

“GROWING MY WAY”

Tree Consultancy

Established 1977

EXCELLENCE in ALL ASPECTS OF TREE MANAGEMENT

FULL INSURANCE PROTECTION

PO Box 35, Newport Beach NSW 2106

Phone: (02) 9997-4101 Mobile: 0412-221-962 Fax: (02) 9940-0217

E-mail: kyleahill@optusnet.com.au

ABN 97 965 355 200

Construction Impact & Management Statement

June 2020, Updated March 2023



Site: Lot 89 in DP 13760
29 Wandean Road
CLAREVILLE, NSW

Client: Trish Quirk
29 Wandean Road
CLAREVILLE, NSW 2107

Author: Kyle A Hill
Registered (Arb Aus #1884) Practising & Consulting Arborist
Post Graduate Certificate in Arboriculture, Uni of Melb
Diploma of Horticulture-Arboriculture TAFE, Grow SA
Certificate of Horticulture, TAFE
Certificate Advanced Tree Care TAFE
Founder -Growing My Way Tree Services (1977)
Member of Victorian Tree Industry Organisation
Member of International Society of Arboriculture
Member of Arboriculture Australia

1 Summary

Trish Quirk (property owner) commissioned the Growing My Way Tree Consultancy (GMW) to prepare a *Construction Impact & Management Statement* relative to the proposed *Alterations/Additions to the existing dwelling* within the property known as 29 Wandeen Road, Clareville, (from herein the subject site).

This is a modified (updated) to the as originally lodged documents for DA submission. For ease of interpreting changes all updated parts are in 'brown type'.

Seven (7) individual trees have been identified as being required to be discussed relative to the proposal for *Alterations/Additions to an existing dwelling, including swimming pool* with respect to tree management issues.

All discussed in detail trees are subject to the tree management provisions as defined within the *Northern Beaches Council (from herein NBC) "Tree Management Provisions" plus the new SEPP "Vegetation in non-rural Areas, August 2017*. The discussed trees are confirmed to be within the subject site. Multiple other trees are located within both the subject site & adjoining common boundary properties but are not discussed as they are well away from & therefore not impacted upon by the proposed works supported within this document.

Two (2) of the discussed trees are proposed to be replaced.

The proposal is able to satisfy compliance criteria with the *Australian Standard (AS4970-2009 Protection of trees on development sites)*.

Motor vehicle & pedestrian access is via Wandeen Road.

The sole consent authority is the NBC. The old *Pittwater Council Planning Instrument (Local Environment Plan, 2014)* applies at the time of writing.

Information related to the discussed trees was gathered by onsite data collection with cross referencing to:

- Site Survey by C-Side Surveyors, Issue B dated, 17 October 2018;
- Plans, Sections & Elevations, by Vanessa Miles Design & Draft, Revision 5, dated, 27 March 2023;
- Pittwater Council/NBC "Tree Management Provisions" &
- SEPP 'Vegetation in Non-Rural Areas, 25 August 2017.

The aim of this report is:

1. To confirm individual trees health, vigour & condition considering any impact foreseen by the proposed demolition & redevelopment.
2. Specify trees to be replaced are replaced with the same species trees in locations whereby 'landscape amenity' is up to very long term.

This document supports (relative to tree management) the updated proposal for *Alterations/Additions to an existing dwelling, including swimming pool* with respect to tree management issues.

Kyle A Hill (AQF level 5 & 8 Practising/Consulting Arborist has prepared this report based on "Visual Tree Assessment" (VTA). Data (original) was collected on Saturday, 16 May 2020.

Table of Contents

1	Summary.....	2
2	Introduction	4
3	Methodology.....	5
4	Observations	6
4.1	The Site	6
4.2	The Proposal	13
4.3	Tree Locations & Site Images.....	21
4.4	The Tree - Summary Table	25
5	Discussion.....	27
6	Conclusions	29
7	Limitations on the use of this report.....	30
8	Assumptions	30
9	Recommended References.....	30
10	Selected Bibliography	30
	Appendix A - Glossary	31
	Appendix B - Tree Protection/Management Prior to & During Construction	33

2 Introduction

This report contains observations & recommendations intended to assist in the management of the seven (7) individual trees identified as necessary to be discussed by virtue of their location & proposed works, i.e., *Alterations & Additions to an existing dwelling, including swimming pool* with respect to tree management issues.

Built form within the subject site is a single dwelling residence.

This document supports the proposed *Alterations/Additions to an existing dwelling, including swimming pool* with respect to tree management issues.

We confirm to be familiar with both the old *Pittwater Council* & now *NBC* “*Tree Management Provisions*” plus the new *SEPP* “*Vegetation in non-rural Areas, August 2017*”.

The sole consent authority is *NBC*.

The subject site is NOT within a *NBC* designated “*Heritage Conservation Area*”. The subject site is confirmed to NOT be a listed “*Heritage Item*” nor are any of the discussed trees known to be listed on any “*Significant Tree Register*”. All trees discussed are captured as being subject to the protection provisions within the state legislated ‘*NSW Scientific Committee*’-final determination, (*Threatened Species Conservation Act*) which identifies & protects the ‘*Pittwater spotted gum forest-endangered ecological community listing*’ under ‘*NSW legislation*’. The subject site is confirmed to be within a ‘*C01*’, “*Wildlife Corridor*” as defined within the *Pittwater 21 DCP* (see page 8).

Two (2) of the seven (7) individually discussed trees are proposed to be removed & replaced. Other trees, both within the subject site & adjoining side common boundary properties nearby are assessed as able to be retained, managed without any formal specified protection.

The subject site is zoned “*C4*”, ‘*Environmental Living*’.

A *Preliminary Site Specific* “*Tree Plan of Management*” is included within this document.

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:

- Tree's current condition & likely future health. Species tolerance to root disturbance &/or development
- Likely future hazard potential to persons & property
- 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
- Appendix B Tree Protection Prior To & During Construction

* **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 only trees within Lot 89 of DP 13760. The site is 836.10m² by Site Survey in size. The site is linked to one (1) public road & three (3) residential lots.



Figure 1: Aerial photograph with lot boundaries courtesy of NBC website tool.

The subject site is Land Zoned “C4” ‘Environmental Living’.

All trees discussed are captured as being subject to the protection provisions within the state legislated ‘NSW Scientific Committee’-final determination, (*Threatened Species Conservation Act*) which identifies & protects the ‘Pittwater spotted gum forest-endangered ecological community listing’ under ‘NSW legislation’. The subject site is confirmed to be within a ‘C01’, “Wildlife Corridor” as defined within the *Pittwater 21 DCP* (see page 7).

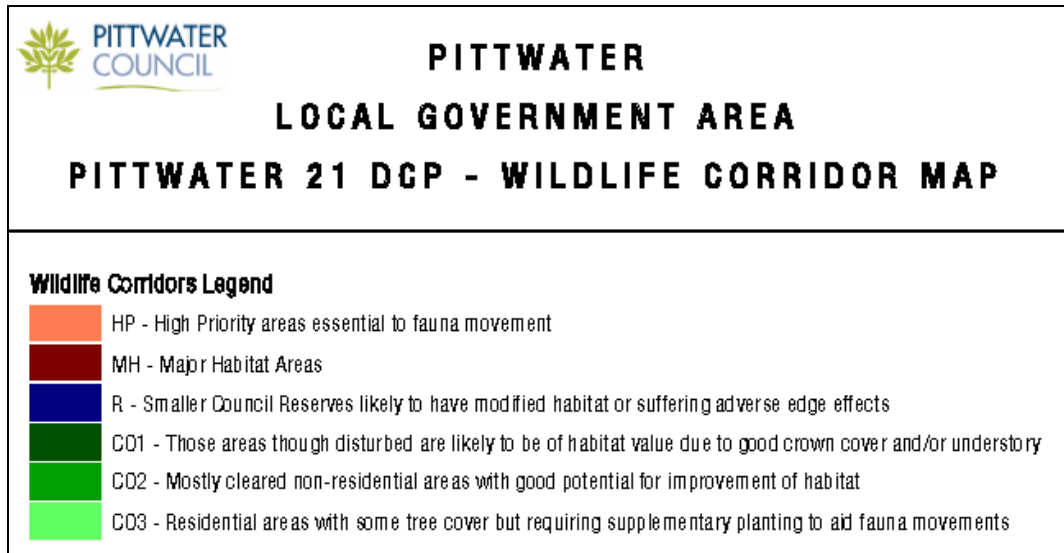
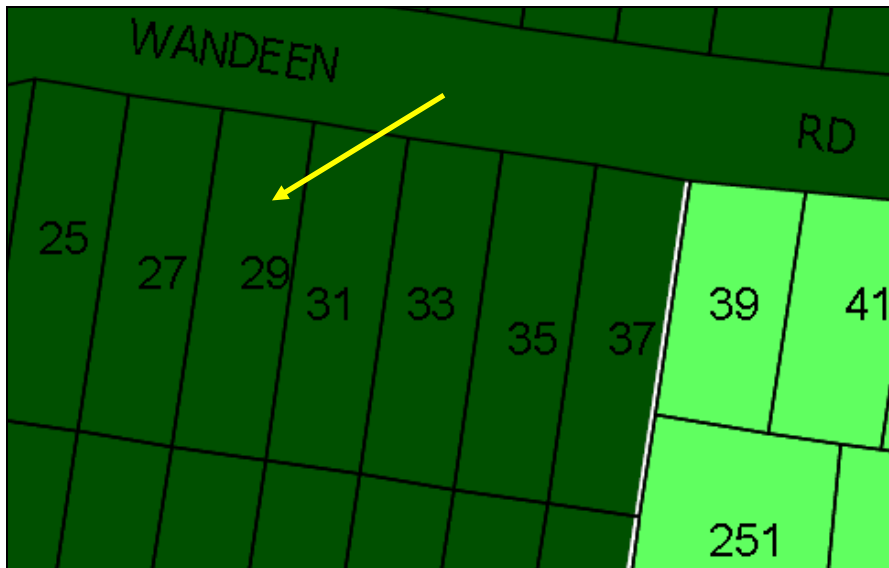


