"GROWING MY WAY"

Tree Consultancy

Established 1977

EXCELLENCE in ALL ASPECTS OF TREE MANAGEMENT

FULL INSURANCE PROTECTION

PO Box 35, Newport Beach NSW 2106

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E-mail: kyleahill@optusnet.com.au

ABN 97 965 355 200

Construction Impact & Management Statement for a soon to be Lodged Subdivision/Development Application

March 2019

Site: Lot 130 in DP 11162
15 Alto Avenue
SEAFORTH, NSW

Client: Matt & Shannon Deeran
PO Box 114
BALGOWLAH, NSW 2093
Phone: 61 424 464 910
Email: matt@chalkcreates.com.au

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 International Society of Arboriculture
Member of Arboriculture Australia

1 Summary

Matt Deeran as the Property Owner commissioned the Growing My Way Tree Consultancy (GMW) to prepare a *Construction Impact & Plan of Management Statement* to be linked to the soon to be lodged *Subdivision Application for one (1) Lot into Two (2) with Development Application Submission for construction of inground swimming pool, swimming pool surrounds & new landscape concept*.

The subject site is known as 15 Alto Avenue, Seaforth (*the subject site from herein*).

The *Development Application* relative to tree management requires trees greater than five (5.00m) meters tall within the subject site & adjoining sites to be discussed. Seven (7) trees are determined as being required to be discussed. Six (6) trees are protected by NBC/Manly Council 'Tree Management Provisions'.

The discussed trees are confirmed as being within five meters (5.00m) of proposed works. The discussed trees are from seven (7) & species. Four (4) are confirmed to be Australian Native species, three (3) are locally indigenous species. Most discussed trees are planted specimens.

The subject site & seven (7) common boundary sites are developed to contain residential dwellings, all have established gardens.

Presently both pedestrian & motor vehicle access is via either Alto Avenue or King Edward Road. Once subdivide both pedestrian & motor vehicle access will only be via Alto Avenue.

The sole consent authority is the *Northern Beaches Council, (from herein NBC)*.

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

- *Sections & Elevations, Classic Country Cottages, Set A, dated January 2019*
- *NBC "Tree Management Provisions"*
- *Manly Council LEP 2013*
- *Manly Council DCP 2013 (Schedule 4 – Trees)*
- *SEPP 'Vegetation in Non–Rural Areas' (25 August 2017) &*
- *Manly Council Heritage Conservation Area & Land Zoning LEP Maps.*

The aim of this report is:

1. *To confirm the viability of the discussed trees, relating to their health, vigour & condition taking into account any impact foreseen by the proposed development.*
2. *Provide Australian Standard (AS4970–2009 Protection of trees on development sites) compliant site specific "Tree Plan of Management" for the discussed trees supported to be retained & managed.*

This document supports (relative to tree management) the proposal for development as per the information provided by Matt Deeran.

Kyle A Hill (AQF level 5 & 8 *Practicing/Consulting Arborist* has prepared this report based on "*Visual Tree Assessment" (VTA)* undertaken on Sunday, 24 February, 2019.

Table of Contents

2 Introduction

This report contains observations & recommendations intended to assist in the management of the seven (7) trees confirmed as necessary to be discussed. Six (6) trees are protected by NBC/Manly Council 'Tree Management Provisions'.

This document only relates to the proposed development as per information provided to the documents author by Matt Deeran. Only the (protected) discussed trees are within five (5.00m) of the proposed works. The trees are discussed as individual specimens. Individual trees have calculated *Tree Protection Zone* (from herein *TPZ*) & *Structural Root Zone* (from herein *SRZ*) radial distances.

We acknowledge & confirm to be familiar with the *NBC "Tree Management Provisions"*, specifically the *old* document; *Manly Council "Development Control Plan 2013", Schedule 4 & SEPP "Vegetation in Non-Rural Areas, 25 August 2017".*

The sole consent authority is *NBC*.

The site is NOT within a *NBC* designated "*Heritage Conservation Area*".

The discussed trees are *not within a recognised "wildlife corridor" nor are they listed on any known "significant tree register*".

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

- *Sections & Elevations, Classic Country Cottages, Set A, dated January 2019*
- *NBC "Tree Management Provisions"*
- *Manly Council LEP 2013*
- *Manly Council DCP 2013 (Schedule 4 – Trees)*
- *SEPP 'Vegetation in Non–Rural Areas' (25 August 2017) &*
- *Manly Council Heritage Conservation Area & Land Zoning LEP Maps.*

This document includes a Site Specific "Plan of Tree Management" that includes potentially subject site suitable new tree species.

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 Site Survey
- Appendix C Tree Management & 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**.**

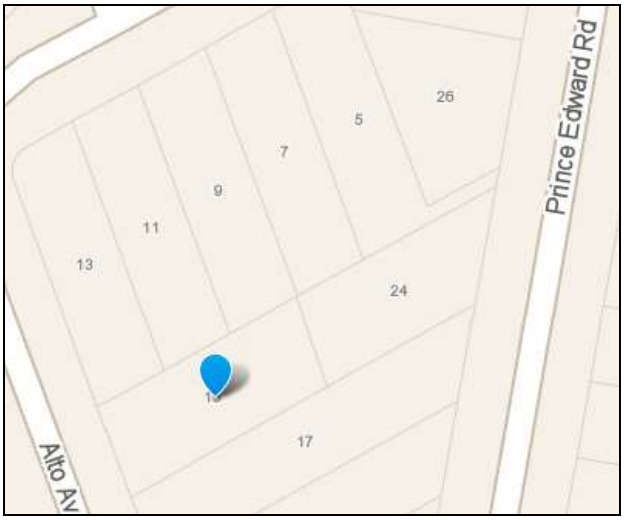
4 Observations

4.1 The Site

The report discusses in detail five (5) tree within the subject site & two (2) trees within different long common boundary properties. The pre-subdivision site is 1031.90m^2 (as per site survey). The proposed two Lots are Lot 1 (Alto Avenue), 512.60m^2 (as per site survey) & Lot 2, 519.30 m^2 in size (as per site survey). The site is linked to two (2) public roads & two (2) residential lots.

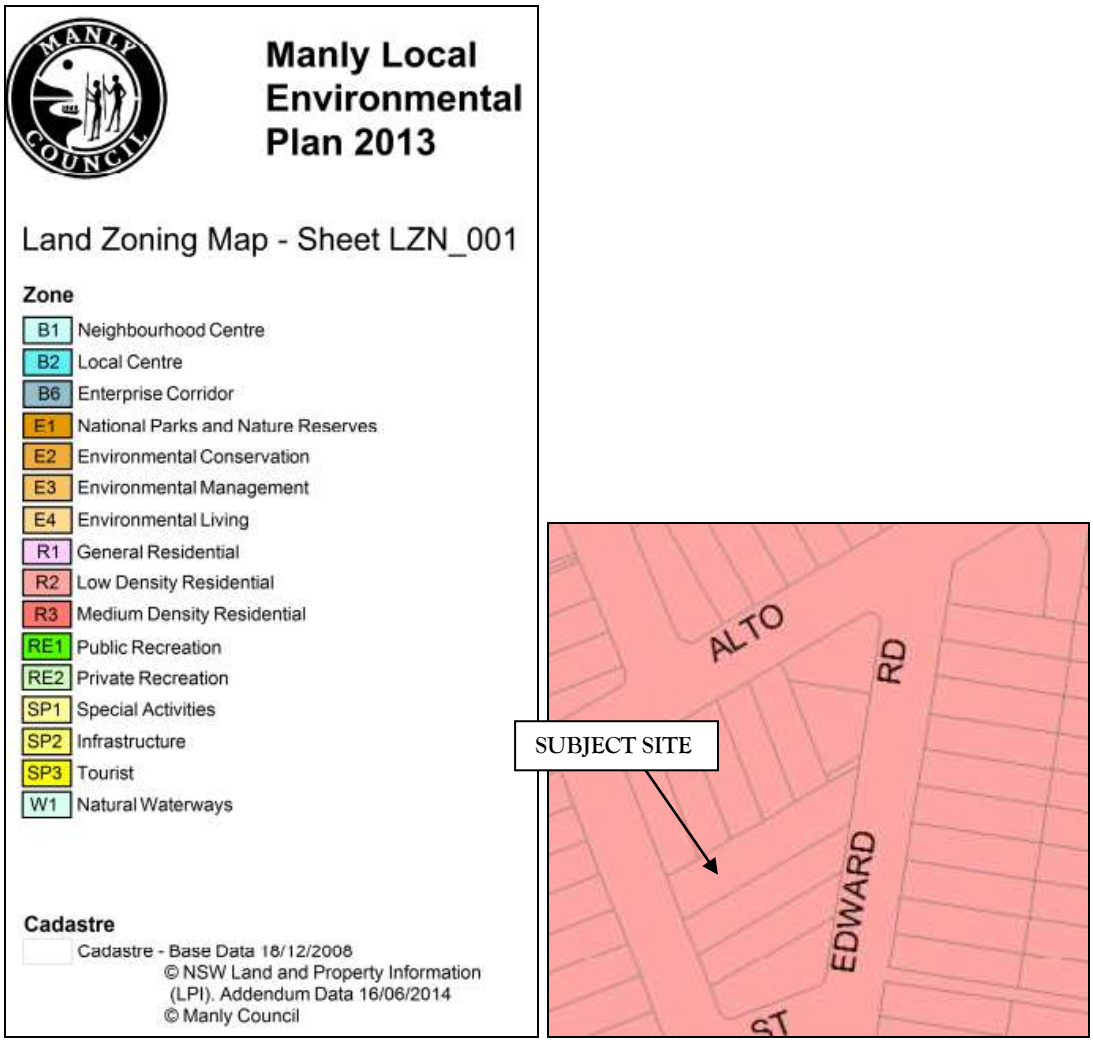
No Geotechnical issues are known to exist.

