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Arboriculture Construction Impact Assessment & Preliminary Plan of Management Report

April 2023

Site:

Lot 1 in DP 578918 / Lot 54 in DP 2459
43-47 Kenneth Street
LONGUEVILLE, NSW

Client;

Longueville Private Hospital
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1 Summary

Richard Dib representing the property owners (Macquarie Health Corporation) commissioned *Growing My Way Services Tree Consultants* to prepare an updated *“Arboriculture Construction Assessment & Preliminary Plan of Management Report* for five (5) trees.

The subject site is known as 43-47 Kenneth Street, Longueville, (Lot 1 in DP 578918 & Lot 54 in DP 2459). The adjoining property 41 Kenneth Road contains trees not discussed impacted by the development proposal & as such have not been discussed within this document.

The subject site is currently developed to contain a functioning Private Hospital (known as Longueville Private Hospital). All vehicular access at present & proposed within the subject site is via Christina Street.

The subject site/adjoining property are within the Lane Cove Council-Local Government Area, from herein acknowledged as the LCC & LGA.

The LCC is the sole consent authority relative to the trees discussed within this document.

Tree Management in the LCC LGA is outlined in the *LCC Development Control Plan 2010*, (from herein the *DCP*). See *Part J Landscaping, specifically ‘J2 Tree Preservation & Landscape Guidelines & J3 Preservation of Significant Trees* Additionally, the *SEPP ‘Vegetation in Non-Rural Areas’, August 2017 is acknowledged & referenced*. The discussed trees are long term planted (i.e., greater than twenty-five years old). None are locally indigenous species.

This document will support the replacement two (2) of the five (5) discussed trees by applying ‘tree root’ friendly design & intensive management.

Kyle Hill, Practicing & Consulting Arborist AQF Level 5 & 8, has prepared this document based on the most recent onsite observations & discussion on Monday, 2 May 2022 in the presence of Arash Radfar & John Simpson. An additional new onsite assessment was conducted by Kyle A. Hill on Wednesday, 22 March 2023.

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2 Introduction

The LCC is the LGA primary consent authority relative to development & tree management for the discussed site.

Two (2) of the five (5) discussed trees are proposed to be replaced by the updated proposal for Refurbishment, Alterations & Additions.

The subject site is 'Land Zoned' R2 Low Density Residential. The subject site is NOT within a "Heritage Conservation Area". (See page 7 of this document.) The subject site & adjoining sites are not listed "Heritage Items". Relative to "Habitat Potential" the discussed trees only have at the present time the capacity to support canopy nesting fauna.

This document is based on documents provided by the client, Visual Tree Assessment (Stage 1 & 2) plus observations made when onsite where detailed discussion/data collection was undertaken.

This document will support the discussed trees being replaced with new locally indigenous species.

3 Methodology

Assessment of the discussed trees has been by eye from ground level & aerial photography from multiple sources. Implementation of the *Visual Tree Assessment (VTA) Stage 1 principles* developed by Claus Mattheck, et.al is the assessment method & tool chosen for this site. The principles of VTA Stage 1 are explained & illustrated in his publication *The Body Language of Trees* (1994).

Assessment includes:

- Inspection of the subject site relative to the DA proposal for redevelopment
- Plans Elevations, Sections by Macquarie Health Corporation, Version 9, dated (Plot stamp), 23 March 2023
- Site Survey by Dunlop, Thorpe & Co Pty Ltd, dated 14 August 2013, Issue A
- Tree's current condition & likely ULE
- Perusal of LCC 'Tree Management Provisions' i.e., the DCP, 2011. Part J, sub sections J2 & J3
- Perusal of "Heritage Conservation Area" LCC LEP 2011 mapping
- Perusal of LCC "Endangered Ecological Community listing" information
- Perusal of "Significant Tree Register" & "Locally Indigenous Tree Species List"
- Discussion of environment where the trees are growing &
- Tree's amenity & retention value, related to significance, screening & habitat.

No root tissue (laboratory) analysis, soil testing, 'Resistograph'®, 'ArborTom'® assessment or similar was undertaken.

See the Attachments Included as Appendix A & Appendix B for further information:

- Appendix A Glossary of Common Arboreal terms

4 Observations

4.1 The Site

The subject sit is Land Zoned 'R2' Low Density Residential. By Site Survey the subject site is 2647.70m² in total area.

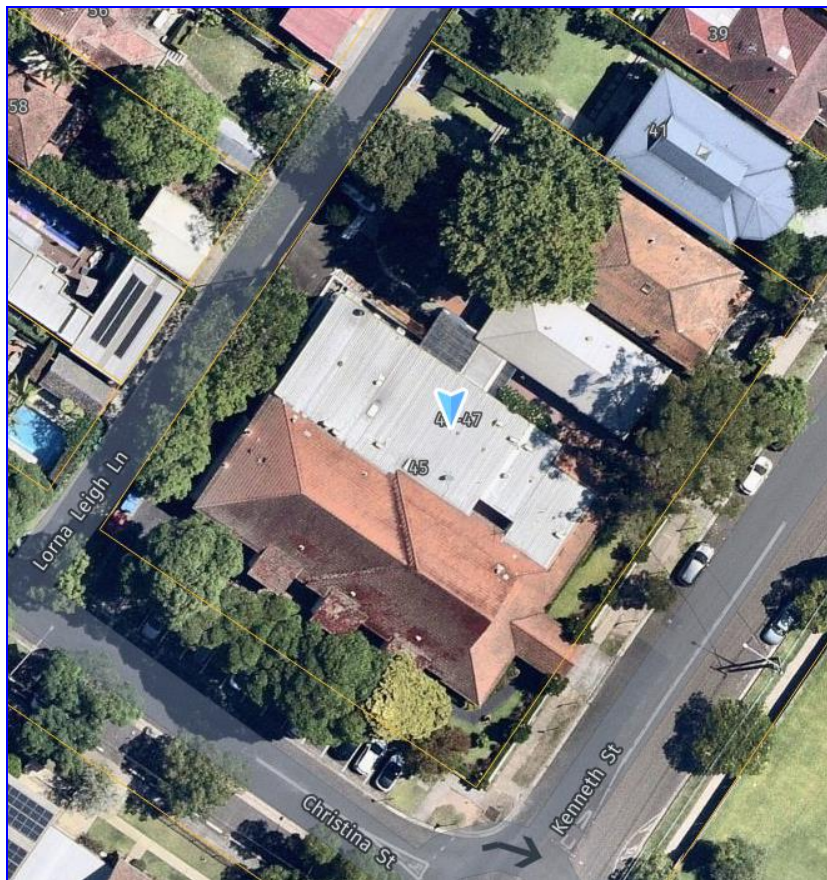
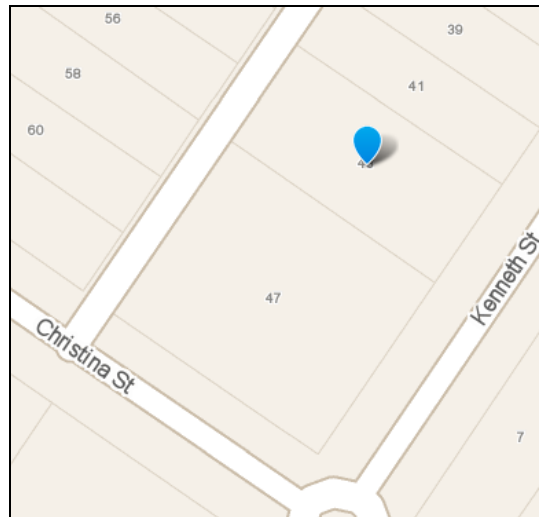