Figure 2: Confirms Pittwater 21 DCP-Wildlife Corridor Status.





Pittwater Local Environmental Plan 2014

Land Zoning Map - Sheet LZN_010

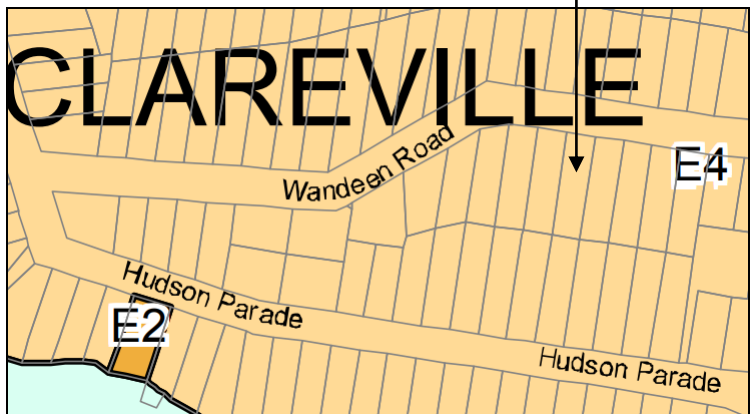
Zone

- B1 Neighbourhood Centre
- B2 Local Centre
- B4 Mixed Use
- B6 Enterprise Corridor
- B7 Business Park
- E1 National Parks and Nature Reserves
- E2 Environment Conservation
- E3 Environmental Management
- E4 Environmental Living
- IN2 Light Industrial
- IN4 Working Waterfront
- R2 Low Density Residential
- R3 Medium Density Residential
- R5 Large Lot Residential
- RE1 Public Recreation
- RE2 Private Recreation
- RU2 Rural Landscape
- SP1 Special Activities
- SP2 Infrastructure
- SP3 Tourist
- W1 Natural Waterways
- W2 Recreational Waterways

Cadastre

Cadastre 7/7/2012
© Land & Property Information (LPI)

Illustrates the Subject Site Land Zoning Status



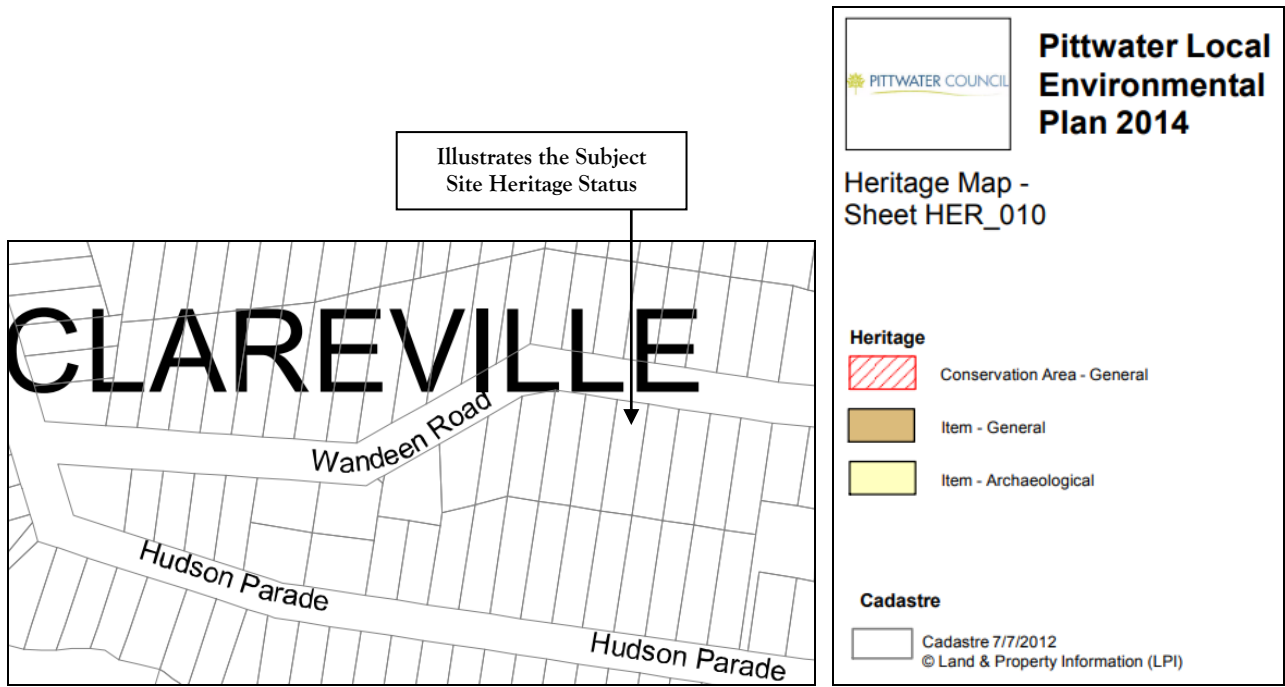
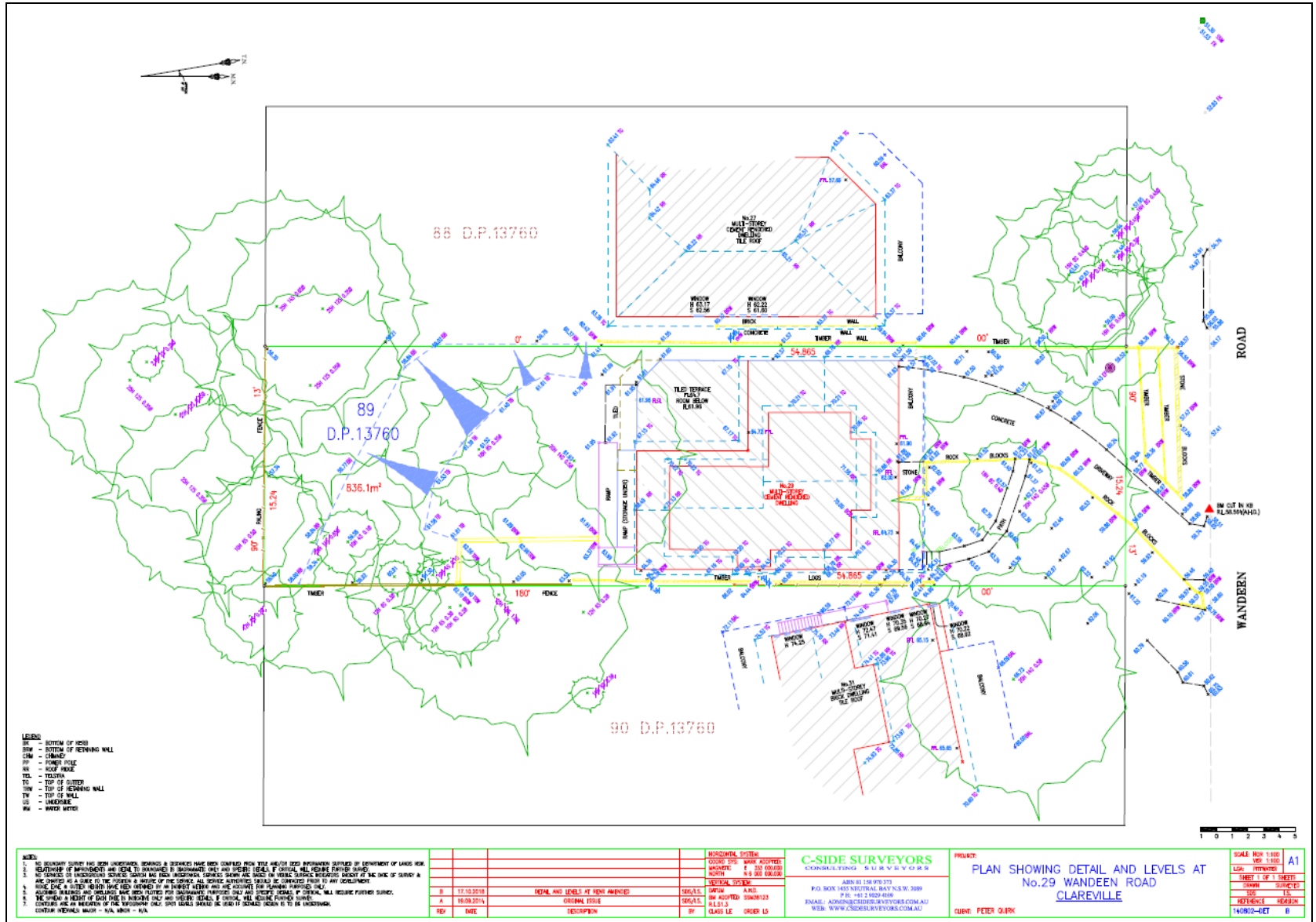


Figure 3: Above & previous page illustrates Land Zoning & Heritage Conservation Area status.