All surrounding properties are developed & contain dwelling residences.

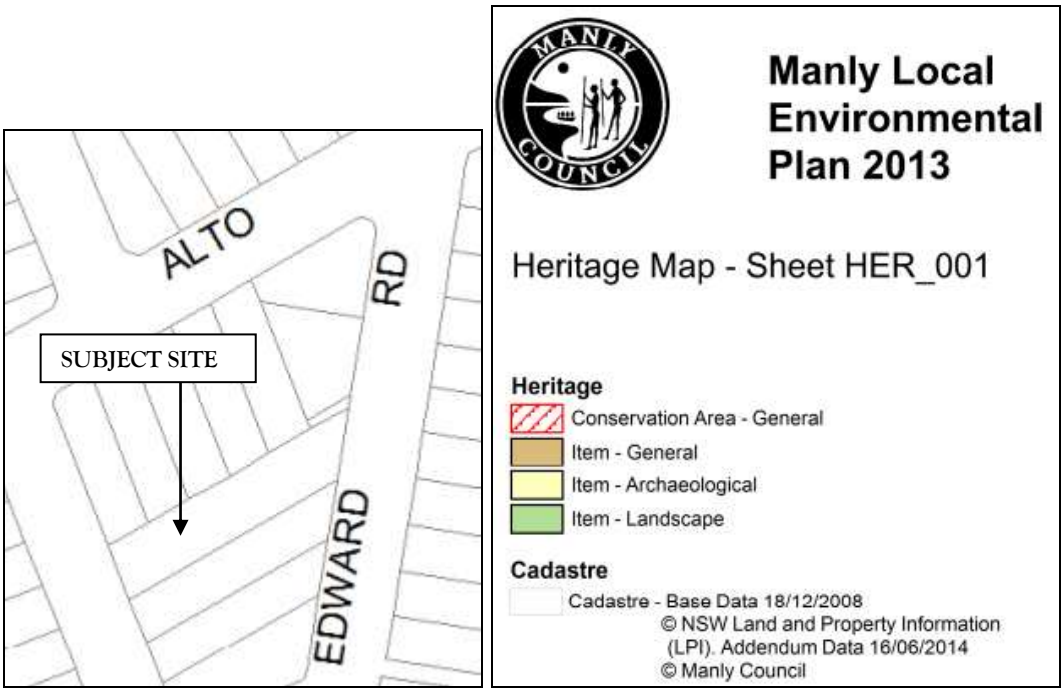


Map & Aerial photographs courtesy Whereis (web site tool) & NearMap (NearMap website tool)

The subject site is Zoned R2 Low Density Residential. See below.



The site is NOT within a MC designated "*Heritage Conservation Area*". It is acknowledged to be near multiple listed "*Heritage Items*". See below.



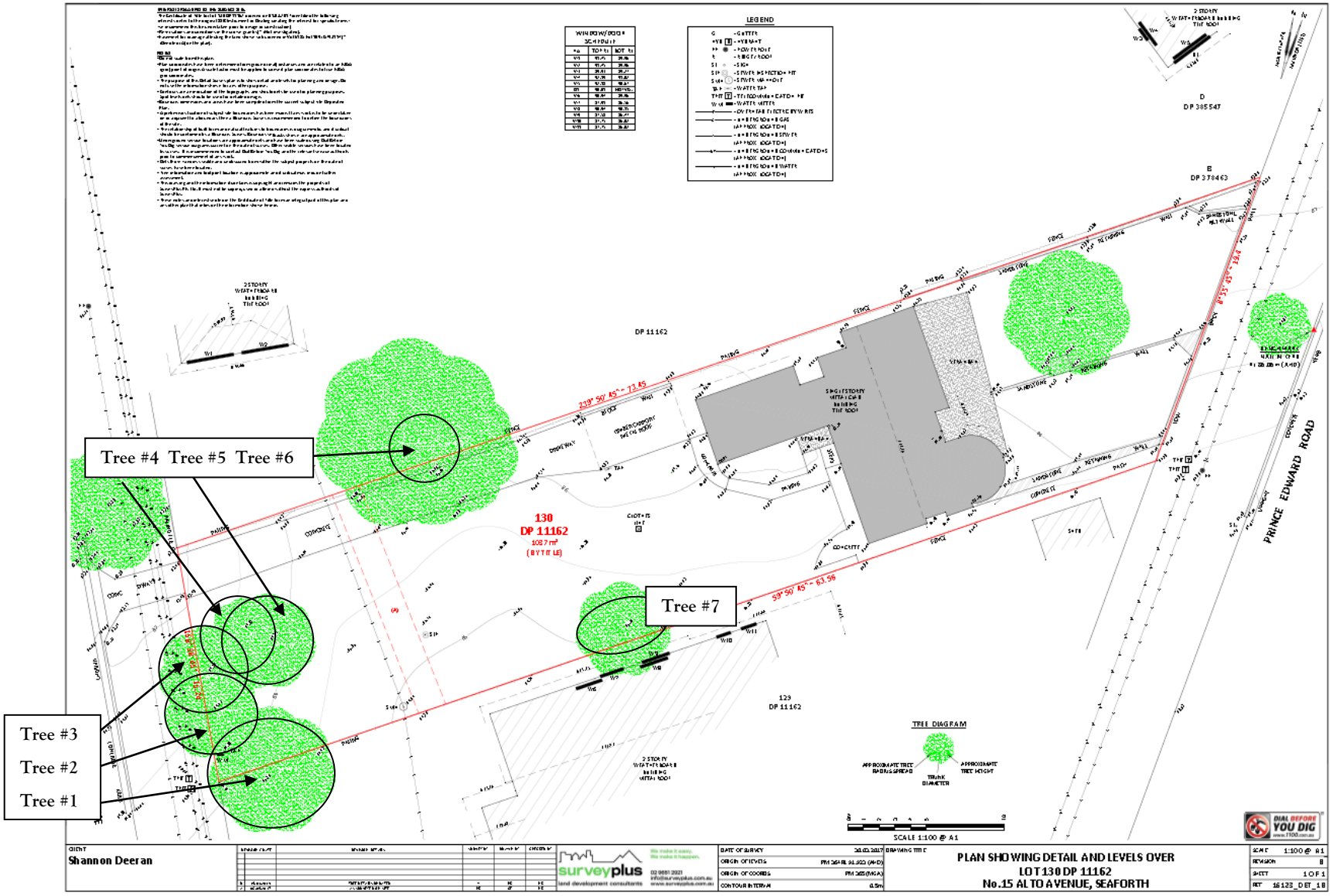
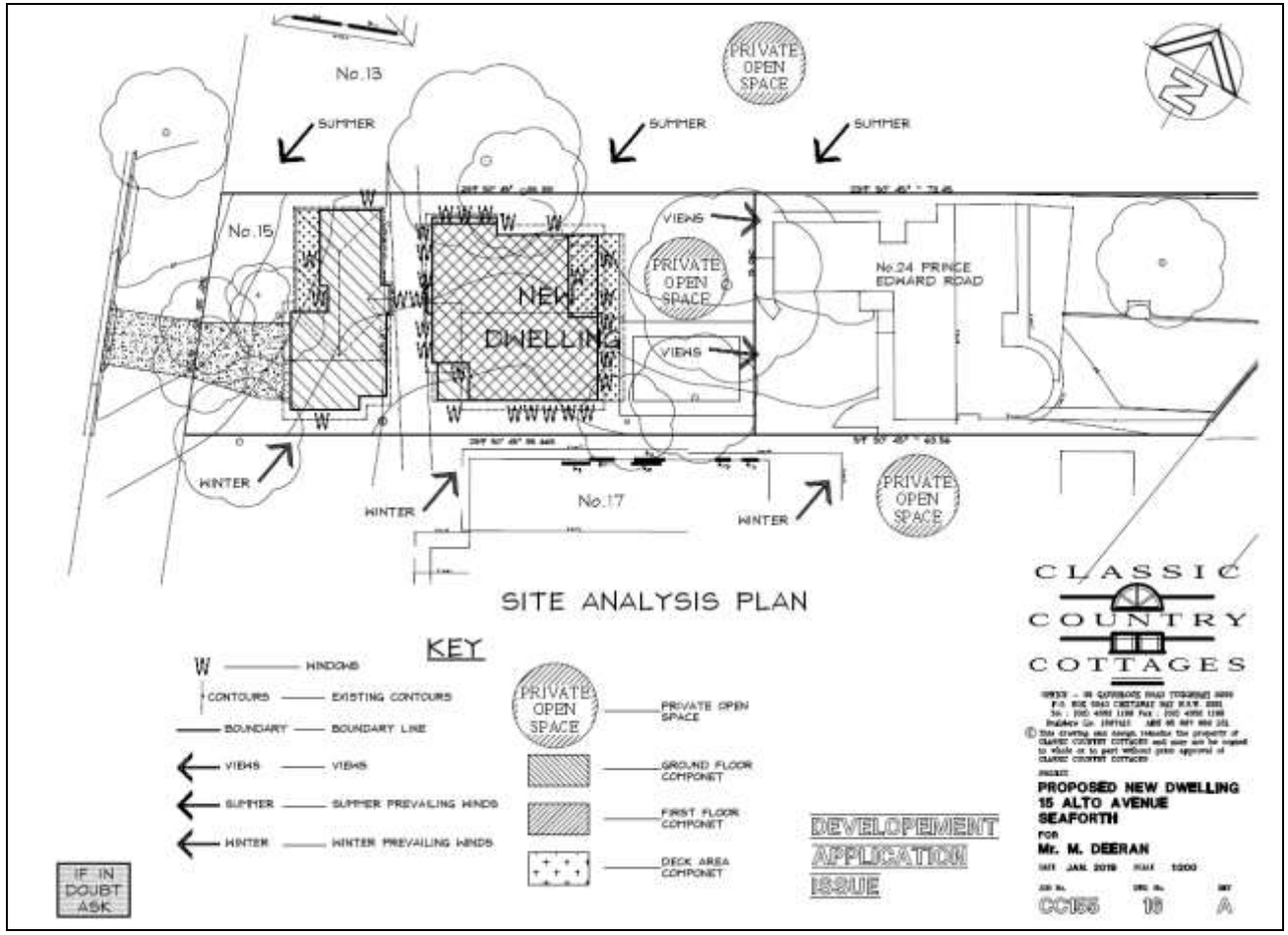
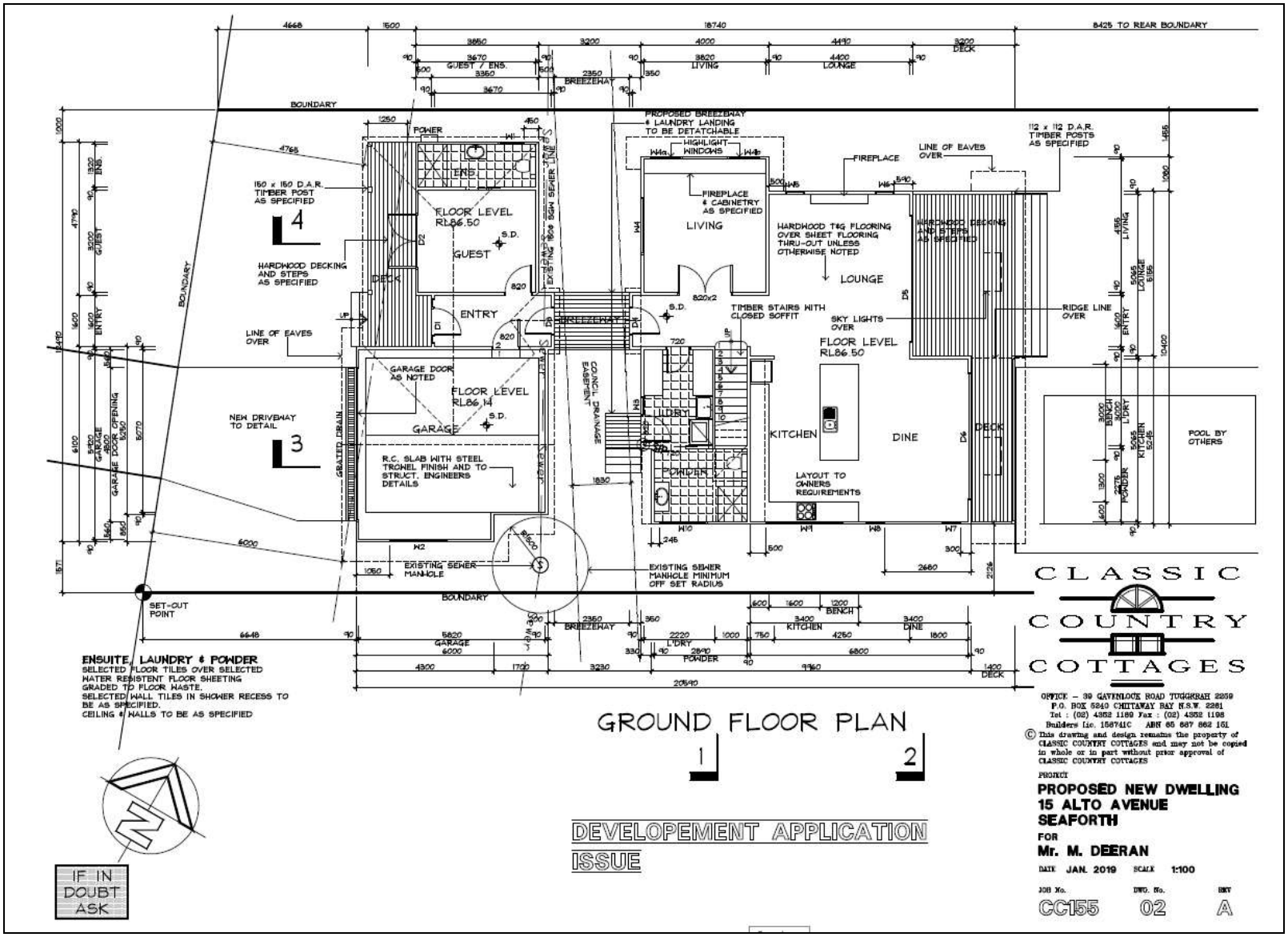