Figure 1: Map & Aerial photograph courtesy Whereis.com & Nearmap – Jan 2023

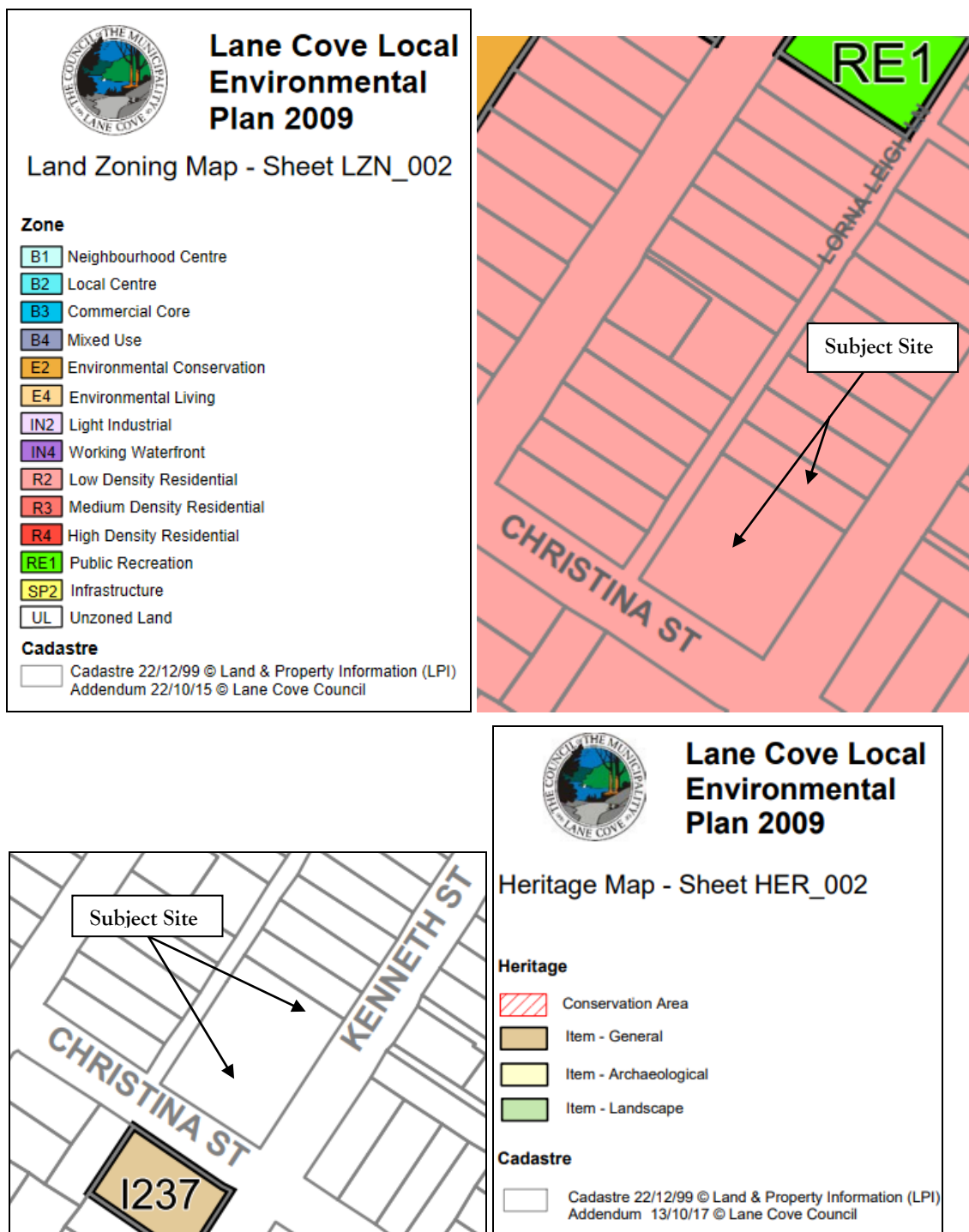


Figure 2: Above confirms 'Heritage Conservation Area & Land Zoning Status'

4.2 Site & Tree Images



Figure 3: Location of the discussed Tree #1.



Figure 4: Illustrates the location of the discussed Tree #2 & Tree #3.





Figure 5: Above & previous page illustrates the location, habit & condition of the discussed Tree #4.





Figure 6: Above & previous page illustrates the location, habit & condition of the discussed Tree #4. Note: previous canopy pruning from building roofline.



Figure 7: Red arrows illustrates the locations of Site Survey plotted trees that do not exist.