The site is NOT within a NBC designated “Heritage Conservation Area” (see above). The site is also confirmed to NOT be a listed “Heritage Item” nor is it near any listed “Heritage Item”. The discussed trees are NOT known to be on any ‘significant tree register’. The subject site & local environs are located within a designated ‘Wildlife Corridor’ CO1 – “Those areas though disturbed are likely to be of habitat value due to good crown cover &/or understory”.



LEGEND
 BK - BOTTOM OF ROOF
 BOP - BOTTOM OF REMAINING WALL
 CM - CHIMNEY
 FP - FENCE
 RW - ROOF RIDGE
 TEL - TELEPHONE
 TO - TOP OF OUTER
 TOW - TOP OF REMAINING WALL
 TW - TOP OF WALL
 US - UNDEGRADED
 WM - WATER METER

NOTES:
 1. NO BOUNDARY SURVEY HAS BEEN UNDERTAKEN. BOUNDARIES & DISTANCES HAVE BEEN COMPARED FROM THE A/C/D/O DEED INFORMATION SUPPLIED BY DEPARTMENT OF LANDS NSW. RELIANCE ON INFORMATION AND DATA TO BOUNDARIES ONLY AND SPECIFIC DETAILS OF DETAILS, WILL REMAIN FURTHER SURVEY.
 2. NO SERVICE OF INDIVIDUAL SERVICE DRAIN AND RAIN WATERWAYS SERVICES SHOWN ARE BASED ON VISUAL SURVEY BECAUSE SCOPE OF THE WORK OF SURVEY AND ARE SHOWN AS A GUIDE TO THE POSITION & NATURE OF THE SERVICE. ALL SERVICE ALTERNATIVES SHOULD BE CONFIRMED PRIOR TO ANY DEVELOPMENT.
 3. HOUSE, LOW & GUTTER, SERVICE HAVE BEEN APPROVED BY AN INSPECTOR WITHIN AND BE ASSUMED FOR THE PURPOSES OF THIS PLAN.
 4. ALL SERVICE BOUNDARIES AND DISTANCES HAVE BEEN OBTAINED FROM DOCUMENTARY RECORDS ONLY AND SHOULD BE CONFIRMED BY VISUAL SURVEY.
 5. THE SHOWING A HEIGHT OF DATA TREE IS APPROXIMATE ONLY AND GIVEN BY DETAILS. IF ORIGINAL WILL REQUIRE FURTHER SURVEY.
 6. CONTAINERS AND AN INDICATION OF THE TYPING ONLY. SPOT LEVELS SHOULD BE OBTAINED BY VISUAL SURVEY.
 CONTAINERS: MESHALL - M/A, UNION - U/A

REV	DATE	DESCRIPTION	BY	CLASS	ORDER	LS
B	17.03.2020	RECALL AND LEVELS AT NEW ANCHORS				
A	16.09.2023	ORIGINAL TITLE				

MONITORIAL SYSTEM:
 COORD. SYS: MARS AUSTRALIA
 MONITOR: 2 33 00.000
 NORTH: 6 00 00.000

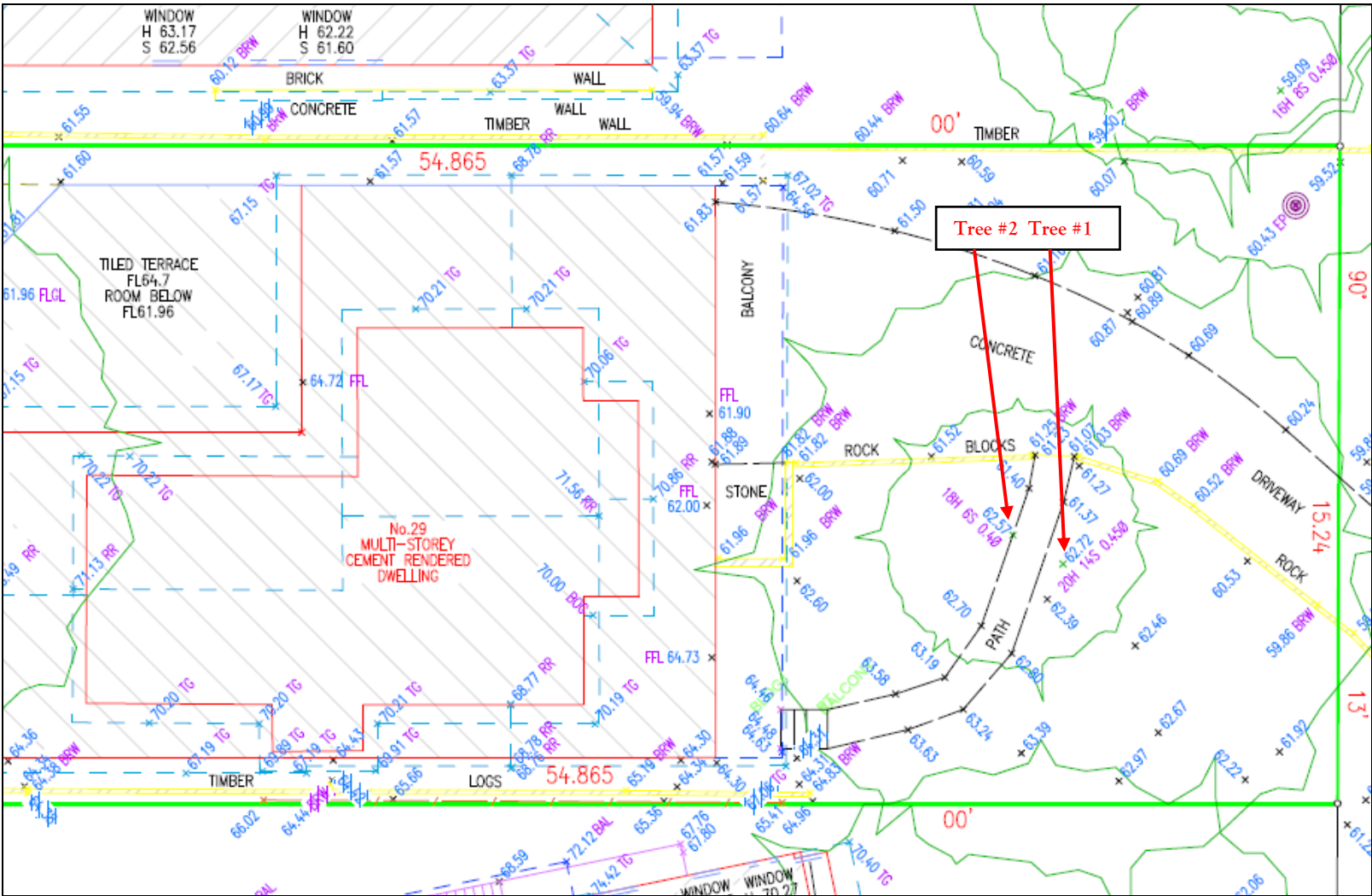
VERTICAL SYSTEM:
 DATUM: AHD
 BM ADJUSTED: 59408123
 REDUCED: 44.21.0
 CLASS LE: ORDER LS

C-SIDE SURVEYORS
 CONSULTING SURVEYORS
 150 Pitt St
 PO BOX 160 WENTWORTH NSW 2009
 PH: +61 2 9629 4100
 EMAIL: ADMIN@CSIDESURVEYORS.COM.AU
 WWW.CSIDESURVEYORS.COM.AU

PROJECT:
 PLAN SHOWING DETAIL AND LEVELS AT
 No.29 WANDEAN ROAD
 CLAREVILLE

CLIENT: PETER QUARK

SCALE: HORIZ 1:100
 VERT 1:100
DATE: 17/03/2020
PROJECT: A1
NO. OF SHEETS: 1
SHEET NO.: 1
DATE: 17/03/2020
REFERENCE: REFERENCE
140802-DT-01