Tree #4 Tree #5 Tree #6
Tree #7
Tree #3
Tree #2
Tree #1
130
DP 11162
DP 11162
DP 385547
DP 378463
123
DP 11162
PRINCE EDWARD ROAD
LEGEND
TREE DIAGRAM
SCALE 1:100 @ A1
Shannon Deeran
surveyplus
PLAN SHOWING DETAIL AND LEVELS OVER
LOT 130 DP 11162
No.15 ALTO AVENUE, SEAFORTH

Figure 1: Aerial photograph of the subject site (courtesy of NearMap.com) dated Thursday 27 December 2018.

4.2 The Proposal

The soon to be lodged *Sub Division & Development Application (DA) relative to tree management* is for: *construction of inground swimming pool, swimming pool surrounds & new landscape concept.* Seven (7) *NBC* protected trees confirmed to be within five (5.00m) metres of the proposed works.




8425 TO REAR BOUNDARY
BOUNDARY
PROPOSED BREEZEWAY & LAUNDRY LANDING TO BE DETATCHABLE
112 x 112 D.A.R. TIMBER POSTS AS SPECIFIED
150 x 150 D.A.R. TIMBER POST AS SPECIFIED
FLOOR LEVEL RL86.50
GUEST
ENTRY
LIVING
FIREPLACE & CABINETRY AS SPECIFIED
HARDWOOD T&G FLOORING OVER SHEET FLOORING THRU-OUT UNLESS OTHERWISE NOTED
HARDWOOD DECKING AND STEPS AS SPECIFIED
LOUNGE
TIMBER STAIRS WITH CLOSED SOFFIT
SKY LIGHTS OVER
RIDGE LINE OVER
LINE OF EAVES OVER
GARAGE DOOR AS NOTED
FLOOR LEVEL RL86.14
GARAGE
NEW DRIVEWAY TO DETAIL
R.C. SLAB WITH STEEL TROWEL FINISH AND TO STRUCT. ENGINEERS DETAILS
KITCHEN
DINE
DECK
POOL BY OTHERS
LAYOUT TO OWNERS REQUIREMENTS
EXISTING SEWER MANHOLE
EXISTING SEWER MANHOLE MINIMUM OFF SET RADIUS
SET-OUT POINT
ENSUITE, LAUNDRY & POWDER
SELECTED FLOOR TILES OVER SELECTED WATER RESISTENT FLOOR SHEETING GRADED TO FLOOR WASTE.
SELECTED WALL TILES IN SHOWER RECESS TO BE AS SPECIFIED.
CEILING & WALLS TO BE AS SPECIFIED
IF IN DOUBT ASK
GROUND FLOOR PLAN
1 2
DEVELOPEMENT APPLICATION
ISSUE
CLASSIC COUNTRY COTTAGES
OFFICE – 39 GAVINLOCK ROAD TUGGERAH 2259
P.O. BOX 5240 CHITAWAY BAY N.S.W. 2261
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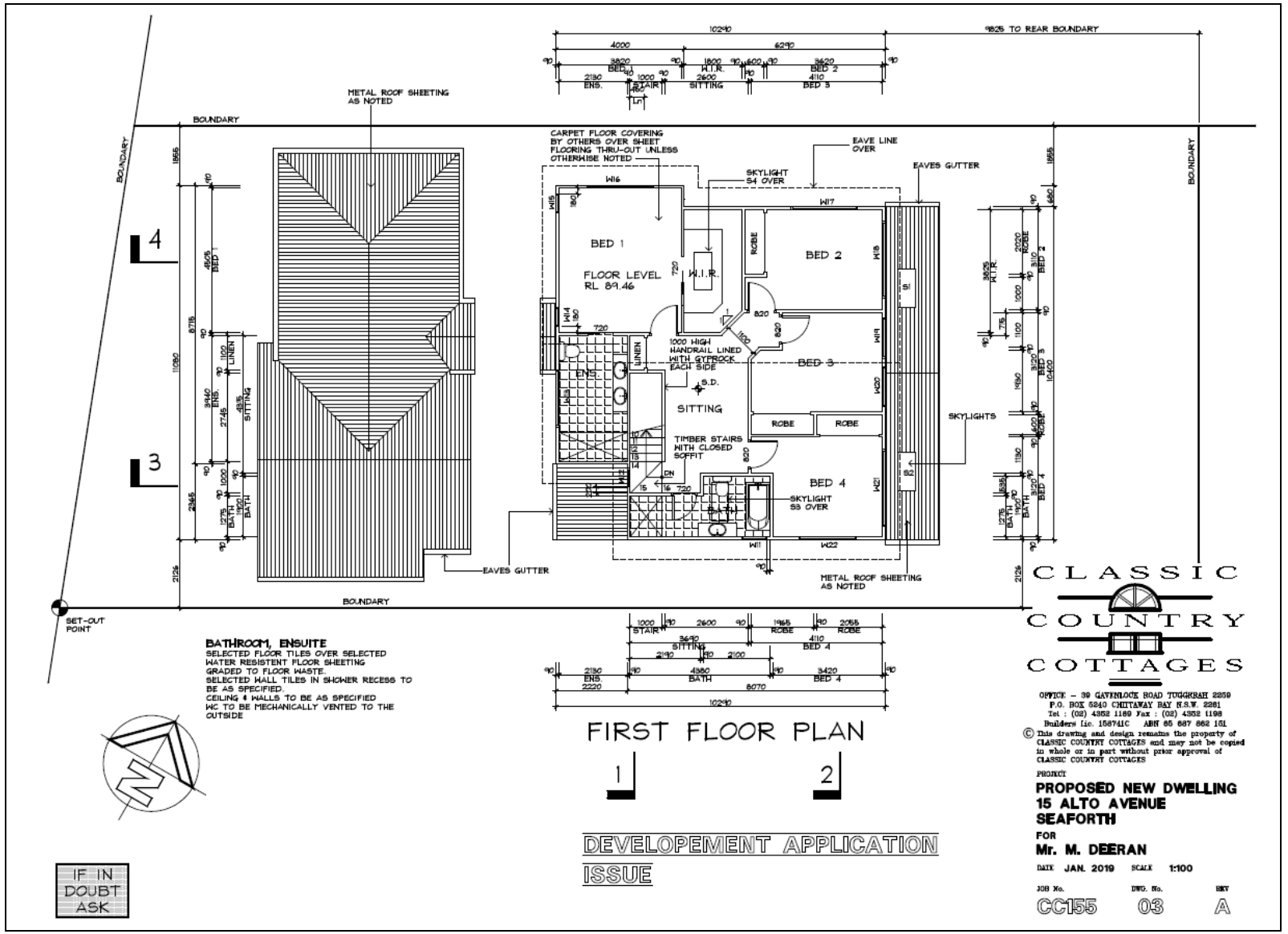
PROJECT
PROPOSED NEW DWELLING
15 ALTO AVENUE
SEAFORTH
FOR
Mr. M. DEERAN
DATE JAN. 2019 SCALE 1:100
JOB No. CC155
DWG. No. 02
REV A