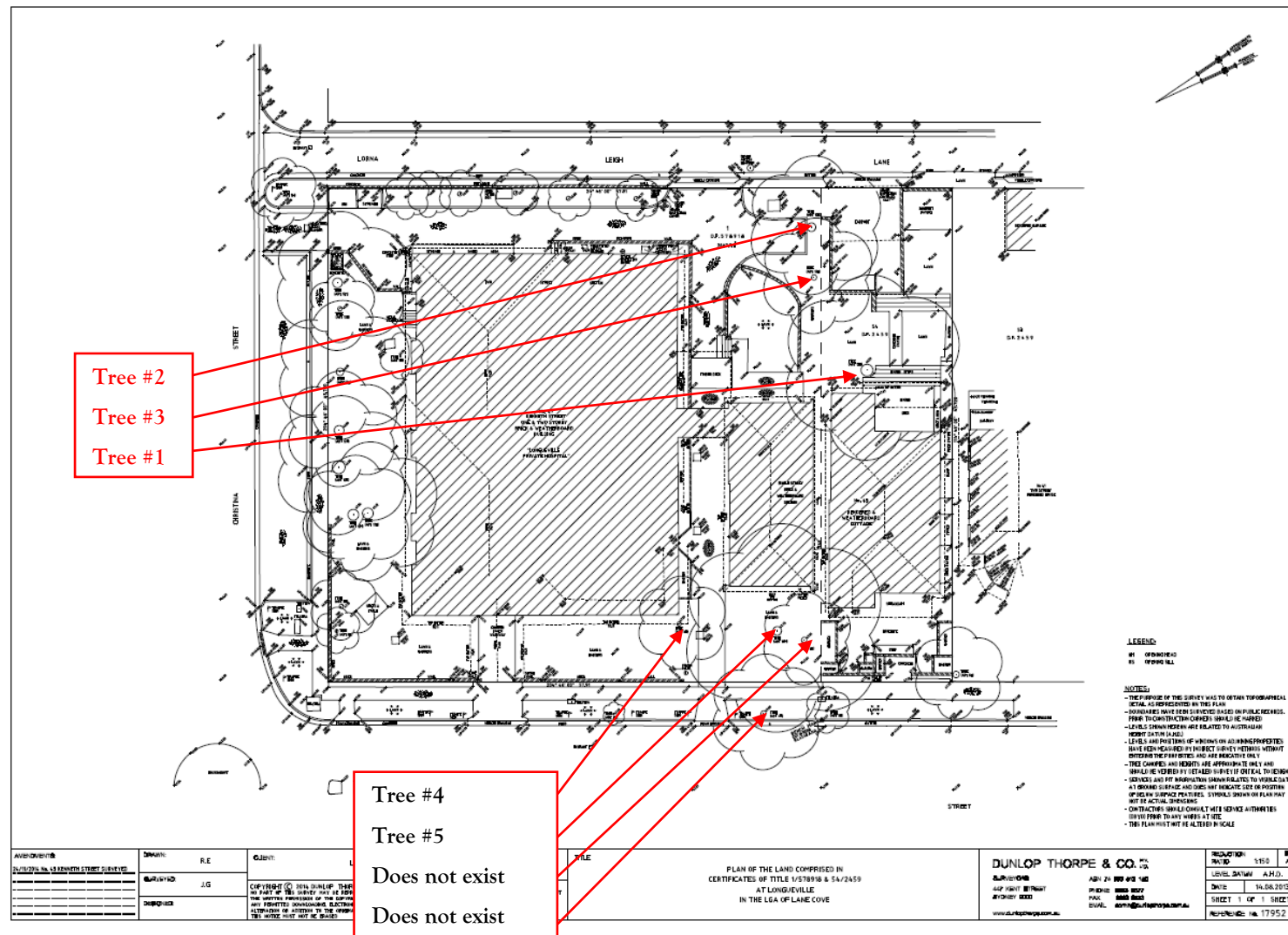


Figure 8: Confirms discussed three (3) trees location by site survey

5 Tree's Description, Proposed Works & Discussion

5.1 Tree's Description:

Tree #1: *Platanus acerifolius*

(London Plane Tree)

Approximate height: <18.00m

Approximate canopy spread: <18.00

Diameter at Breast Height: 1.07m (1.12m Base)

TPZ (radial distance) 12.84m, SRZ (radial distance) 3.47m

Health: Good, Vigour: Good

Significance: Value: Moderate / Retention Value; Moderate

Tree 'topped' many years ago

Tree #2: *Harpephyllum caffrum*

(Kaffir Plum)

Approximate height: <12.50m

Approximate canopy spread: <12.00

Diameter at Breast Height: approximately 0.75m (0.79m Base)

TPZ (radial distance) 9.00m, SRZ (radial distance) 3.00m

Health: Good, Vigour: Good

Significance: Value: Moderate / Retention Value; Moderate

Tree #3: *Harpephyllum caffrum*

(Kaffir Plum)

Approximate height: <9.50m

Approximate canopy spread: <9.00

Diameter at Breast Height: approximately 0.49m (0.54m Base)

TPZ (radial distance) 5.88m, SRZ (radial distance) 2.55m

Health: Good, Vigour: Good

Significance: Value: Moderate / Retention Value; Moderate

Tree #4: *Callistemon viminalis*

(Weeping Bottlebrush)

Approximate height: <8.50m

Approximate canopy spread: <7.50

Diameter at Breast Height: approximately 0.34m (0.53m Base)

TPZ (radial distance) 4.08m, SRZ (radial distance) 2.53m

Health: Good, Vigour: Good

Significance: Value: Moderate / Retention Value; Moderate

Tree #5: *Euclyptus botryoides*

(Bangalay Gum)

Approximate height: <20.50m

Approximate canopy spread: <14.00

Diameter at Breast Height: approximately 0.73m (0.97m Base)

TPZ (radial distance) 8.76m, SRZ (radial distance) 3.27m

Health: Good, Vigour: Good

Significance: Value: High / Retention Value: Moderate

NOTE: This tree has been pruned to modify its canopy to reduce roof plumbing issues previously a significant issue.