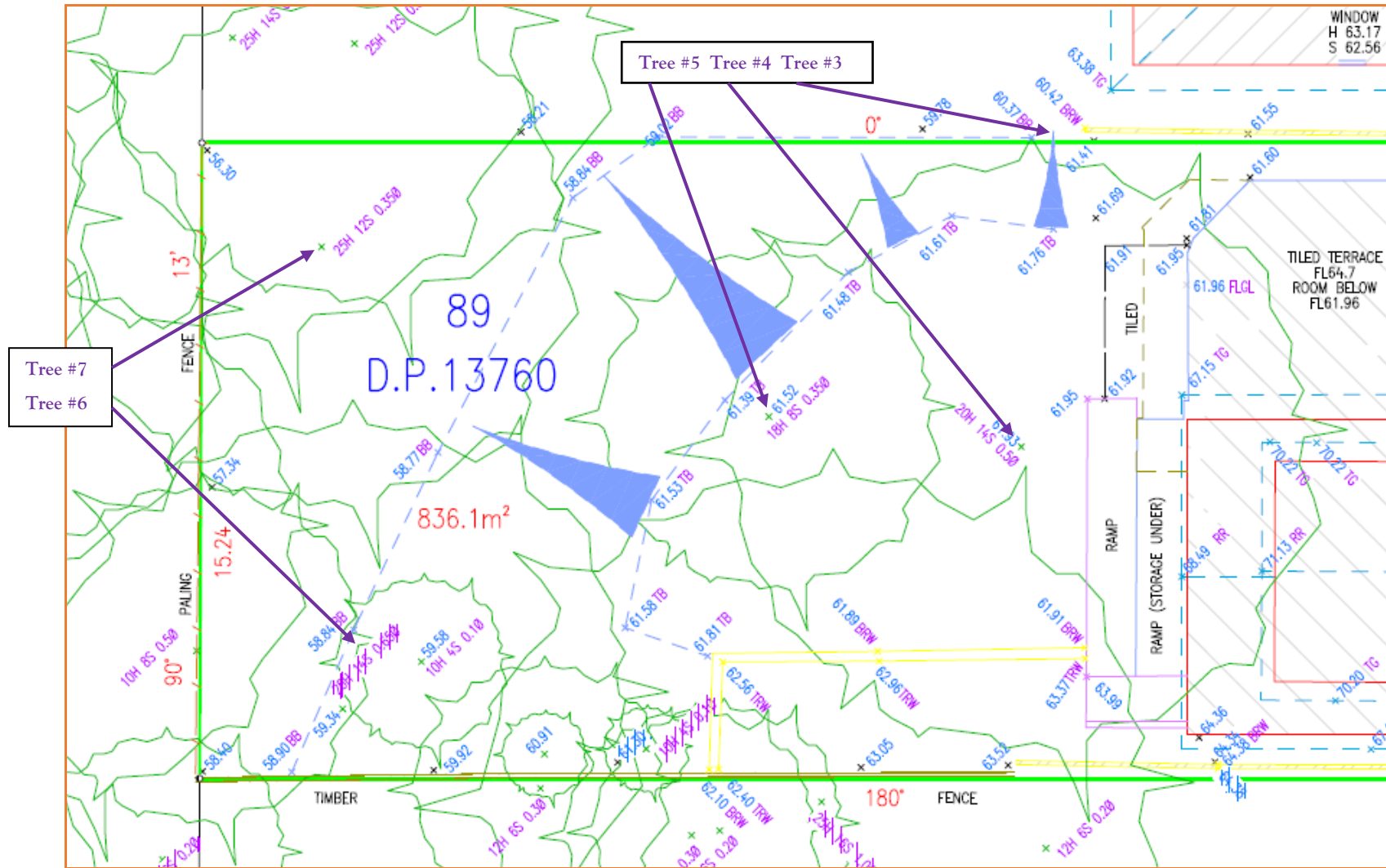
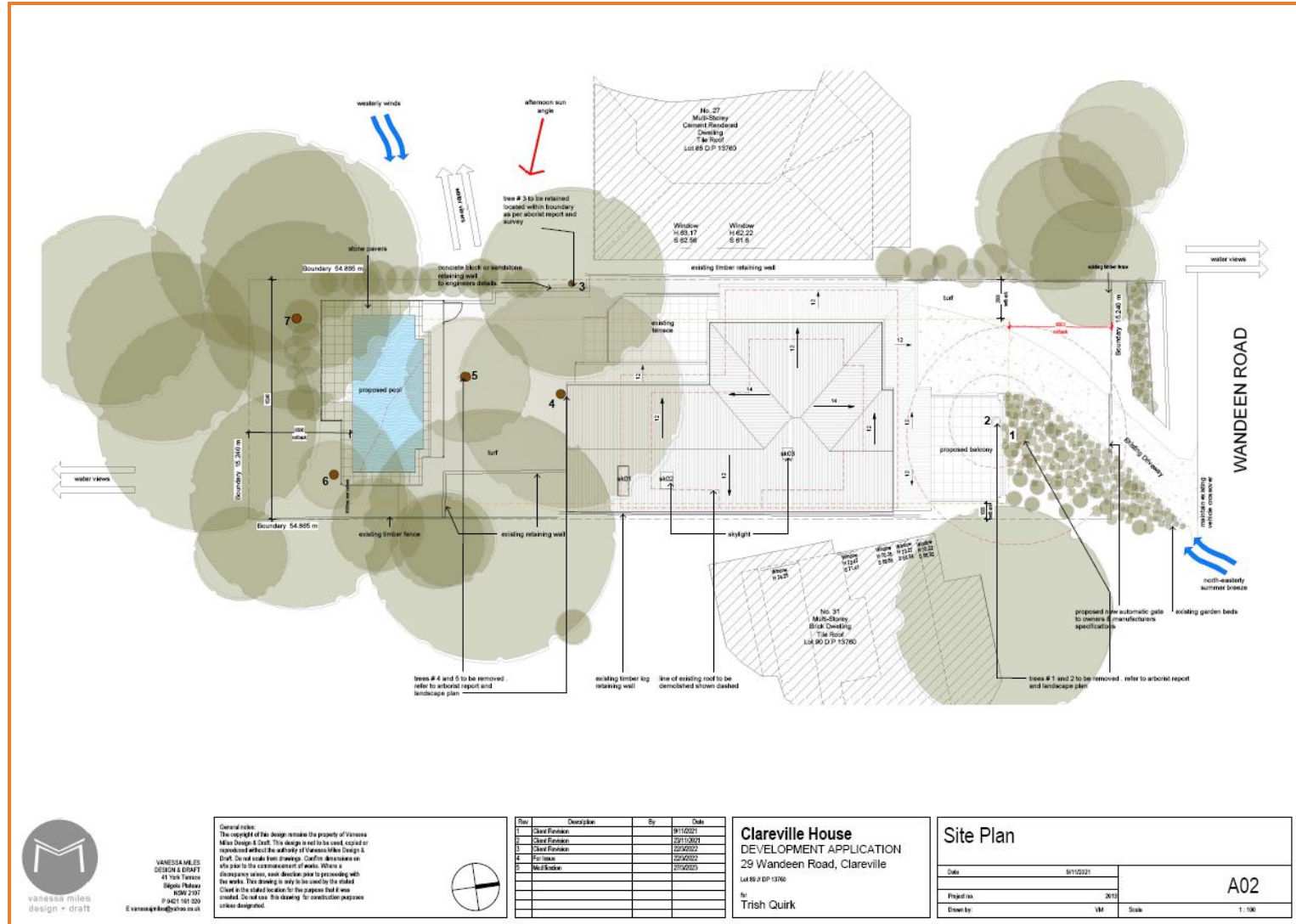


Figure 4: Page 10 Illustrates the total Site, Page 11 illustrates tree locations (discussed) within the front portion of the site, above illustrates tree locations (discussed) within the rear portion of the site

