible for the accuracy of information provided by others.

Unless stated otherwise:

Information contained in this report covers only the trees that were examined & reflects the condition of the trees at the time of inspection.

The inspection was limited to visual examination of the subject trees without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future.

10 Recommended References

Barrell, J. 1993. 'Preplanning Tree Surveys: Safe Useful Life Expectancy (SULE) is the Natural Progression', *Arboricultural Journal* 17:1, February 1993, pp.

Barrell, J. 1995, 'Pre-development Tree Assessments', in *Trees & Building Sites*, Proceedings of an International Conference Held in the Interest of Developing a Scientific Basis for Managing Trees in Proximity to Buildings, International Society of Arboriculture, Illinois

Dr. G. Watson & Dr. D. Neely, 'Trees & Building Sites', LSA Illinois USA 1995

Dr. N. Matheny & Dr. J.R. Clark, 'Trees & Development', ISA Illinois USA 1998

Phillip J. Craul, 'Urban Soil in Landscape Design', J. Wiley & Sons, New York USA 1992

11 Selected Bibliography

Hitchmough, J.D. 1994. 'Urban Landscape Management', Inkata Press, Sydney.

Mattheck, C. & Breloar, H. 1994 'Body Language of Trees', The Stationery Office, London.

AS 4373:2007, 'Pruning of Amenity Trees', Standards Australia.

AS 4970:2009, 'Protection of Trees on Development Sites', Standards Australia.

BS 5837:2005, 'Guide for Trees in Relation to Construction', Standards Board, UK.

Appendix A – Glossary

Glossary of common Arboreal terms

Age:	I	<i>Immature</i> refers to a refers to a well-established but juvenile tree
	SM	<i>Semi-mature</i> refers to a tree at growth stages between immaturity & full size
	M	<i>Mature</i> refers to a full sized tree with some capacity for further growth
	LM	<i>Late Mature</i> refers to a full sized tree with little capacity for growth that is not yet about to enter decline
	OM	<i>Over-mature</i> refers to a tree about to enter decline or already declining
	LS	<i>Live Stag</i> refers to a tree in a significant state of decline. This is the last life stage of a tree prior to death

Hth & Vig Health & Vigour

Health refers to the tree's form & growth habit, as modified by its environment (aspect, suppression by other tree, soils) & the state of the scaffold (ie. trunk & major branches), including structural defects such as cavities, crooked trunks or weak trunk/branch junctions. The are not directly connected with health & it is possible for a tree to be healthy but in poor condition/vigour.

Classes are:

Excellent (E), V. Good (VG), Good (G), Fair (F), Declining (D), Poor (P), Very Poor (VP)

Vigour refers to the tree's growth rate/condition as exhibited by the crown density, leaf colour, presence of epicormic shoots, ability to withstand disease invasion & the degree of dieback. **Classes are:**

Excellent (E), V. Good (VG), Good (G), Fair (F), Declining (D), Poor (P), Very Poor (VP)

Useful Life Expectancy (ULE) refers to any individual tree specimen's potential life expectancy (viability) based on VTA assessment, three groups are described,

Short = Less than Fifteen years

Medium = Fifteen – Twenty-five years

Long = more than Twenty-five years

Significant diameter roots are defined as those being greater than 0.05m/50mm in diameter.

Diameter at Breast Height (DBH) refers to the tree trunk diameter at breast height (1.4 metres above ground level)

Structural Root Zone (SRZ) refers to a radial offset which relates to tree stability. This zone is presumed to be main location of the tree's structural support roots. It is calculated using the formula $SRZ\ radius = (D \times 50)^{0.42} \times 0.64$.

Primary Root Zone (PRZ) refers to a radial offset of ten (10) times the trunk DBH measured from the centre of the trunk. This zone often contains a significant amount of (but by no means all of a tree's) fine, non-woody roots required for uptake of nutrients, oxygen & water.

Tree Protection Zone (TPZ) is ideally a "No Go Zone" surrounding a tree to aid in its ability to cope with disturbances associated with construction works. **TPZ = DBH x 12**. Tree protection involves minimising root damage that is caused by activities such as construction. Tree protection also reduces the chance of a tree's decline in health or death & the possibly damage to structural stability of the tree from root damage.

To limit damage to the tree, protection within a specified distance of the tree's trunk must be maintained throughout the proposed development works. No excavation, stockpiling of building materials or the use of machinery is permitted within the TPZ.

A TPZ is required for each tree or group of trees within five metres (unless otherwise specified) of building envelopes.

Stem/bark inclusion refers to a genetic fault in the tree's structure. This fault is located at the point where the stems/branches meet. In the case of an inclusion this point of attachment is potentially weak due to bark obstructing healthy tissue from joining together to strengthen the joint.

Decay refers to the break down tissues within the tree. There are numerous types of decay that affect different types of tissues, spread at different rates & have different affect on both the tree's health & structural integrity.

Point of Attachment refers to the point at which a stem/branch etc join.

Dead wood refers to any whole limb that no longer contains living tissues (eg live leaves &/or bark). Some dead wood is common in a number of tree species.

Die back refers to the death of growth tips/shoots & partial limbs. Die back is often an indicator of stress & tree health.

One dimensional crown refers to branching habits & leaves that extend/grow in One direction only. There are many causes for this growth habit such as competition & pruning.

Crown Foliage Density of Potential (CFDP) refers to the density of a tree's crown in relation to the expected density of a healthy specimen of the same species. CFDP is measured as a percentage.

Epicormic growth/shoots refers to growth/shoots that are/have sprouted from axillary buds within the bark. Epicormic growth/shoots are a survival mechanism that often indicates the presence of a current or past stress even such as fire, pruning, drought etc.

Over Head Powerlines (OHP) Over head electricity wiring.

LVOHP	Low Voltage Over head Powerlines
HVOHP	High Voltage Over head Powerlines
ABC	Aerial Bundled Cable