5.2 Proposed Works

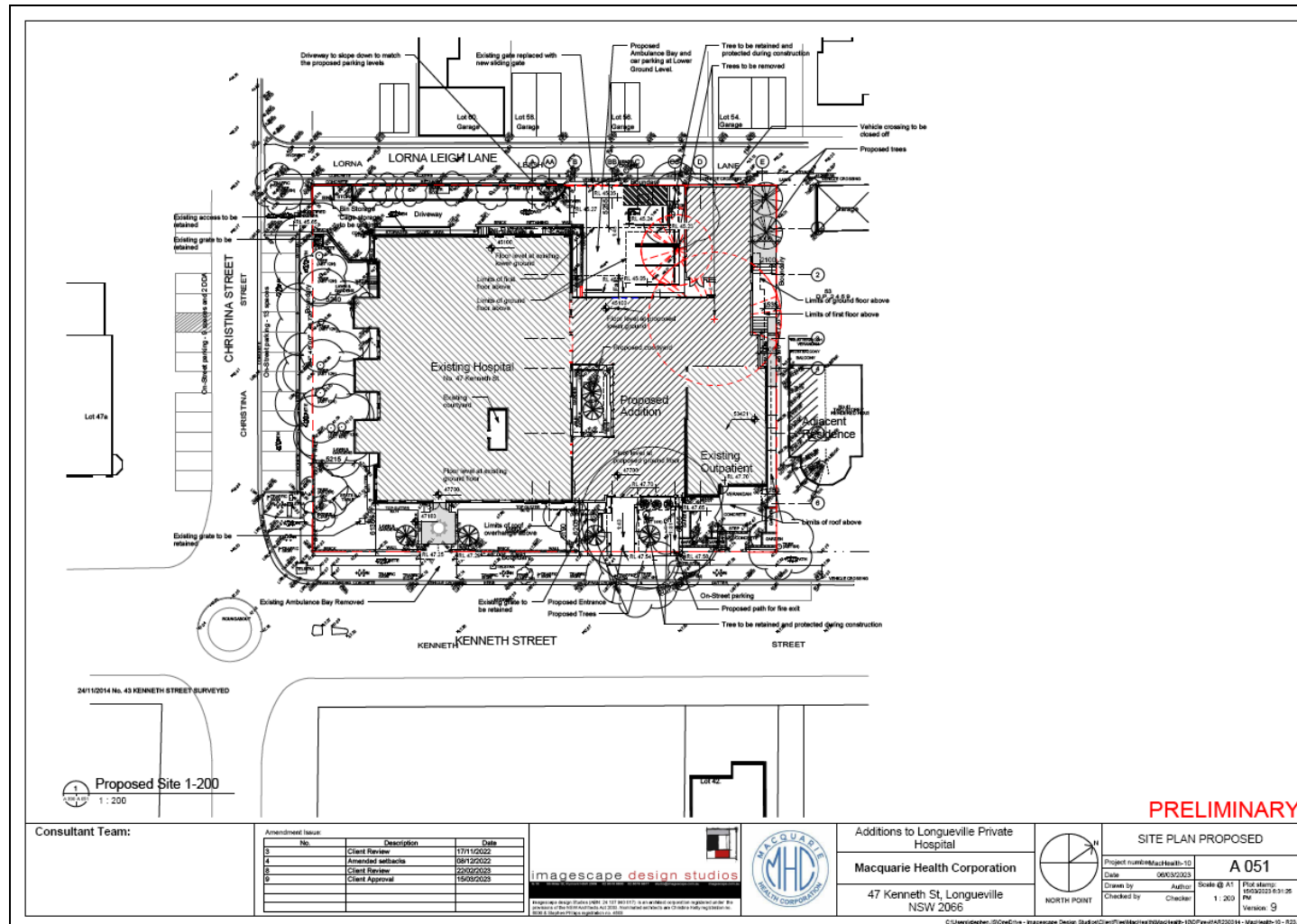