BOUNDARY
METAL ROOF SHEETING AS NOTED
CARPET FLOOR COVERING BY OTHERS OVER SHEET FLOORING THRU-OUT UNLESS OTHERWISE NOTED
EAVE LINE OVER
EAVES GUTTER
SKYLIGHT 54 OVER
BED 1
FLOOR LEVEL RL 89.46
W.I.R.
ROBE
BED 2
1000 HIGH HANDRAIL LINED WITH GYPROCK EACH SIDE
LINEN
ENS.
S.D.
SITTING
BED 3
TIMBER STAIRS WITH CLOSED SOFFIT
ROBE
ROBE
SKYLIGHTS
BED 4
SKYLIGHT 53 OVER
BATH
EAVES GUTTER
METAL ROOF SHEETING AS NOTED
SET-OUT POINT
BATHROOM, ENSUITE
SELECTED FLOOR TILES OVER SELECTED WATER RESISTENT FLOOR SHEETING GRADED TO FLOOR WASTE.
SELECTED WALL TILES IN SHOWER RECESS TO BE AS SPECIFIED.
CEILING & WALLS TO BE AS SPECIFIED
WC TO BE MECHANICALLY VENTED TO THE OUTSIDE
FIRST FLOOR PLAN
DEVELOPEMENT APPLICATION
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JOB No. CC155
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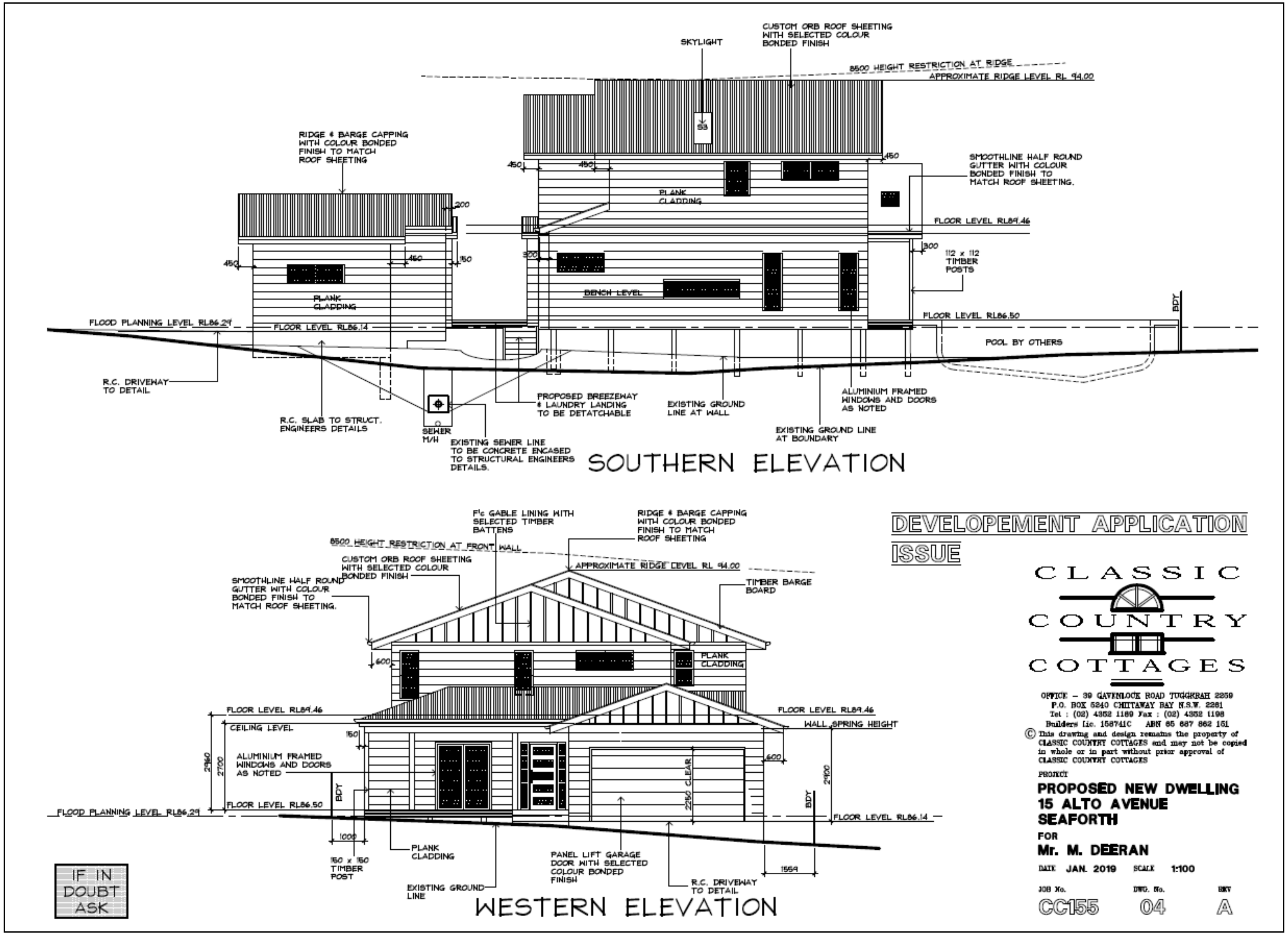
SOUTHERN ELEVATION
SKYLIGHT
CUSTOM ORB ROOF SHEETING WITH SELECTED COLOUR BONDED FINISH
8500 HEIGHT RESTRICTION AT RIDGE
APPROXIMATE RIDGE LEVEL RL 94.00
RIDGE & BARGE CAPPING WITH COLOUR BONDED FINISH TO MATCH ROOF SHEETING
SMOOTHLINE HALF ROUND GUTTER WITH COLOUR BONDED FINISH TO MATCH ROOF SHEETING.
PLANK CLADDING
FLOOR LEVEL RL89.46
112 x 112 TIMBER POSTS
BENCH LEVEL
FLOOR LEVEL RL86.50
FLOOD PLANNING LEVEL RL86.29
FLOOR LEVEL RL86.14
POOL BY OTHERS
R.C. DRIVEWAY TO DETAIL
R.C. SLAB TO STRUCT. ENGINEERS DETAILS
SEWER M/H
EXISTING SEWER LINE TO BE CONCRETE ENCASED TO STRUCTURAL ENGINEERS DETAILS.
PROPOSED BREEZEWAY & LAUNDRY LANDING TO BE DETATCHABLE
EXISTING GROUND LINE AT WALL
EXISTING GROUND LINE AT BOUNDARY
ALUMINIUM FRAMED WINDOWS AND DOORS AS NOTED
WESTERN ELEVATION
F'c GABLE LINING WITH SELECTED TIMBER BATTENS
RIDGE & BARGE CAPPING WITH COLOUR BONDED FINISH TO MATCH ROOF SHEETING
8500 HEIGHT RESTRICTION AT FRONT WALL
CUSTOM ORB ROOF SHEETING WITH SELECTED COLOUR BONDED FINISH
APPROXIMATE RIDGE LEVEL RL 94.00
SMOOTHLINE HALF ROUND GUTTER WITH COLOUR BONDED FINISH TO MATCH ROOF SHEETING.
TIMBER BARGE BOARD
PLANK CLADDING
FLOOR LEVEL RL89.46
CEILING LEVEL
WALL SPRING HEIGHT
ALUMINIUM FRAMED WINDOWS AND DOORS AS NOTED
FLOOR LEVEL RL86.50
FLOOD PLANNING LEVEL RL86.29
FLOOR LEVEL RL86.14
2250 CLEAR
150 x 150 TIMBER POST
PLANK CLADDING
EXISTING GROUND LINE
PANEL LIFT GARAGE DOOR WITH SELECTED COLOUR BONDED FINISH
R.C. DRIVEWAY TO DETAIL
IF IN DOUBT ASK
DEVELOPEMENT APPLICATION ISSUE
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15 ALTO AVENUE
SEAFORTH
FOR
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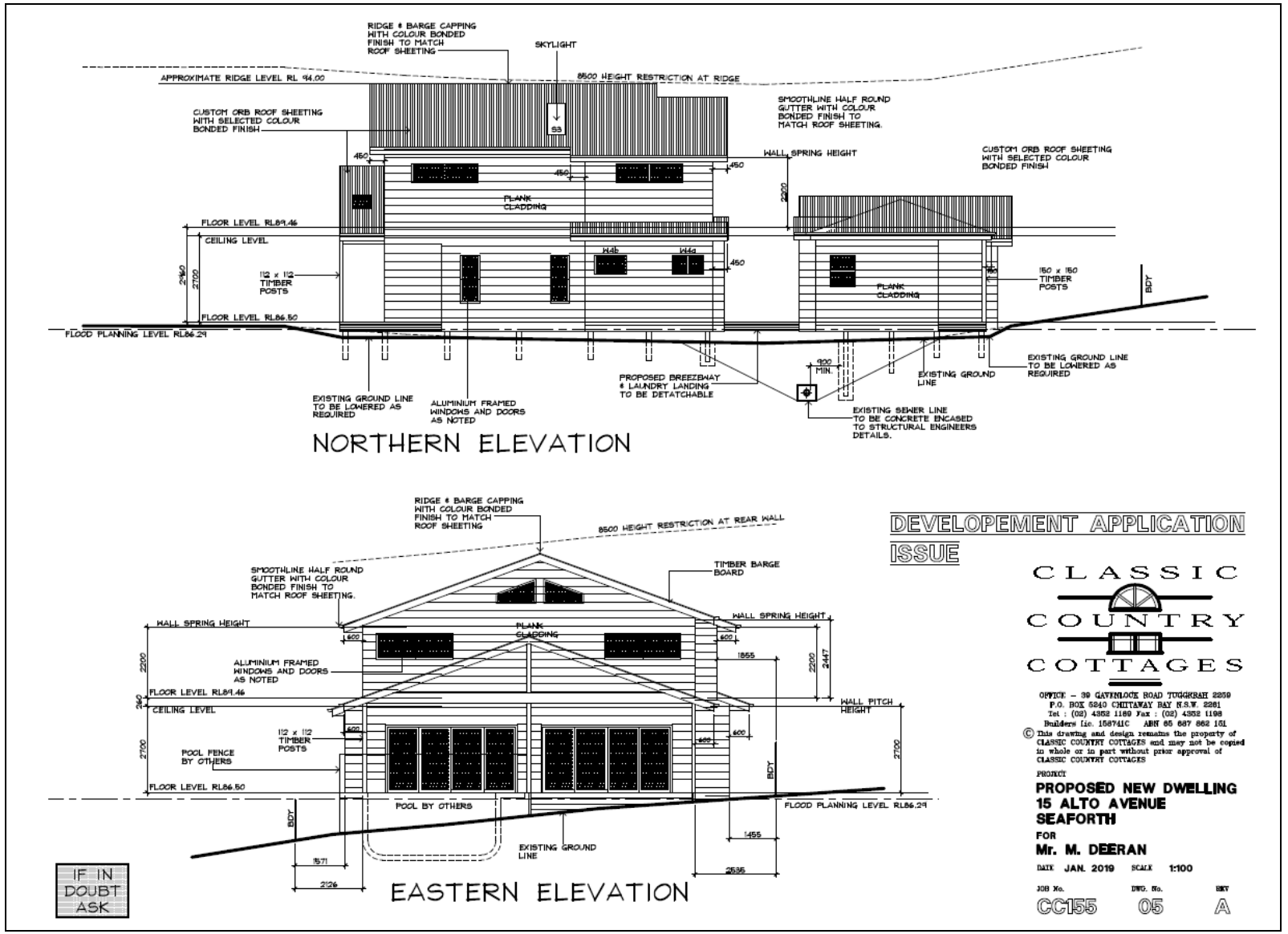
DATE JAN. 2019 SCALE 1:100
JOB No. CC155
DWG. No. 04
REV A