4.2 The Proposal



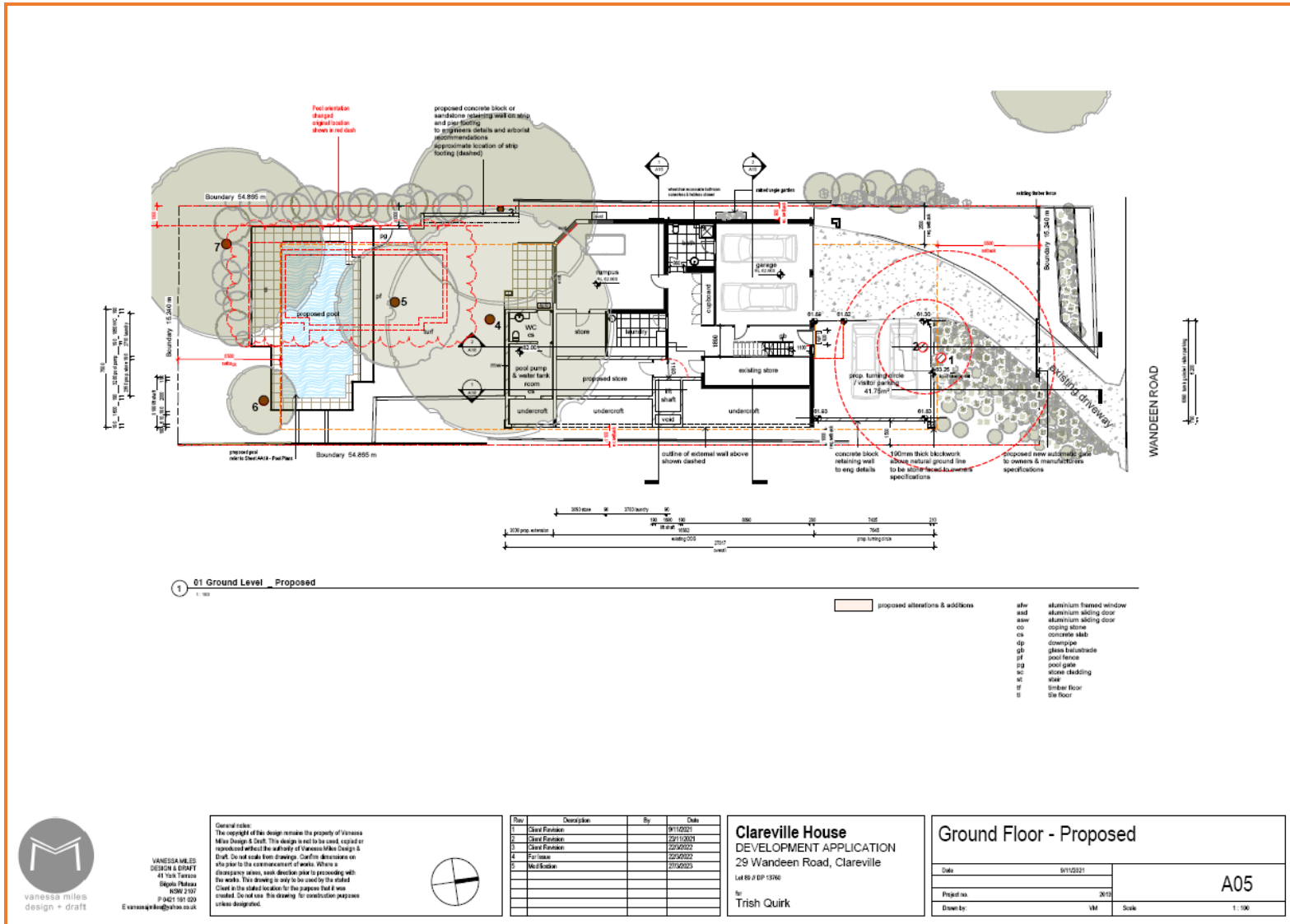


Figure 5: Previous & above illustrates the as proposed Site Plan & Ground Floor Plan.

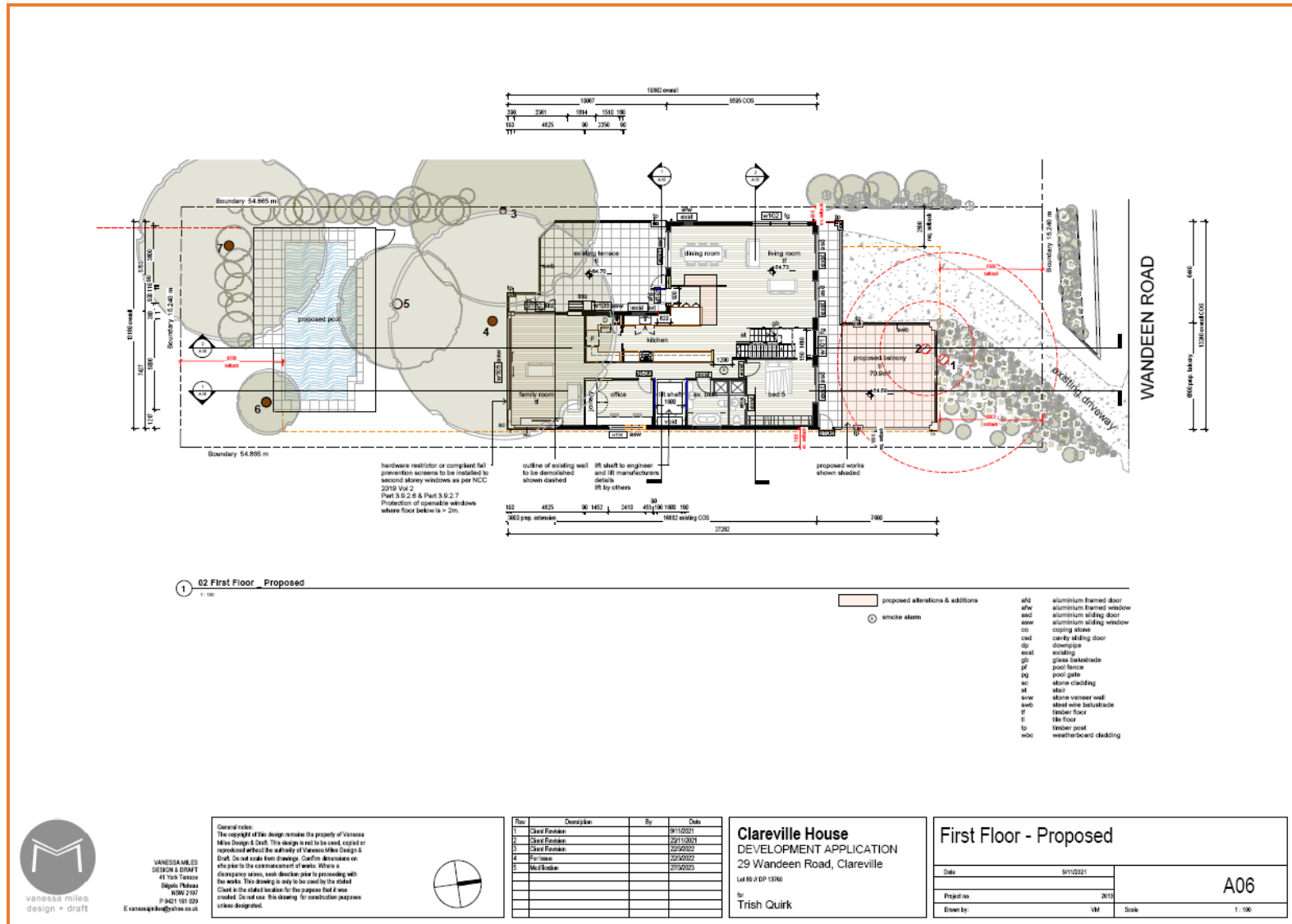


Figure 6: Illustrates the as proposed First Floor Plan.