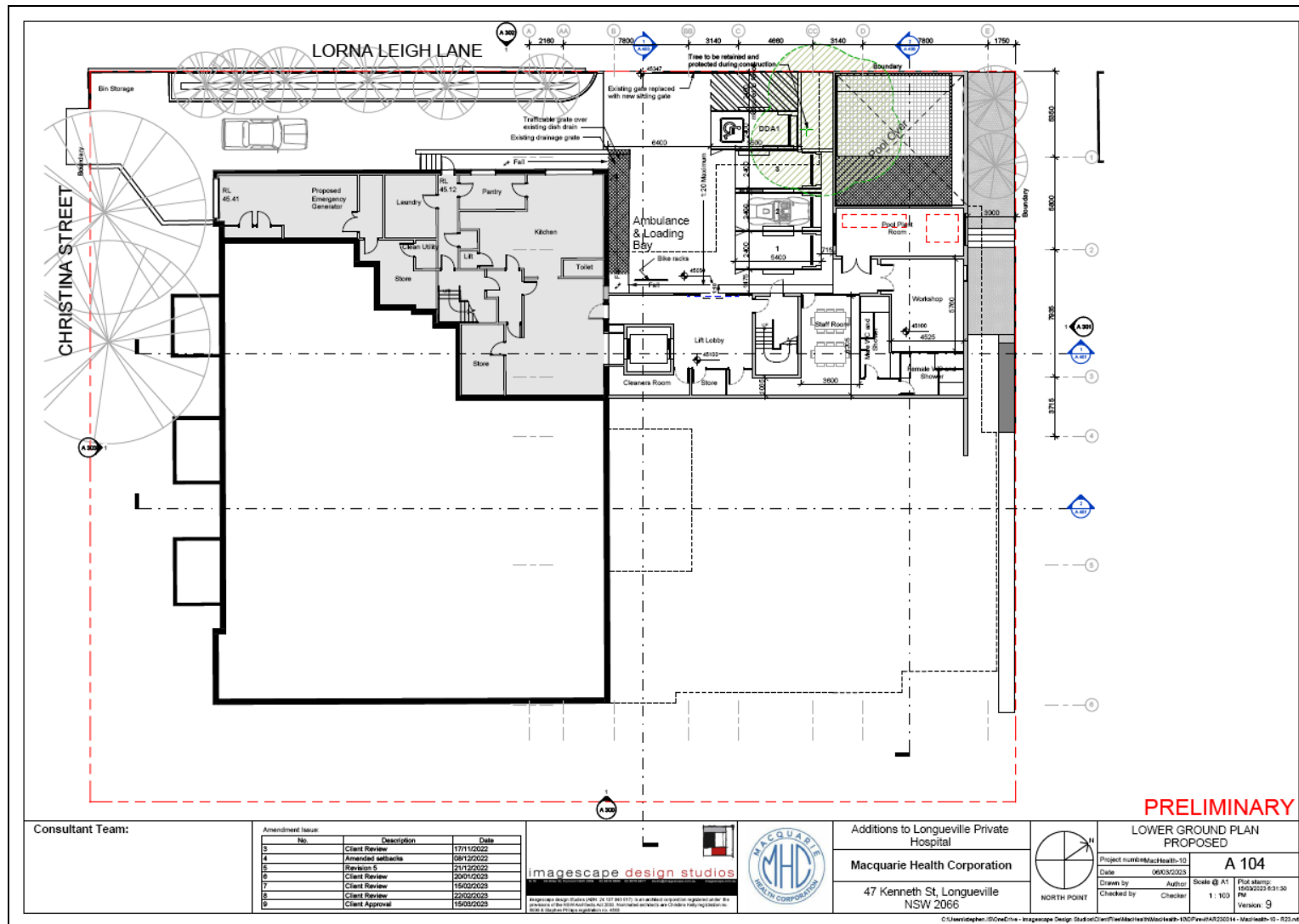
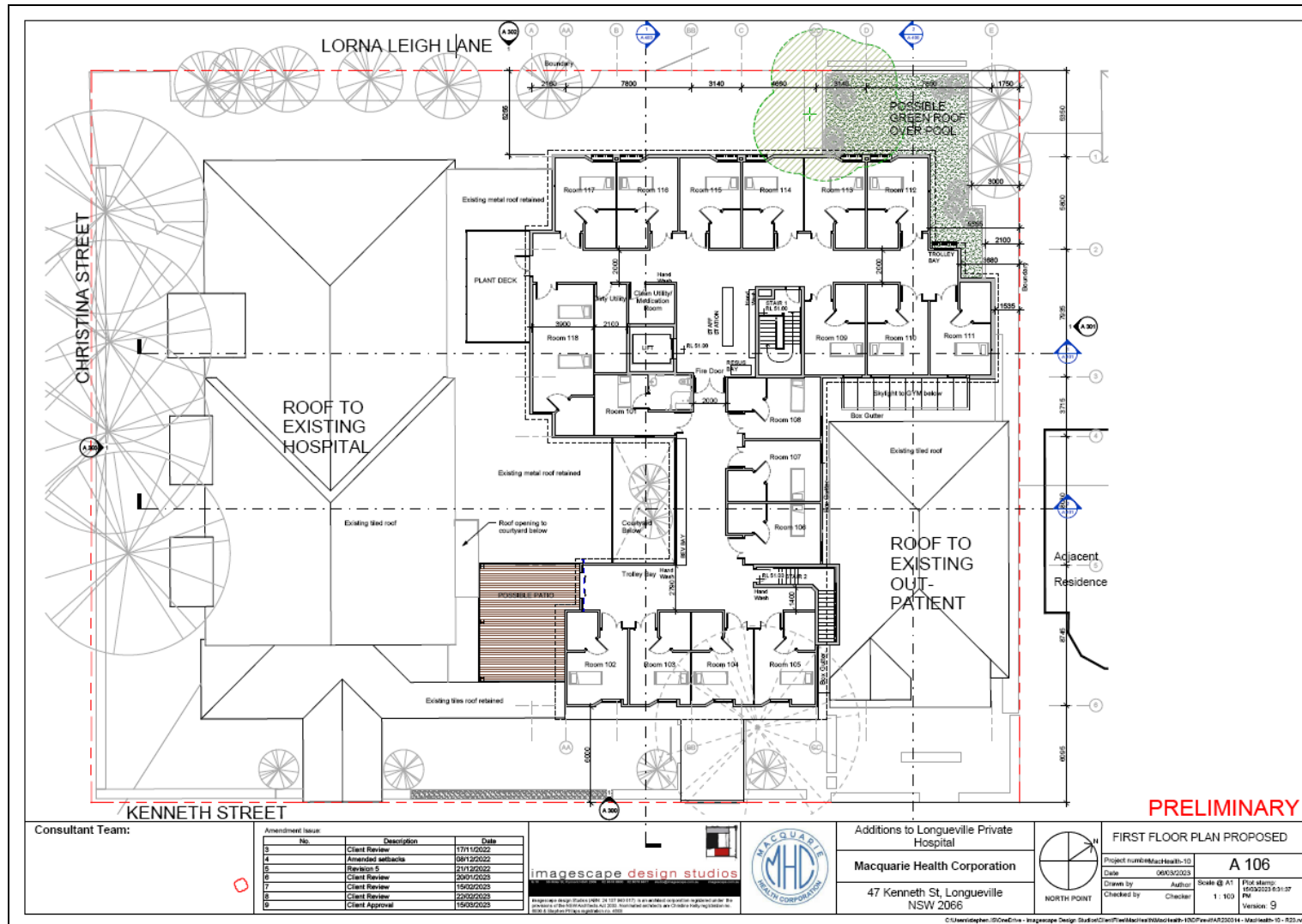