RIDGE & BARGE CAPPING WITH COLOUR BONDED FINISH TO MATCH ROOF SHEETING
SKYLIGHT
APPROXIMATE RIDGE LEVEL RL 94.00
8500 HEIGHT RESTRICTION AT RIDGE
CUSTOM ORB ROOF SHEETING WITH SELECTED COLOUR BONDED FINISH
SMOOTHLINE HALF ROUND GUTTER WITH COLOUR BONDED FINISH TO MATCH ROOF SHEETING.
WALL SPRING HEIGHT
CUSTOM ORB ROOF SHEETING WITH SELECTED COLOUR BONDED FINISH
PLANK CLADDING
FLOOR LEVEL RL89.46
CEILING LEVEL
112 x 112 TIMBER POSTS
FLOOR LEVEL RL86.50
FLOOD PLANNING LEVEL RL86.29
150 x 150 TIMBER POSTS
EXISTING GROUND LINE TO BE LOWERED AS REQUIRED
ALUMINIUM FRAMED WINDOWS AND DOORS AS NOTED
PROPOSED BREEZEWAY & LAUNDRY LANDING TO BE DETATCHABLE
900 MIN.
EXISTING GROUND LINE
EXISTING SEWER LINE TO BE CONCRETE ENCASED TO STRUCTURAL ENGINEERS DETAILS.
NORTHERN ELEVATION
RIDGE & BARGE CAPPING WITH COLOUR BONDED FINISH TO MATCH ROOF SHEETING
8500 HEIGHT RESTRICTION AT REAR WALL
TIMBER BARGE BOARD
SMOOTHLINE HALF ROUND GUTTER WITH COLOUR BONDED FINISH TO MATCH ROOF SHEETING.
WALL SPRING HEIGHT
PLANK CLADDING
ALUMINIUM FRAMED WINDOWS AND DOORS AS NOTED
FLOOR LEVEL RL89.46
CEILING LEVEL
WALL PITCH HEIGHT
112 x 112 TIMBER POSTS
POOL FENCE BY OTHERS
FLOOR LEVEL RL86.50
POOL BY OTHERS
FLOOD PLANNING LEVEL RL86.29
EXISTING GROUND LINE
EASTERN ELEVATION
IF IN DOUBT ASK
DEVELOPEMENT APPLICATION ISSUE
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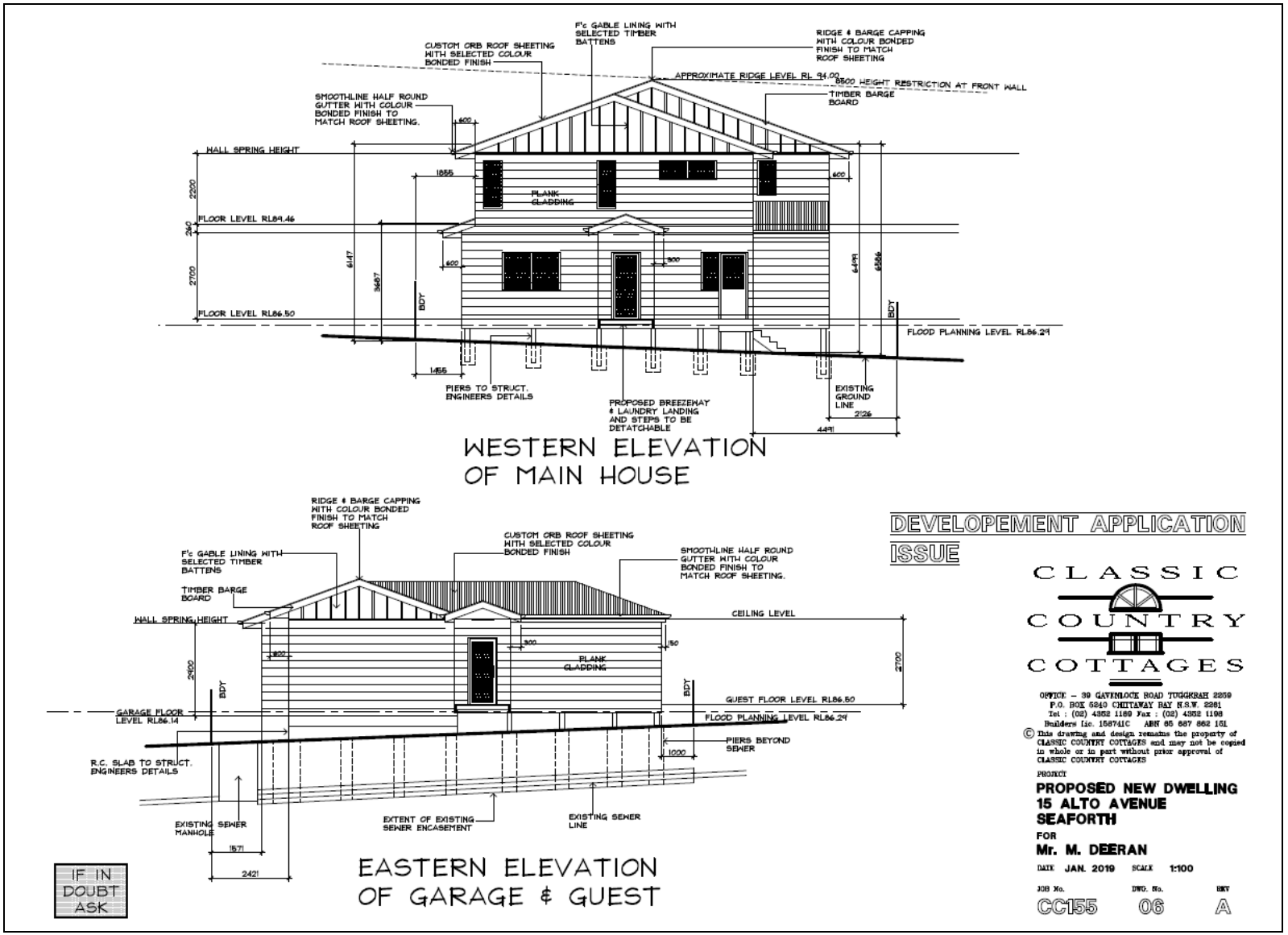
DWG. No. 05
REV A