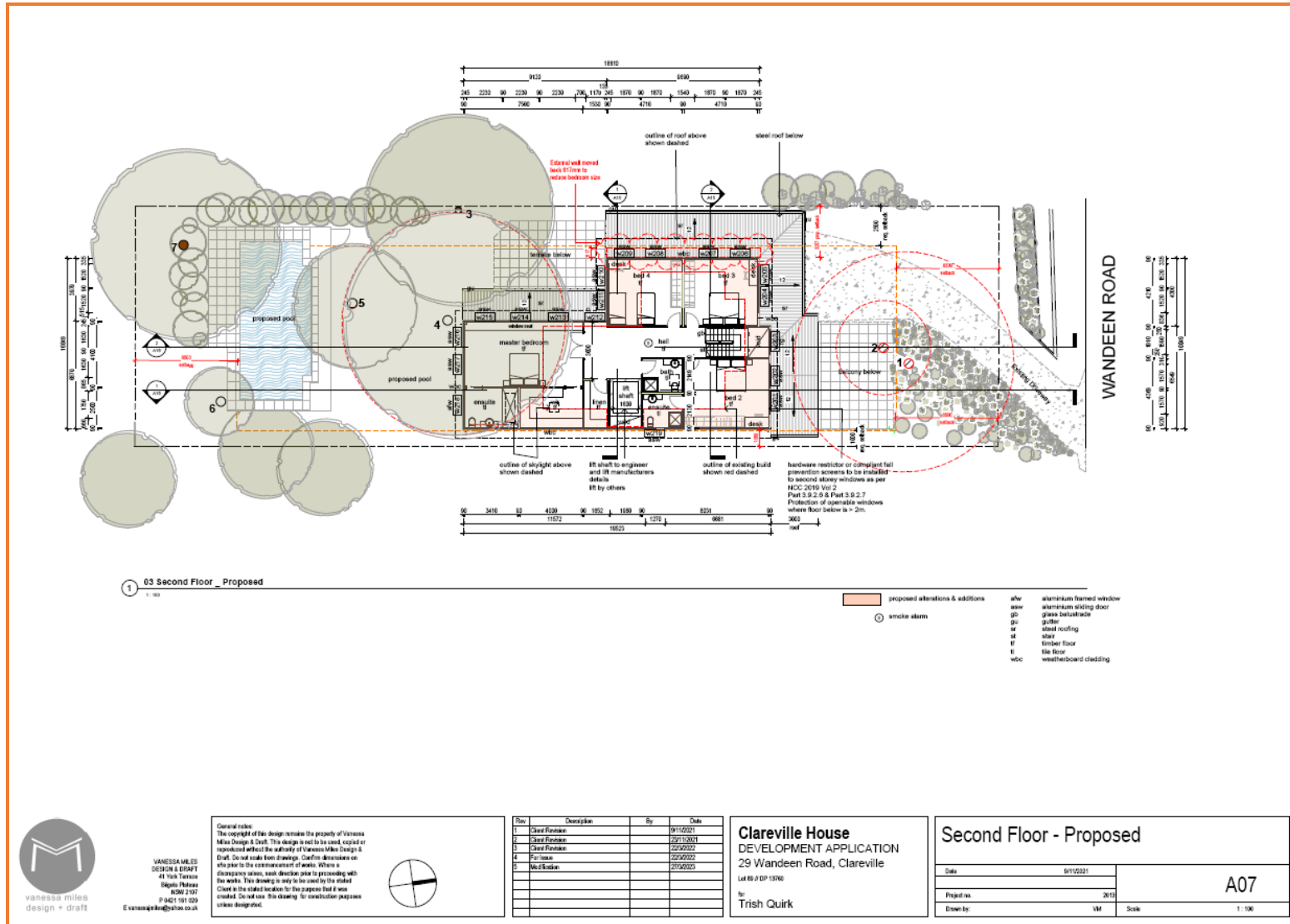


Figure 7: Illustrates the as proposed Second Floor Plan.

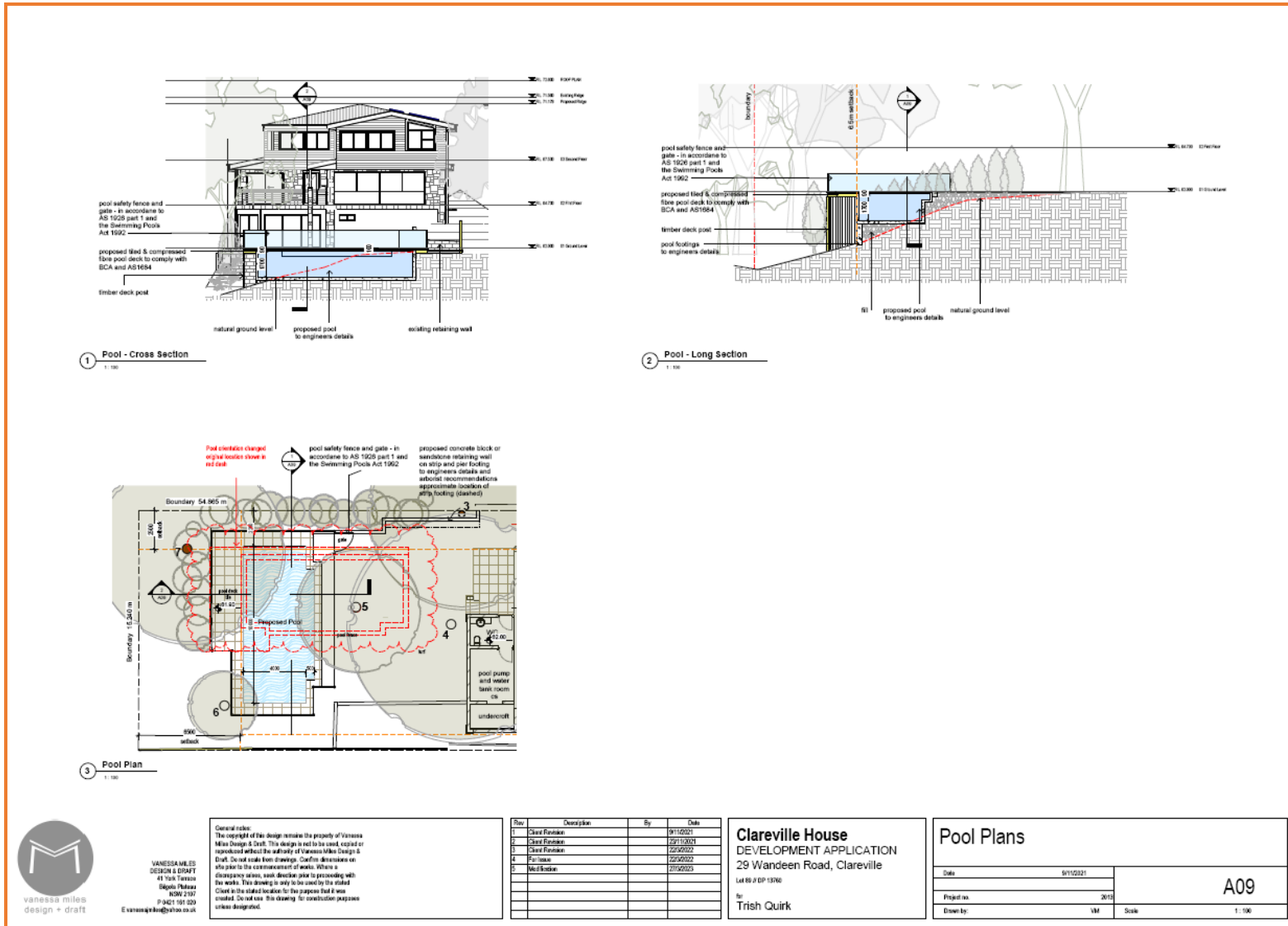


Figure 8: Illustrates the as proposed swimming pool.

1 North Elevation
1:100

metal roof design and install shall be in accordance with NCC 2019 Vol 2 Part 3.5.1 & AS/NZS 1562

hardware restrictor or compliant fall prevention screens to be installed to second storey windows as per NCC 2019 Vol 2 Part 3.9.2.6 & Part 3.9.2.7. Protection of operable windows where floor below is > 2m.

balustrades to comply with NCC 2019 Vol 2 Part 3.9 & AS 1564, AS 1170, AS 1288 & AS/NZS 2206

existing opening to be blocked up, patch and repair to match existing brick render

new retaining wall to engineer's details

proposed new automatic gate to owners & manufacturers specifications

existing driveway

existing timber fence

existing retaining wall

refined ground line

2 South Elevation
1:100

metal roof design and install shall be in accordance with NCC 2019 Vol 2 Part 3.5.1 & AS/NZS 1562

hardware restrictor or compliant fall prevention screens to be installed to second storey windows as per NCC 2019 Vol 2 Part 3.9.2.6 & Part 3.9.2.7. Protection of operable windows where floor below is > 2m.

all balustrades to comply with NCC 2019 Vol 2 Part 3.9 & AS 1564, AS 1170, AS 1288 & AS/NZS 2206

pool safety fence and gate - in accordance to AS 1926 part 1 and the Swimming Pools Act 1992

pool undercroft area to be enclosed in dark recessive colour material to be confirmed by owner

existing retaining wall

proposed concrete block or sandstone retaining wall to owners specifications & engineer's details

hardware restrictor or compliant fall prevention screens to be installed to second storey windows as per NCC 2019 Vol 2 Part 3.9.2.6 & Part 3.9.2.7. Protection of operable windows where floor below is > 2m.

proposed pool (beyond plans) to engineer's details

aw	aluminium framed window	fc	fine cement sheeting	sk	skylight
asd	aluminium sliding door	gd	garage door	sr	steel roofing
asw	aluminium sliding door	mw	masonry wall	swb	steel wire balustrade
cb	concrete block	pf	pool fence	tp	timber post
cp	downpipe	pl	pool	wpc	weatherboard cladding
eat	existing	sc	stone cladding		

General notes:
The copyright of this design remains the property of Vanessa Miles Design & Draft. This design is not to be used, copied or reproduced without the authority of Vanessa Miles Design & Draft. Do not scale from drawings. Confirm dimensions on site prior to the commencement of works. Where a discrepancy arises, seek direction prior to proceeding with the works. This drawing is only to be used by the stated Client in the related location for the purpose that it was created. Do not use this drawing for construction purposes unless designated.