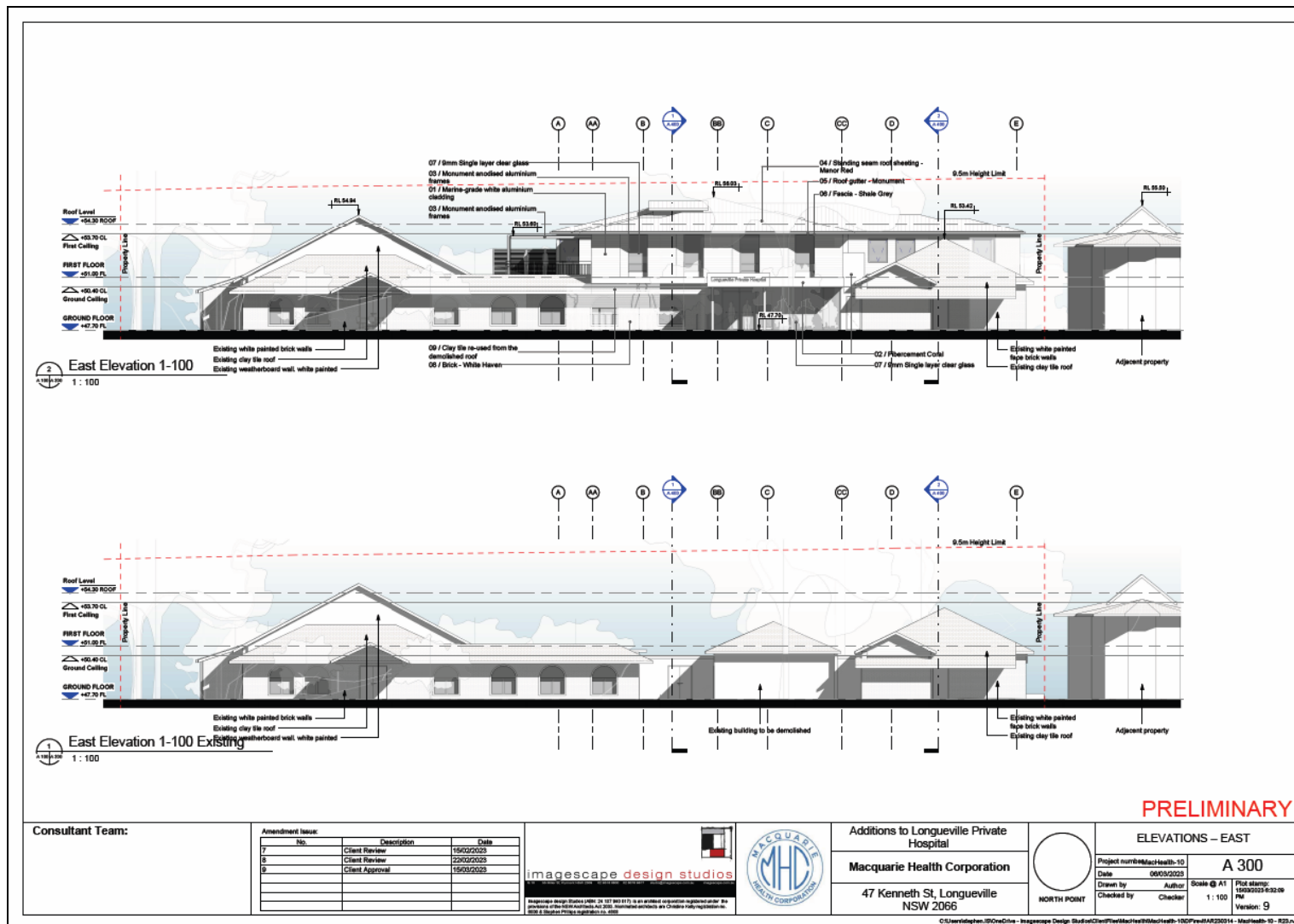
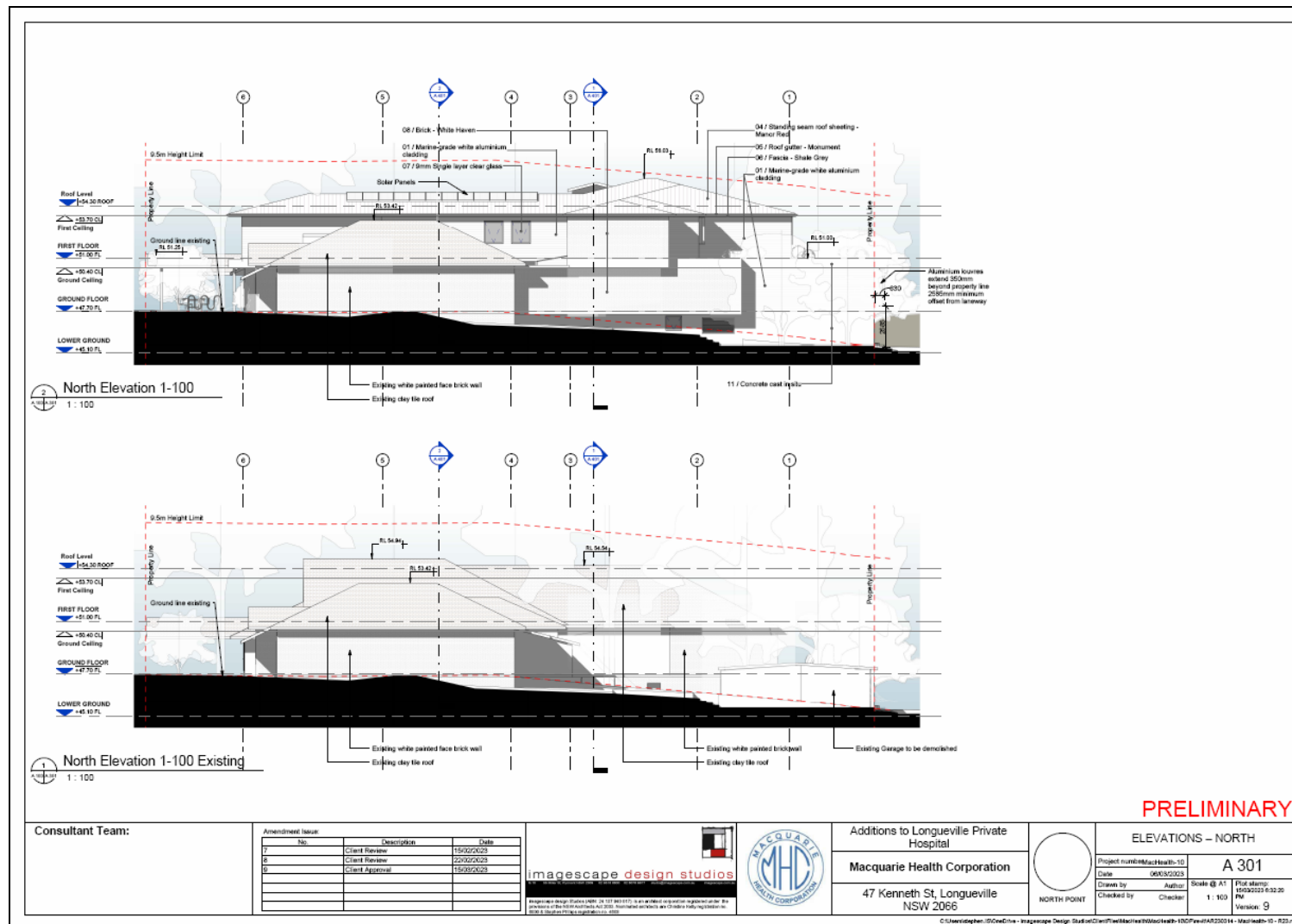