F/c GABLE LINING WITH SELECTED TIMBER BATTENS
CUSTOM ORB ROOF SHEETING WITH SELECTED COLOUR BONDED FINISH
RIDGE & BARGE CAPPING WITH COLOUR BONDED FINISH TO MATCH ROOF SHEETING
APPROXIMATE RIDGE LEVEL RL 94.00
8500 HEIGHT RESTRICTION AT FRONT WALL
TIMBER BARGE BOARD
SMOOTHLINE HALF ROUND GUTTER WITH COLOUR BONDED FINISH TO MATCH ROOF SHEETING.
WALL SPRING HEIGHT
PLANK CLADDING
FLOOR LEVEL RL89.46
FLOOR LEVEL RL86.50
FLOOD PLANNING LEVEL RL86.24
PIERS TO STRUCT. ENGINEERS DETAILS
PROPOSED BREEZEWAY & LAUNDRY LANDING AND STEPS TO BE DETATCHABLE
EXISTING GROUND LINE
WESTERN ELEVATION OF MAIN HOUSE
RIDGE & BARGE CAPPING WITH COLOUR BONDED FINISH TO MATCH ROOF SHEETING
CUSTOM ORB ROOF SHEETING WITH SELECTED COLOUR BONDED FINISH
SMOOTHLINE HALF ROUND GUTTER WITH COLOUR BONDED FINISH TO MATCH ROOF SHEETING.
F/c GABLE LINING WITH SELECTED TIMBER BATTENS
TIMBER BARGE BOARD
WALL SPRING HEIGHT
CEILING LEVEL
PLANK CLADDING
GARAGE FLOOR LEVEL RL86.14
GUEST FLOOR LEVEL RL86.50
FLOOD PLANNING LEVEL RL86.24
PIERS BEYOND SEWER
R.C. SLAB TO STRUCT. ENGINEERS DETAILS
EXISTING SEWER MANHOLE
EXTENT OF EXISTING SEWER ENCASEMENT
EXISTING SEWER LINE
EASTERN ELEVATION OF GARAGE & GUEST
IF IN DOUBT ASK
DEVELOPEMENT APPLICATION
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SEAFORTH
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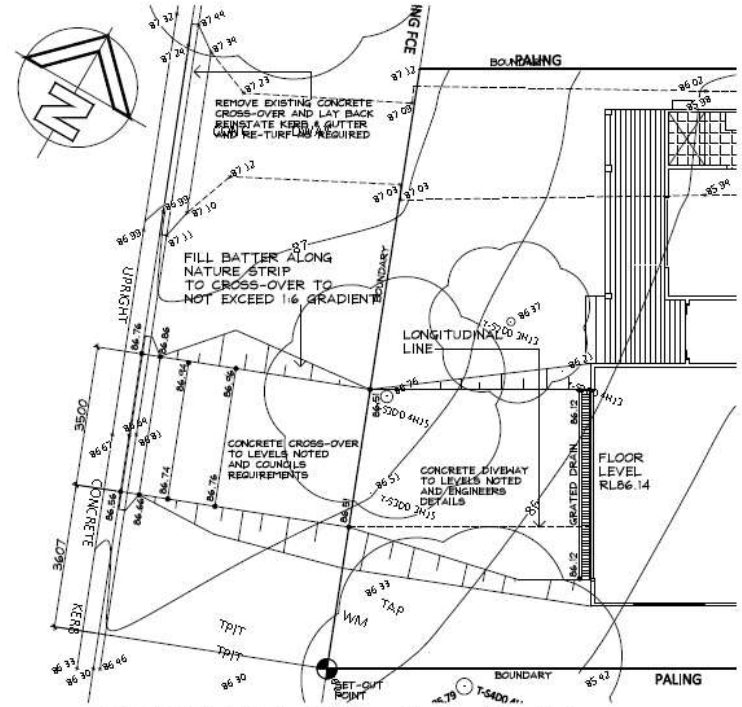
DWG. No. 06
REV A



DRIVEWAY SET-OUT PLAN

NOTE:-
DRIVEWAY & CROSS-OVER HAS BEEN DESIGNED
TO BE IN ACCORDANCE WITH THE COUNCIL'S
NORMAL STANDARD VEHICLE CROSSING
PROFILE A4 - 3330/1 N

NOTE:-
DRIVEWAY CROSS-OVER TO BE IN ACCORDANCE WITH THE COUNCIL'S SPECIFICATION AND AUSTRALIAN STANDARD AS1428.1:2001-DESIGN FOR ACCESS AND MOBILITY.

CROSS-OVER TO
BE IN ACCORDANCE WITH COUNCILS CIVIL INFRASTRUCTURE WORKS, DEVELOPEMENT & SUBDIVISION 2003 & AS1428.1 2001. TO PROVIDE FOR FUTURE FOOTPATH

IF IN DOUBT ASK

DEVELOPEMENT APPLICATION
ISSUE

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Tel : (02) 4352 1189 Fax : (02) 4352 1198
Builders lic. 158741C ABN 65 687 862 151

PROJECT
PROPOSED NEW DWELLING
15 ALTO AVENUE
SEAFORTH
FOR
Mr. M. DEERAN

DATE JAN. 2019 SCALE 1:100

JOB No.	DWG. No.	REV
CC155	07	A

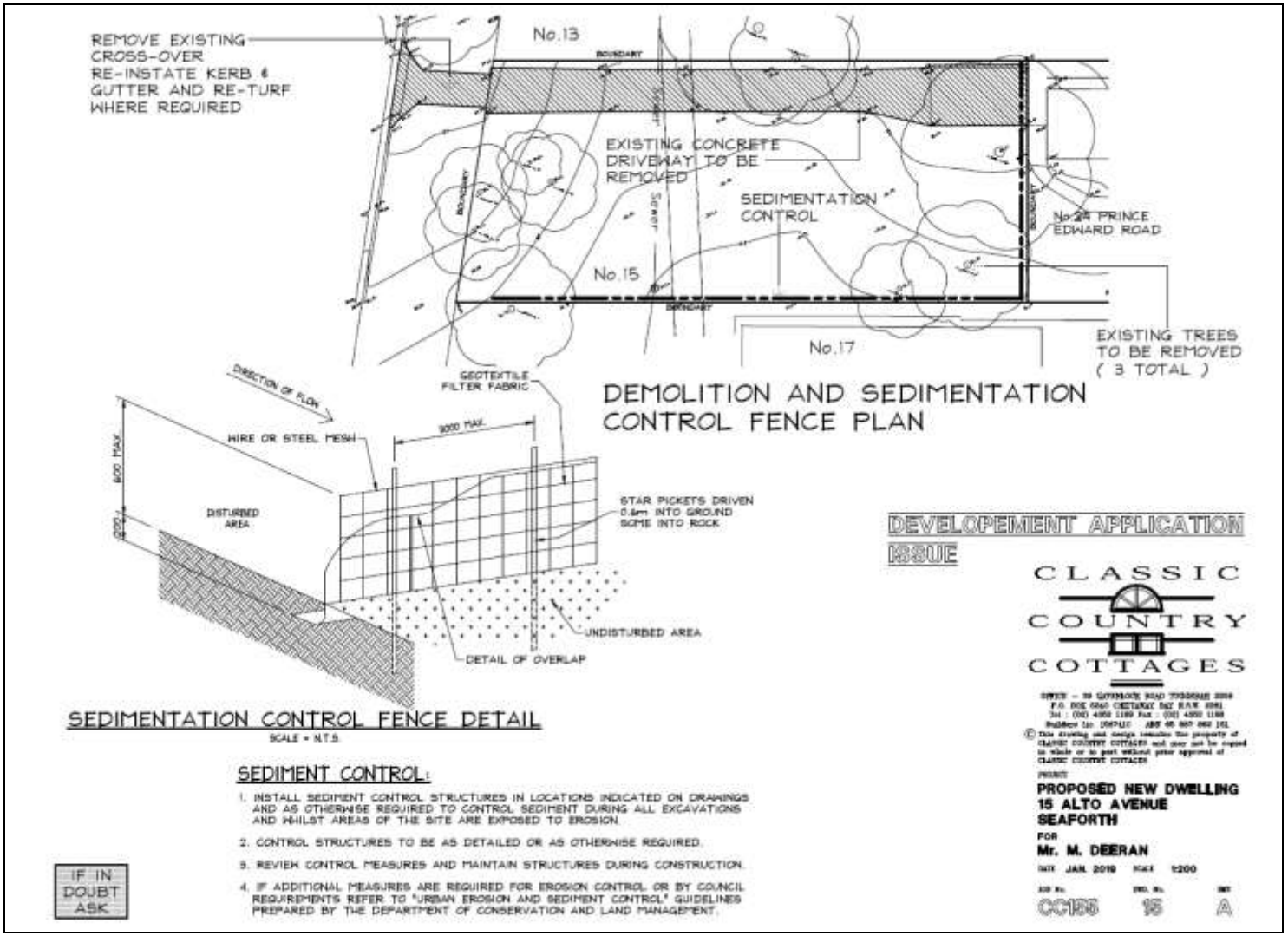


Figure 2: Illustrates (pages 8 thru 15) proposed Site Analysis Plan, Ground Floor Plan, First Floor Plan, Elevations, Driveway Set Out Plan, Demolition & Sedimentation Control Fence Plan.

4.3 Tree & Site Images

Figure 3: Illustrates trees located towards the front of the proposed new Lot 1.

Figure 4: Illustrates 'structural defect' & location of Tree #6.

Figure 5: Illustrates location of Tree #7.