Rev	Description	By	Date
1	Client Feedback		01/12/2021
2	Client Feedback		22/11/2021
3	Client Feedback		22/02/2022
4	Final issue		22/02/2022
5	Modification		20/02/2023

Clareville House
DEVELOPMENT APPLICATION
29 Wandean Road, Clareville

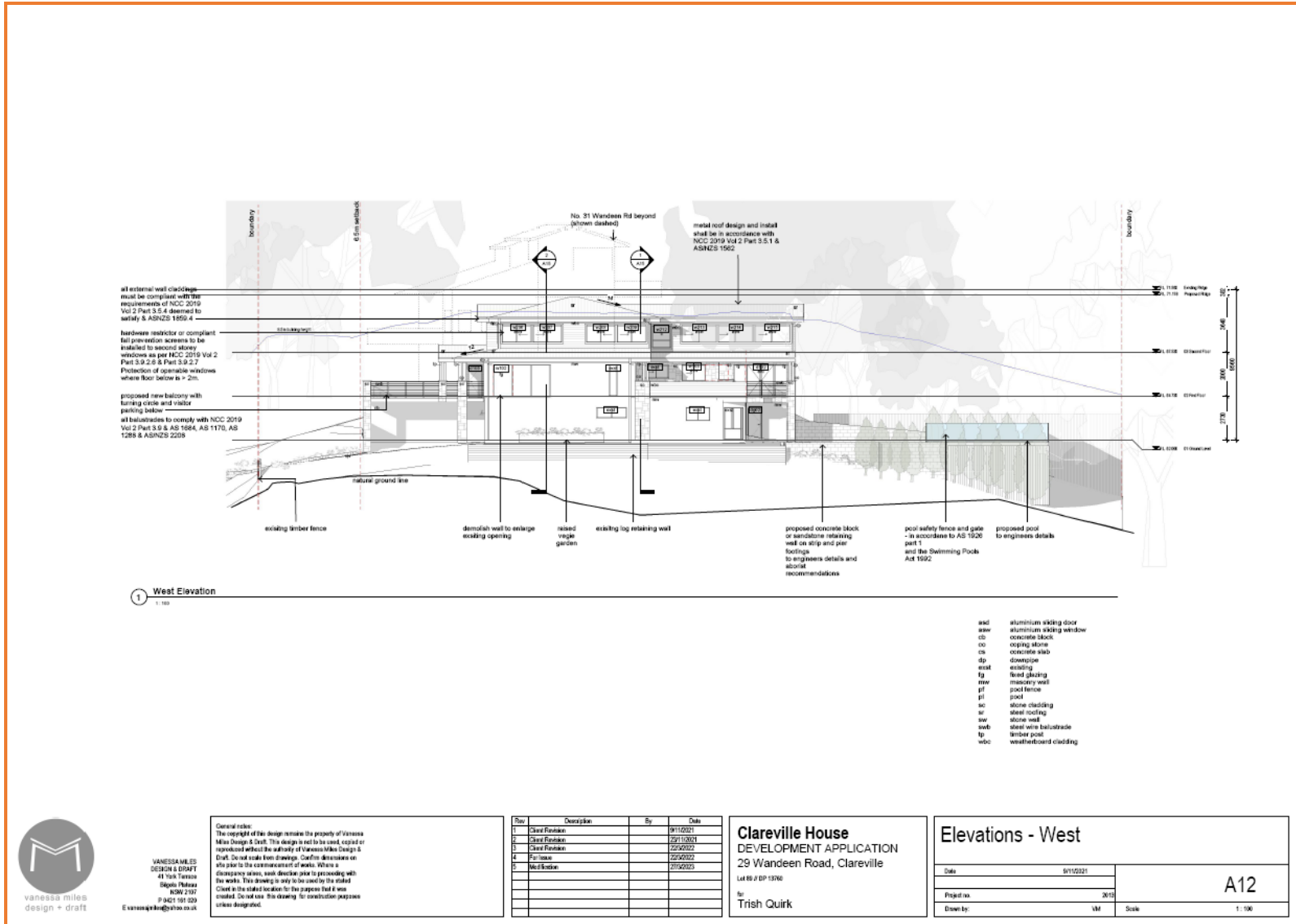
Lot 65 of DP 13760

for
Trish Quirk

Elevations - North & South

Date	01/12/2021
Project no.	2019
Drawn by:	VM
Scale	1:100

A11



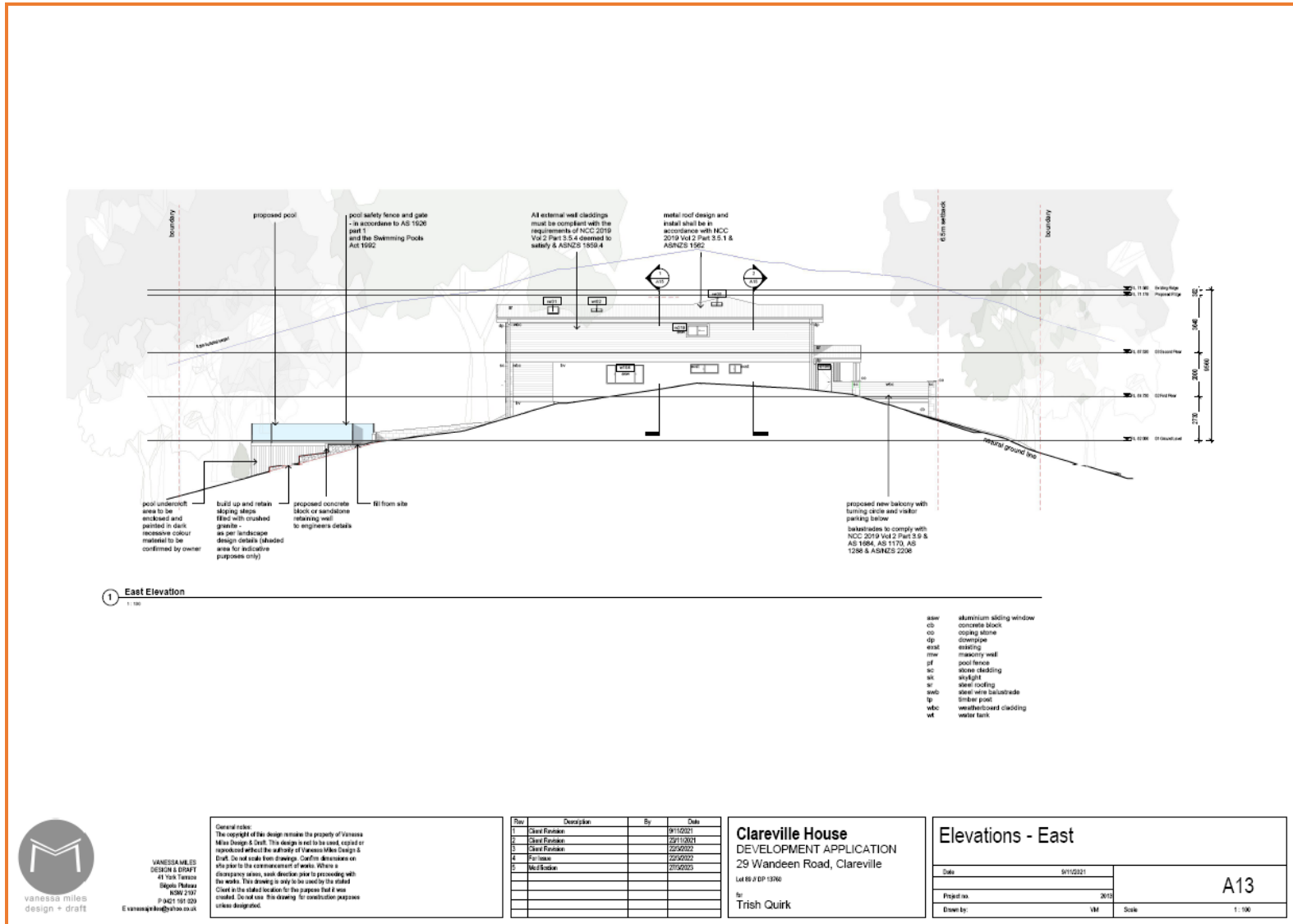


Figure 9: Illustrates the as proposed Elevations (previous pages 19 -20 & above).

4.3 Tree Locations & Site Images



Figure 10: Confirms Tree #1 & Tree #2 location & canopy appearance.

Tree not subject of discussion



Figure 11> Confirms the locations of discussed Tree #3, Tree #4 & Tree #5.