Figure 9: Illustrates the now Version 9 Proposed Site Plan.









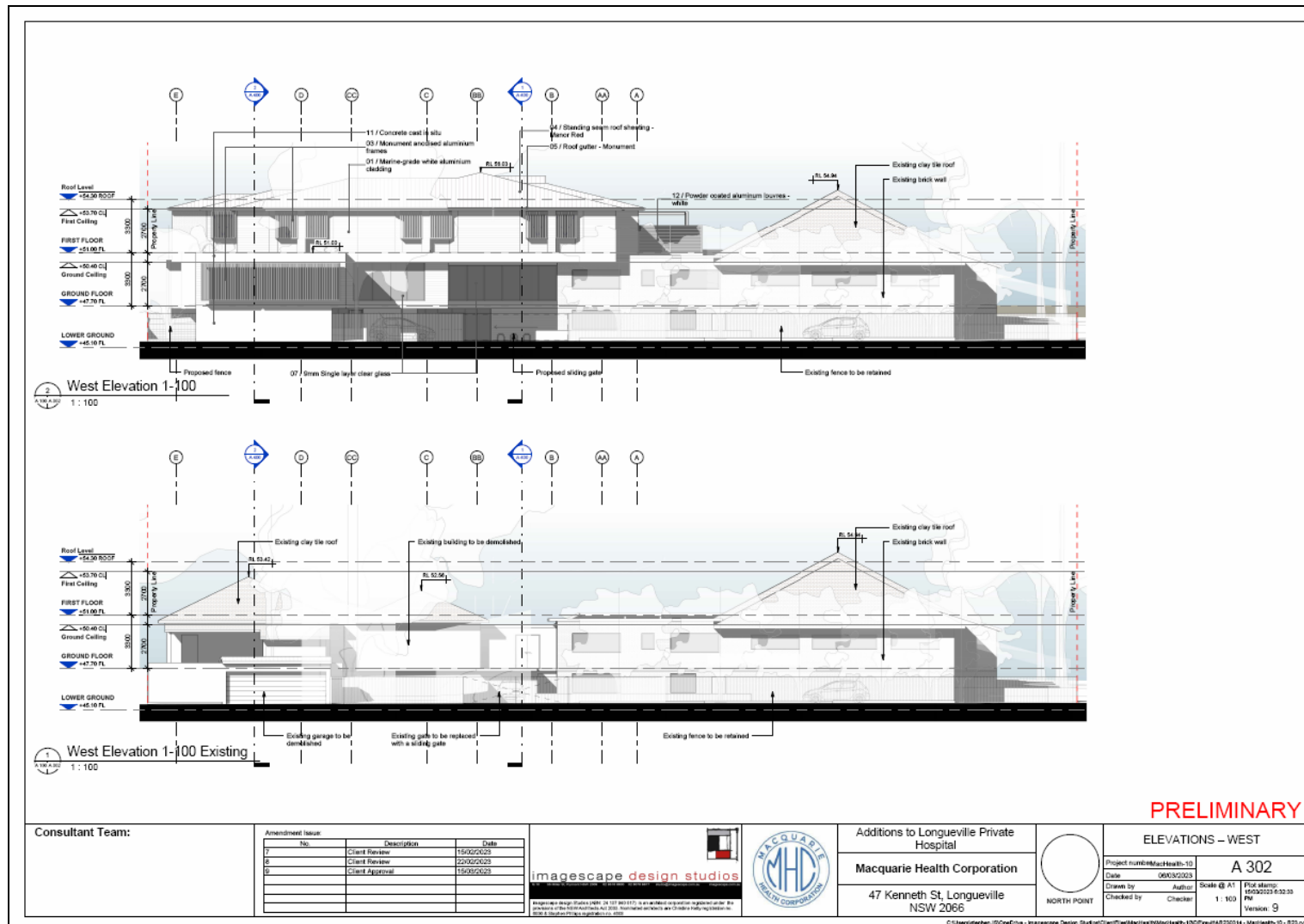


Figure 10: Pages 13 thru 17 illustrates the as proposed now Version 9 Floor Plans & Elevation.

5.3 Discussion:

As briefed by Richard Dib, the updated proposal is for the hospital to offer increased services with a focus to support patients in the community who are seeking to stay in hospitals near their homes & families. By modernising/expanding the range of rehabilitation/therapy options, essential onsite parking & more importantly the safe arrival & departure of patients/outpatients it is a significant improvement to the way the hospital is currently functioning. Additionally, the proposal provides a significant increase in essential onsite parking & potentially more importantly the safe arrival/departure for private patient rehabilitation/therapy options for those who prefer their rehabilitation within the Lane Cove community.

This can only be achieved by constructing new basement level carparking & patient/outpatient drop-off / pick-up terminus.

All five (5) established/discussed trees are captured by the as proposed works. Two (2) of the three (3) discussed trees by virtue relative to the updated development proposal are supported to be replaced with new trees within existing garden areas.

Three (3) discussed trees, Tree #2, Tree #4 & Tree #4 are proposed to be retained. For viable retention of these trees the proposed works facing Kenneth Street require the expanded footprint to be suspended over the area proposed to be expanded. All will require the installation of temporary protection (i.e., temporary TPZ isolation fencing) and most importantly, intensive 'live root management', general best practice management principles.

The two (2) trees supported to be replaced are confirmed to be exotic species that one can reasonably argue are inappropriate for the subject site. See below reasons.

Tree #1, *Platanus acerifolius* (London Plane) is a totally inappropriate species for any site providing medical services. It is notorious for just after annual spring foliage burst (the tree is a deciduous species) being linked to persons with reduced respiratory capacity being further compromised. The tree (like many others) produces 'pollens' which for a short time in late winter & spring contributing to allergy reactions in up to one (1) in four (4) persons. However, the biggest problem is the fact they drop irritating 'trichome fibres' for a longer period (October thru December) than 'pollen release'. The City of Melbourne has a policy to slowly replace plane trees as older specimens become close to the end of the Useful life Expectancy. On this basis, the replacement of the Tree #1 with a more suitable species could be supported regardless of any proposal for development.

Tree #2, in many environmentalists'/ecologists' interpretations, they are equally undesirable, but for a different reason. These trees produce large volumes of fruit/seed which fauna (native/pest & exotic mostly birds) ingest & deposit into native (mostly already disturbed bushland). The Lane Cove Council Local Government Area has an abundance of (albeit relatively small) natural bushland areas continually being subjected to bushland invaders of flora species origination within private property. As per Tree #1, there are strong arguments for replacing this species of tree with more suitable to the local environment species regardless of

any proposed development. Indeed, the Northern Beaches Council (with similar environmental features & concerns has adopted this attitude by going so far as to declare this species as exempt from protection due to its undesirable impact to bushland areas.

The discussed Tree #1 & Tree #2 relative to the as proposed new development within the subject site roots systems in our opinion cannot be managed in any manner that one could support as being sustainable.

Tree #2, is assessed as already having both its calculated TPZ & RZ radial distances compromised by significant change to the natural ground level & including built infrastructure surrounding it. On this basis, what is most relevant relative to the as proposed works is minimising additional ground level change to preserve the tree with respect to its at least medium-term Useful Life Expectancy (from herein ULE).