4.4 The Tree – 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	Retention/ Significance Values	Form/Habit	Comments
1	***Corymbia gummifera*** *Red Bloodwood Gum*	<15.50	<13.00	0.44	5.30	2.40	Established	Good & Good	High & High	Typical	**Retain, Manage & Protect: Tree is considered to be easily retained without any compromise to its Useful Life Expectancy.**
2	***Jacaranda mimosifolia*** *Jacaranda Tree*										**Replace: Tree cannot be retained as per the proposed development. This tree is within the proposed driveway footprint.**
3	***Gordonia axilaris*** *Fried Egg Tree*	<8.00	<8.50 (linking canopy)	0.25 /0.22 /0.25	4.80	2.30	Established	Good & Good	Moderate & Moderate	Typical	**Replace: Tree cannot be retained as per the proposed development. This tree is within the proposed driveway footprint.**
4	***Eucalyptus piperita*** *Sydney Peppermint Gum*	<14.00	<7.00 (linking canopy)	<0.35	4.20	2.20	Established	Good & Good	High & High	Tree has significant leans towards the north	**Replace: Tree cannot be retained as per the proposed development. This tree is within the proposed residence/garage footprint.**
5	***Corymbia gummifera*** *Red Bloodwood Gum*	<16.00	<13.00 (linking canopy)	0.47	5.90	2.50	Established	Fair & Fair	High & High		**Replace: Tree cannot be retained as per the proposed development. This tree is within the proposed residence/garage footprint.**
6	***Melaleuca quinquenervia*** *Broad Leaf Paperbark*	<22.50	<10.00 (linking canopy)	<0.90	10.80	3.20	Established	Poor & Fair	High & Low	Tree displays significant structural defect	**Retain, Manage & Protect: Tree is considered to be easily retained without any compromise to its Useful Life Expectancy.**

	Identification	Height (m)	Crown (m)	DBH (m)	TPZ (m)	SRZ (m)	Age	Health/ Vigour	Retention/ Significance Values	Form/Habit	Comments
7	***Michelia figo*** *Port Wine Magnolia*	<5.50	<5.50	Many stems all <0.15	4.20	2.20	Established	Good & Good	Moderate & Moderate	Typical	**Retain, Manage & Protect: Tree is considered to be easily retained without any compromise to its Useful Life Expectancy.**

5 Discussion

Four (4) trees, three (3) protected species, are proposed to be replaced. Two (2) adjoining property trees are determined as able to be retained, managed & protected without compromise to their individual Useful Life Expectancy. One (1) subject site tree is additionally determined as able to be retained, managed & protected without compromise to its Useful Life Expectancy.

All discussed trees are at least medium term established (i.e. up to 25 years old), some would be long term established (i.e. more than 25 years. Tree #1, Tree #4 & Tree #5 are identified as being locally indigenous. (They may or may not be planted specimens.) The remaining four (4) discussed trees are identified as being planted specimens.

The proposed works albeit being within a smaller than original size prior to subdivision lot still has ample room for the planting/establishment of multiple new trees (front of subject site & within area where the existing & proposed to be demolished driveway). No long-term canopy density will be lost with careful selection & professional establishment of new trees, specified to be at least four (4) in number.

Tree #1 is within an adjoining property (17 Alto Avenue), it has a calculated Tree Protection Zone (from herein TPZ) radial distance of 5.30m & a Structural Root Zone (from herein SRZ) radial distance of 2.40m. Total TPZ surface area is approximately 89.00m^2. The proposed works within five meters (5.00m) of its tree trunk centre include a new driveway/driveway crossover & suspended (supported by concrete footings/piers) garage/bedroom (front of lot structure). As per plans provided the new driveway crossover/driveway finished levels appear to be supported by fill with battered edges. This equates to an approximate 7% breach, i.e. 6.20m^2 of its total TPZ surface area including building footing sites specified to be flexibly located so as avoid any significant diameter live woody root damage to Tree #1. By the definitions within the *Australian Standard (AS4970–2009 Protection of trees on development sites)* this equates to an acceptable '*minor encroachment*' as the breach can be made up in other directions. No SRZ radial distance (2.40m) is proposed.

This tree will be isolated from the proposed works by normal construction site boundary fencing, its TPZ surface area within the subject site will be specified to also be isolated by the installation of temporary metal mesh fencing (1.80m tall).

Tree #2 is within the subject site. It is located within the proposed new driveway crossover/driveway footprints. As such this tree is supported to be replaced.

Tree #3 is within the subject site. It is an exempt from protection tree (*NBC "Tree Management Provisions"*, specifically the *old* document; *Manly Council "Development Control Plan 2013"). As such this tree can be removed at any time regardless of any DA proposal.* It is also located within the proposed new driveway crossover/driveway footprints. As such this tree is supported to be replaced.

Tree #4 is within the subject site. Whilst located outside the proposed new driveway crossover/driveway/ building footprints both its SRZ & TPZ radial distances are compromised to an unsupportable degree by the proposed works. It is additionally confirmed to have a significant lean, the as proposed works are on top of its 'tension side' SDRZ supporting roots, this is not an acceptable outcome relative this tree's Useful Life Expectancy (from herein ULE). As such this tree is supported to be replaced.

Tree #5 is within the subject site. Whilst located outside the proposed new driveway crossover/driveway/ building footprints both its SRZ & TPZ radial distances are compromised to an unsupportable degree by the proposed works. Relative this tree's ULE the as proposed works are not able to co-exist with this tree. As such this tree is supported to be replaced.

Tree #6 is within an adjoining property (11 Alto Avenue), it has a calculated Tree Protection Zone (from herein TPZ) radial distance of 10.80m & a Structural Root Zone (from herein SRZ) radial distance of 3.20m. This tree (as briefed) has been approved by the NBC for removal on the grounds of a 'significant defect' relative to its 'structural integrity'. On the basis this tree has not been removed prior to the preparation of this document it is required to be discussed. (An adjacent very large Liquidamber tree also within the same adjoining property was recently removed.) The proposed works include demolition of the existing subject site concrete driveway. New works proposed within its TPZ radial distance is limited to concrete footings/piers supporting the new residence multiple level building. No SRZ radial distance breach is proposed. Should this tree still be present at the time of commencement of the proposed demolition of driveway & built form the following applies.

This tree will be isolated from the proposed works by normal construction site boundary fencing, its TPZ surface area (350.00m^2) within the subject site will be specified to also be isolated by the installation of temporary metal mesh fencing (1.80m tall).

Tree #7 is within the subject site, it has a calculated Tree Protection Zone (from herein TPZ) radial distance of 4.20m & a Structural Root Zone (from herein SRZ) radial distance of 2.20m. Total TPZ surface area is approximately 80.00m^2. The proposed works within five meters (5.00m) of its tree trunk centre is limited to concrete footings/piers required to support the new residence multi-level building. By the definitions within the *Australian Standard (AS4970–2009 Protection of trees on development sites)* this equates to an acceptable '*minor encroachment*' as the breach can be made up in other directions. The SRZ radial distance (2.20m) is very slightly breached by the proposd works, i.e. concrete footings/piers required to support the new residence multi-level building. This breach can be overcome by either cantilevering the closet corner of new residence multi-level building or using *flexibly located* concrete footings/piers in locations where the site can be confirmed as NOT damaging any significant diameter live woody tree roots.

All trees supported to be replaced must at maturity provide a similar or greater site canopy density than that provided by the existing discussed trees. A suitable to the local environment list of new tree species is provided within the Site Specific "Tree Plan of Management".

6 Site Specific "Tree Plan of Management"

Tree #1 is specified to be isolated from the proposed works by installation of *AS4970–2009* compliant 'temporary metal mesh fencing'. This creates an isolation zone able to be maintained in a manner whereby no builders materials of any description & including stockpiling of soil to occur on top of its subject site TPZ surface area. See *AS4970–2009, Section 4, clauses 4.1*

thru 4.6 & Section 5, clauses 5.1 thru 5.5 (pages 15 thru 23) for exact specifications/definitions required to be addressed.

Tree #6 (if not removed prior to the commencement of a determined DA) is specified to be isolated from the proposed works by installation of *AS4970–2009* compliant 'temporary metal mesh fencing'. This creates an isolation zone able to be maintained in a manner whereby no builders materials of any description & including stockpiling of soil to occur on top of its subject site TPZ surface area. See *AS4970–2009, Section 4, clauses 4.1 thru 4.6 & Section 5, clauses 5.1 thru 5.5 (pages 15 thru 23) for exact specifications/definitions required to be addressed.*

Tree #7 (if not removed prior to the commencement of a determined DA) is specified to be isolated from the proposed works by installation of *AS4970–2009* compliant 'temporary metal mesh fencing'. This creates an isolation zone able to be maintained in a manner whereby no builders materials of any description & including stockpiling of soil to occur on top of its subject site TPZ surface area. See *AS4970–2009, Section 4, clauses 4.1 thru 4.6 & Section 5, clauses 5.1 thru 5.5 (pages 15 thru 23) for exact specifications/definitions required to be addressed.*

- **Protected Tree #3, Tree #4 & Tree #5 are supported to be replaced.**
- **Replacement tree specimens (minimum of x2) are to be sourced from growers/suppliers whose stock meets the production benchmarks of the *Australian Standard (AS2303.2015 Tree stock for landscape use)* or *NATSPEC* specification for the production of quality container produced trees.**
- **New tree specimens (x4) are to be professionally planted & maintained for a minimum period of six (6) months once installed.**
- **Replacement trees are suggested to be planted within the front left-hand side corner of the subject site as well as within the area parallel to the 11 Alto Avenue (plus other) common boundaries where the existing concrete driveway is to be proposed to be demolished.**
- **No building materials of any description can legally be stored within the *TPZ* radial distance of any retained tree regardless of its protection status.**

See the document *AS4970–2009, Section 4, clauses 4.1 thru 4.6 & Section 5, clauses 5.1 thru 5.5 (pages 15 thru 23) for exact specifications/definitions required to be addressed.*

Below is a list of suggested suitable new tree species compatible with the local environment & the subject site.