Figure 12: Clockwise from top left, Tree #3, Tree #4 Tree #5 canopy appearance





Figure 13:

4.4 The Tree – Summary Table

Read this table in conjunction with Appendix A–Common Arboreal Term

Trees Recommended for removal	Trees Recommended for retention
Exempt species	Trees retainable but of low amenity

B

	Identification	Height (m)	Crown (m)	DBH (m)	TPZ (m)	SRZ (m)	Age	Health/Vigour	Structure	Significance/Retention Values	Comments
1	<i>Corymbia maculata</i> Spotted Gum	<15.00	<10.00	0.42	5.20	2.40	Mature	Good & Good	Typical	High/High	Remove & Replace: Tree s are within the proposed excavation area for vehicle turning area.
2	<i>Corymbia maculata</i> Spotted Gum	<13.00	<10.00	0.36	4.40	2.20	Mature	Good & Good	Typical	High/High	Remove & Replace: Tree s are within the proposed excavation area for vehicle turning area.
3	<i>Corymbia maculata</i> Spotted Gum	<19.00	<9.00	0.40	4.80	2.30	Mature	Good & Good	Typical	High/High	Retain, Manage & Protect: Tree TPZ radial distance is no longer breached by swimming pool, manual excavation within TPZ is specified. Standard TPZ temporary metal mesh fencing panels with above ground supports are also specified.
4	<i>Corymbia maculata</i> Spotted Gum	<20.50	<11.00	0.46	5.60	2.50	Mature	Good & Good	Typical	High/High	Retain, Manage & Protect: Tree TPZ radial distance is breached by proposed rear of dwelling modified (slightly) footprint. Manual excavation for footings to support beams (above existing ground level) is essential. Standard TPZ temporary metal mesh fencing panels with above ground supports are also specified.

	Identification	Height (m)	Crown (m)	DBH (m)	TPZ (m)	SRZ (m)	Age	Health/Vigour	Structure	Significance/Retention Values	Comments
5	<i>Corymbia maculata</i> Spotted Gum	<18.00	<9.50	0.33	4.10	2.20	Mature	Good & Good	Typical	High/High	<u>Retain, Manage & Protect:</u> Tree TPZ radial distance is breached by swimming pool, manual excavation for footings/piers within TPZ is specified. Standard TPZ temporary metal mesh fencing panels with above ground supports are also specified. Any fill proposed within the TPZ radial distance must be tree root friendly, i.e., washed river sand or sand dominated loam.
6	<i>Corymbia maculata</i> Spotted Gum	<24.00	<13.00	0.75	9.00	3.11	Mature	Good & Good	Typical	High/High	<u>Retain, Manage & Protect:</u> Tree TPZ radial distance is breached by swimming pool, manual excavation for footings/piers within TPZ is specified. Standard TPZ temporary metal mesh fencing panels with above ground supports are also specified. Any fill proposed within the TPZ radial distance must be tree root friendly, i.e., washed river sand or sand dominated loam.
7	<i>Corymbia maculata</i> Spotted Gum	<22.00	<10.50	0.38	4.56	2.30	Mature	Good & Good	Typical	High/High	<u>Retain, Manage & Protect:</u> Tree TPZ radial distance is breached by swimming pool & retaining wall (breaches SRZ) manual excavation within TPZ is specified for retaining wall supported by pier (flexibly located) & beam structure. Standard TPZ temporary metal mesh fencing panels with above ground supports are also specified.

All trees discussed are captured by the state legislated 'NSW Scientific Committee'–final determination, (Threatened Species Conservation Act) which identifies & protects the 'Pittwater spotted gum forest–endangered ecological community listing' under 'NSW legislation'. On this basis, regardless of health/vigour or Useful Life Expectancy they must have High Retention & Significance Values.

5 Discussion

This document acknowledges the *Australian Standard (AS4970–2009 Protection of trees on development sites)* & the *Australian Standard (AS4373–2007 Pruning of amenity trees)* as the best practice guideline documents for the management of trees in Australia.

Discussed Tree #1 & Tree #2 are confirmed to be within the as proposed turning area footprint which requires significant excavation. (See Figure 5, page 14.)

Discussed Tree #3, Tree #4, Tree #5, Tree #6 & Tree #7 are located within the rear of the subject site. (Tree #3 is assessed as being totally within the subject site.) The current grassed relatively level existing rear yard is confirmed to have been created by the addition of a significant volume of imported soil/media. Tree #3 & Tree #5 appear to be the most impacted upon by the change to natural ground levels.

By ‘flipping’ (90°) the swimming pool to be east/west orientated has allowed for Tree #4 & Tree #5 to become viably retained with intensive management.

Tree #4 requires manual excavation to finalise the locations for footings to support beams installed to support the dwelling/veranda etc.

For Tree #5, Tree #6 & Tree #7 any media (soil) used as ‘fill’ must be tree root friendly. This implies washed sand or a high in sand content loam. Additionally, the final locations for the footings/piers required to support the swimming pool must be designed to be flexibly located. (The reason being to minimise significant diameter (50mm or greater) ‘live root’ disturbance.)

All seven (7) discussed trees are locally indigenous species subject to the old *Pittwater Council* & now *NBC “Tree Management Provisions” plus the new SEPP “Vegetation in non-rural Areas, August 2017”*. The subject site is confirmed to be mapped as part of the *Pittwater Spotted Gum Forest Endangered Ecological Community*. All seven (7) discussed trees are confirmed to be *Corymbia maculata* (Spotted Gum) trees.

This document supports two (2) of the seven (7) discussed trees to be replaced with a minimum of two (2) new trees preferably of the same species.

The new (replacement) trees can be planted & established within either or both the rear yard & the front yard.

A web site search confirms *Corymbia maculata* (Spotted Gum) trees in various container sizes (up to 40cm diameter) as able to be purchased on demand. It is suggested the replacement trees be secured/obtained as soon as DA determination is made so as to guarantee them being planted at the appropriate stage of the development, i.e., when the new landscape concept installation is undertaken.

“Preliminary Site-Specific Tree Plan of Management”

TREE # & IDENTIFICATION	RETAIN MANAGE PROTECT	Replacement Required	MANUAL EXCAVATION (for footings)	Install TPZ Fencing Install Tree Trunk Guard	CC Signoff	OC Signoff (confirming new trees to have been planted)
1 <i>Corymbia maculata</i> (Spotted Gum)	No	Yes (40cm container diameter is specified)	No	No No	No	Yes (confirming specified trees as being planted)
2 <i>Corymbia maculata</i> (Spotted Gum)	No	Yes (40cm container diameter is specified)	No	No No	No	Yes (confirming specified trees as being planted)
3 <i>Corymbia maculata</i> (Spotted Gum)	Yes	No	Yes	Yes No	Yes	Yes (confirming condition at completion of project)
4 <i>Corymbia maculata</i> (Spotted Gum)	Yes	No	Yes	Yes No	Yes	Yes (confirming condition at completion of project)
5 <i>Corymbia maculata</i> (Spotted Gum)	Yes	No	Yes	Yes No	Yes	Yes (confirming condition at completion of project)
6 <i>Corymbia maculata</i> (Spotted Gum)	Yes	No	Yes	No Yes	Yes	Yes (confirming condition at completion of project)

TREE # & IDENTIFICATION	RETAIN MANAGE PROTECT	Replacement Required	MANUAL EXCAVATION (for footings)	Install TPZ Fencing Install Tree Trunk Guard	CC Signoff	OC Signoff (confirming new trees to have been planted)
7Corymbia maculata (Spotted Gum)	Yes	No	Yes	No Yes	Yes	Yes (confirming condition at completion of project)

- Tree Removal must be undertaken by suitably experienced & qualified tree removal practitioners in compliance with the abide at all times to the “*WorkCover NSW Industry Code of Practice, (1998)*”.
- New tree specimens are to be sourced from growers/suppliers whose stock meets the production benchmarks of the *Australian Standard (AS2303.2015 Tree stock for landscape use)*.
- New tree specimens are to be professionally planted & maintained for a minimum period of six (6) months once installed.

6 Conclusions

- Relative to the updated information as presented the GMW consultancy supports the proposed works as presented in documentation reviewed.
- The DA submission be re-submitted for determination by council officers as per plans referenced considering the specified Preliminary Site Specific “*Tree Plan of Management*”.

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

Kyle A. Hill

[AQF level 5 & AQF level 8 Registered Practicing & Consulting Arborist]

7 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.

8 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.

9 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

10 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. These 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. $TPZ = DBH \times 12$. 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

Appendix B – Tree Protection/Management Prior to & During Construction

The installation of Tree Protection Zone (TPZ) fencing is to be carried out prior to commencement of all works. The most suitable fencing material is 1.8m tall chain link mesh with 50mm metal pole supports, see **detail 1: tree protection fencing**.

A mulch layer of composted leaf & woodchip to a depth of 75mm is required within the TPZ to aid in retention of soil moisture & to protect soil from contaminants. Water is to be applied by hand held or soaker/leaky hose within TPZ as required & in Accordance with Stage 3 Water Restrictions. Watering is to be carried out by either an Arborist or is to form part of the Builder's/Contractor's contract, with recommended monthly checks by an Arborist.

There is to be no stock piling of building material (including waste), machinery or any other item within TPZ of any retained tree. Access to personnel & machinery, & storage of fuel, chemicals, cement or site sheds is prohibited

Regular monitoring of protected trees during development works for unforeseen changes or decline, will aid in the success & longevity of the retained trees.