The management strategy specified to be applied is:

- i. *installation of a temporary 'tree trunk guard' prior to the commencement of any works (especially demolition works)*
- ii. *manual demolition of the surrounding built infrastructure (within its as calculated TPZ/SRZ radial distances)*
- iii. *installation of standard temporary TPZ fencing (metal mesh panels with above ground supports)*
- iv. *manual excavation within the as calculated TPZ/SRZ radial distances*
- v. *any 'live root' of a significant diameter (defined as being greater than 50mm in diameter) can only be managed (plus documented in writing with supporting evidence photographs) by the retained 'Project Arborist'.*

Relative to Tree #4 & Tree #5 the following management strategy is to apply:

Tree #4:

- i. *installation of a temporary 'tree trunk guard' prior to the commencement of any works (especially demolition works)*
- vi. *manual demolition of the surrounding built infrastructure (within its as calculated TPZ/SRZ radial distances)*
- ii. *installation of standard temporary TPZ fencing (metal mesh panels with above ground supports)*
- iii. *manual excavation within the as calculated TPZ/SRZ radial distances*
- iv. *any 'live root' of a significant diameter (defined as being greater than 50mm in diameter) can only be managed (plus documented in writing with supporting evidence photographs) by the retained 'Project Arborist'.*

Tree #5:

- i. *installation of a temporary 'tree trunk guard' prior to the commencement of any works (especially demolition works)*
- ii. *manual demolition of the surrounding built infrastructure (within its as calculated TPZ/SRZ radial distances)*

- iii. installation of standard temporary TPZ fencing (metal mesh panels with above ground supports)
- iv. manual excavation within the as calculated TPZ/SRZ radial distances
- v. any 'live root' of a significant diameter (defined as being greater than 50mm in diameter) can only be managed (plus documented in writing with supporting evidence photographs) by the retained 'Project Arborist'
- vi. this tree will require no above ground pruning (of canopy) as it has been long term maintained so as to only minimally overhang the adjacent building.

Two (2) additional trees near to Tree #4 & Tree #5 as can be seen on page 10 Site Survey markup of discussed tree locations are confirmed to not exist. As briefed, the tree within the subject site failed near ground level & was subsequently totally removed (stump is still present). The tree with the Kenneth Street road reserve is presumed to have been removed by the LCC appointed staff or contractors.

We support the updated design proposal which requires Tree #1 & Tree #3 being replaced.

Below is a 'List of Local Environment Potentially Suitable' replacement species:

- *Acacia implexa* (Hickory Wattle) – *Acacia parramattensis* (Sydney Green Wattle)
- *Acmena smithii*, syn. *Syzygium* (Lilly Pilly)
- *Allocasuarina torulosa* (Forest She Oak)
- *Angophora floribunda* (Rough Bark Apple Gum)
- *Bachausia myrtifolia* (Grey Myrtle)
- *Banksia serrata* (Old Man Banksia) – *Banksia integrifolia* (Coast Banksia)
- *Corymbia gummifera* (Red Bloodwood Gum)
- *Glochidion ferdinandi* (Cheese Tree)
- *Melaleuca lineariifolia* (Snow in Summer)
- *Syncarpia glomulifera* (Tuerpentine Tree)
- *Tristaniopsis laurina* (Watergum)

(Plant species named taken from Lane Cove Council Native Indigenous plant species list, June 20023.)

All named tree species are likely to be readily available from native plant growers/suppliers. The Australian Standard (AS2303-2015 Tree stock for landscape use) is industry accepted as being the minimum benchmark for the production of trees likely able to mature & provide up to very long term 'landscape amenity' as well as contributing to the dietary requirements of especially local indigenous (as well as migrating native) fauna.

Site Specific 'Preliminary Plan of Management'

TREE # & IDENTIFICATION	RETAIN MANAGE PROTECT	REPLACE with <i>AS2303-2015</i> compliant specimens	Replace with AS2303-2015 compliant new tree Install Mulch	Professionally Establish Professionally Manage	OC Signoff
1 London Plane	NO	YES	YES YES	YES YES	YES
2 Kaffir Plum Tree	YES*	NO**	NO YES	NO YES	YES
3 Kaffir Plum Tree	NO	YES	YES YES	YES	YES
4 Weeping Bottlebrush	YES*	NO**	NO YES	NO YES	YES
5 Bangalay Gum	YES*	NO**	NO YES	NO YES	YES

* Tree #2 is specified to be isolated from the as proposed works by installation of temporary metal mesh fencing panels with above ground supports as close to the calculated TPZ radial distance (9.00m) as site impediments allow.

** We confirm significant long-term disturbance (built infrastructure/potential natural ground level disturbance) within both the TPZ/SRZ calculated radial distances exists. On this basis, we are able at a desktop level to support the retention & management of these trees. This opinion is subject to change if the removal of the existing infrastructure exposes ground level disturbance or large diameter significant (defined as being greater than 50mm in diameter) 'live roots' having previously been subjected to damage or worse having been severed close to the tree trunk base.

6 Conclusions

- Of the discussed trees, only Tree #4 & Tree #5 are considered from an environment responsibility perspective to be tree species suitable for the subject site & more importantly how the subject site functions.
- The as proposed species list is by no means representative of the only suitable species for this site but confirmed to be locally indigenous species that if sourced from growers/suppliers whose stock is *AS2303-2015* production benchmarks compliant & professionally planted/maintained for a minimum one (1) active Sydney growing season (mid-August thru late-May) there is no reason to challenge their viability for up to the very long term.
- Any environment change, i.e., change to total present 'green canopy' footprint can in the medium term be repaired with new trees being established with the potential of having an up to very long-term individual Useful Life Expectancy.

If you have any questions relating to this report or require explanation of its contents, please do not hesitate to contact its author, Kyle A. Hill (Senior GMW Practicing & Consulting Arborist) during normal business hours (Monday thru Friday) by email or phone (see top of the title page for this information).

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, AURA Tree Services Pty Ltd, 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; and

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,
- Barrell, J. 1995, 'Pre-development Tree Assessments', in Trees & Building Sites, Proceedings of International Conference Held in the Interest of Developing a Scientific Basis for Managing Trees in Proximity to Buildings, International Society of Arboriculture, Illinois,
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- 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,
- Clark, Ross, 'A Guide to Assessment of Tree Quality'. NATSPEC/ Construction Information, Milson's Point NSW, 2003 &
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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.
- AS4373.2007 'Pruning of amenity trees', Standards Australia.
- AS4970.2009 'Protection of trees on development sites', Standards Australia.
- BS5837-2005. 'Guide for Trees in Relation to Construction', Standards Board, UK.

Appendix A–Glossary of Common Arboreal Terms

Age:	I	<i>Immature</i> 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 refers to any trees potential life expectancy (viability) not related to potential disturbances based on VTA assessment, classifications are: **Short, (0 – 5 years), Medium, (5 – 15 years) & Long, (15 or more years).**

Retention Value is expressed as Low, Medium, High or of Heritage Importance

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

Significant Diameter Roots are defined as being woody roots with a diameter greater than 0.05m/50mm. (Unless otherwise specified)

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 $SRZ\ radius = (D \times 50)^{0.42} \times 0.64$.

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 besides isolating trees from above ground disturbance also implies minimising live root damage.

To limit damage to any development site tree, protection within a specified distance of the tree's trunk must be maintained throughout any determined 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 ground level disturbance.

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