Backhousia citriodora (Lemon Scent Myrtle)

Banksia integrifolia (Coast Banksia)

Banksia serrata (Old Man Banksia)

Banksia integrifolia (Coast Banksia)

Callitris rhomboidea (Oyster Bay Pine)

Coymbia gummifera (Red Bloodwood)

Elaeocarpus reticulatus (Blueberry Ash)

Eucalyptus robusta (Swamp Mahogany Gum)

Eucalyptus botryoides (Bangalay Gum)

Hymenosporum flavum (Native Franjipani)

Magnolia grandiflora cv. 'Exmouth' (Evergreen Magnolia)

7 Recommendations

- **Relative to the *DA* information as presented the *GMW Tree Consultancy* recommends the *DA* be lodged for determination as has been presented in documentation supplied by Matt Deeran (the property owner).**

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 & AQF level 8 Registered with Arboriculture Australia (Reg #1884) 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 n 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** *Immature* refers to a refers to a well-established but juvenile tree

SM *Semi-mature* refers to a tree at growth stages between immaturity & full size

M *Mature* refers to a full sized tree with some capacity for further growth

LM *Late Mature* refers to a full sized tree with little capacity for growth that is not yet about to enter decline

OM *Over-mature* refers to a tree about to enter decline or already declining

LS *Live Stag* 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 x 50)$^{0.42}$ x 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.

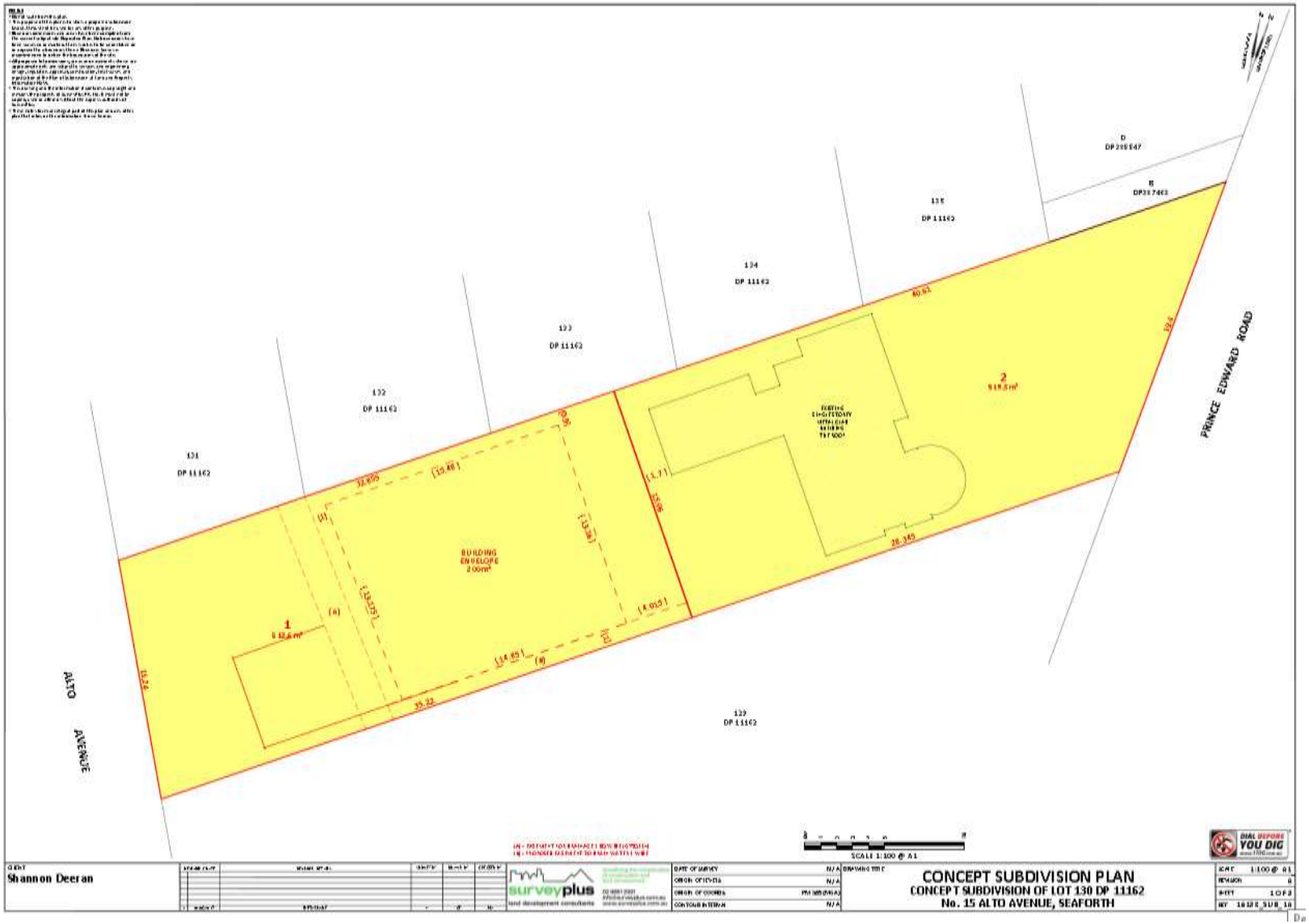
Crown Foliage Density of Potential (CFDP) refers to the density of a tree's crown in relation to the expected density of a healthy specimen of the same species. CFDP is measured as a percentage.

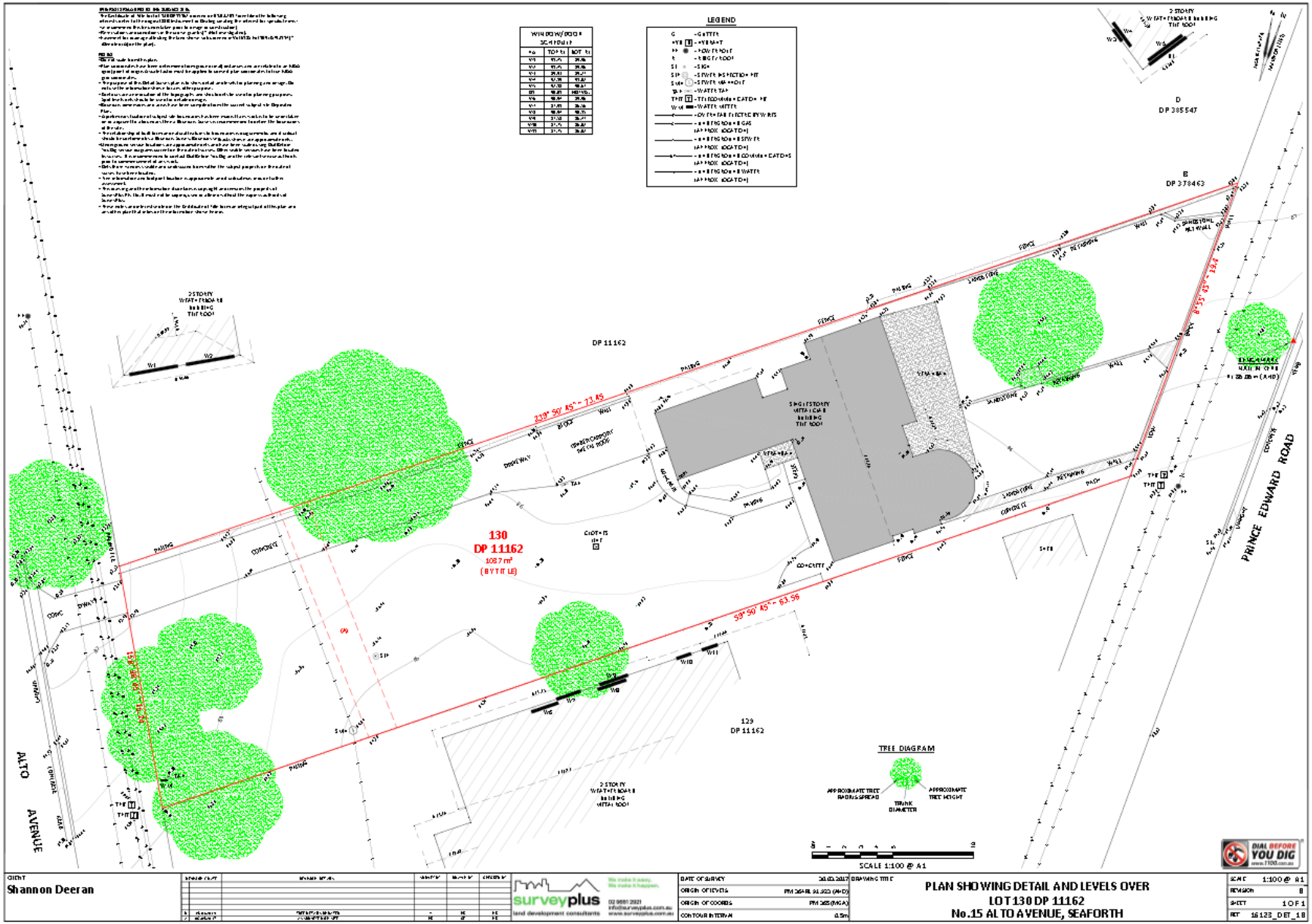
Epicormic growth/shoots refers to growth/shoots that are/have sprouted from axillary buds within the bark. Epicormic growth/shoots are a survival mechanism that often indicates the presence of a current or past stress even such as fire, pruning, drought etc.

Over Head Powerlines (OHP) Over head electricity wiring.

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

Appendix B – Site Survey




LEGEND
TREE DIAGRAM
PRINCE EDWARD ROAD
ALTO AVENUE
130
DP 11162
129
DP 11162
D
DP 385547
B
DP 378463
DP 11162
239° 50' 45" 73.45
59° 50' 45" 63.96
SCALE 1:100 @ A1
Shannon Deeran
surveyplus
land development consultants
PLAN SHOWING DETAIL AND LEVELS OVER
LOT 130 DP 11162
No.15 ALTO AVENUE, SEAFORTH
DRAWING TITLE
SCALE 1:100 @ A1
REVISION B
SHEET 1 OF 1
REF 16123_DET_18

Appendix C – 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.