

Arboricultural Impact Assessment

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Site Address

61 Cressy Road East Ryde NSW 2113

DP 30411

Prepared on:

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1. INTRODUCTION

On the 01/09/2022 Polaris Arbor Consultancy was engaged by Birch Residential to prepare an Arboricultural Impact Assessment Report; the brief was to provide a Pre-Development Report on 61 Cressy Road East Ryde NSW which is within the City of Ryde Council (CRC) area. The new development has proposed the demolition of the existing dwelling and re-building a two-storey residential home. The aim of this report is to determine if the development will impact any trees within the site and if so, to what degree, by either affecting their roots, trunk, or canopy within their TPZ and SRZ. While detailing which trees need to be protected, pruned, or removed. The report will give clear recommendations for possible modifications to the development and or trees in regard to building encroachments based on tree retention values for both the Tree Protection Zones (TPZ) and Structural Root Zones (SRZ) both of which govern development constraints and must be adhered to prior to and during the building process.

1.1 Site Description.

The site is in reference to DP 30411, the site is zoned residential. The block currently has a main house/dwelling located within the middle of the 575m block. The site topography is showing a minimal fall from the road to the rear of the property. A concrete driveway is situated on the front right of the property with the remainder of the land consisting of a covering of grass and small garden beds and a number of small and medium trees which were noted as native and exotic species. Soils were noted as disturbed within the front section of the block which is common although no excavation into the soil profile was undertaken, exploratory measures were not conducted at the time.

A paved area exists at the rear of the dwelling giving access to a courtyard area.

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from the centre of the tree. This report primary focus is on the incursions created by the development of the site through the building extensions.

Parties other than the Arborist determined the location of trees marked on the plans provided, referencing to the survey by the Arborist does not constitute conformation of the accuracy of the survey. Those trees, which were not located on the survey plans provided, have been located on the plans with their approximate centres marked on the tree location plan provided within Appendix #2.

Relevant plans and documents used in preparation of this assessment include.

Birch Residential. Sheets 1-3 dated 01/09/2022.

- Floor Plan scale 1:200
- Elevations NW, NE, SE, SW
- Site Plan 1:100

D J Hore Surveys dated 03/12/2021

- Survey Plan 1

2.1 TPZ and SRZ

All trees deemed significant within the development area have been allocated a Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) percentage and incursions are included in the Development Impact Assessment. See Table #3.

2.2 Australian Standards

- Australian Standard AS4970-2009 Protection of Trees on Development Site has been sighted and adhered to.
- Australian Standard AS4373-2009 Pruning of Amenity Trees has been sighted and adhered to.
- Australian Standard AS 4687-2007 Temporary Fencing and Hoarding.

2.3 Material Sighted

- City of Ryde Council (CRC) home page: [http:// http://www.ryde.nsw.gov.au](http://www.ryde.nsw.gov.au)
- Environmental Planning and Assessment Act 1979, (19/09/22)

- Australian Standard AS4373-2009 Pruning of Amenity Trees, 19/09/22.
- CRC LEP 2014 (08/11/21)
- CRC Native Vegetation Communities. (19/09/22)
- CRC Heritage Conservation Areas. (19/09/22)
- NSW Threatened Species Conservation Act 1995
- Environmental Protection and Biodiversity Conservation Act 1999

3. Observations/ Discussion

In total 11 trees within site have been assessed, directly relating to this development proposal within 61 Cressy Road East Ryde. For detailed analysis of each individual tree refer to Appendix #1 Tree Observation Matrix and refer to Appendix #2; Tree Location Plan for tree positions relating to re-development proposal, Observations were conducted using the Visual Tree Assessment (VTA) methodology (Mattheck 2007) and have been allocated a Safe Useful Life Expectancy (S.U.L.E) rating (Barrell 2009).

- In total 7 trees have been assessed as containing a low landscape significance and retention value rating, these trees are not considered worthy of any special measures to ensure their preservation, due to current health, condition, or suitability. They do not have any ecological, heritage or amenity value, or these values are substantially diminished due to their SULE.
- S.U.L.E, tree values shows 8 trees to be declining or are seen to be of poor form, health, and vigour or within an inappropriate geographical position. which should not restrict the new development proposal. Refer to: Table 1 for summary.
- A High and Medium Landscape Significance rating is shown by 4 trees within Appendix #1 Observation Matrix. These trees have been found to be of locally indigenous species and represents the original vegetation of the area and is a dominant or associated canopy species (Earthscape Horticultural Services Dec 2011)

Table 1: Summary of trees individual S.U.L.E assessed and contained within Appendix #1 Observation Matrix.

Number of Trees on Site	Exempt Trees	Medium and Long S.U.L.E	Short SULE or Remove
11	0	3	8
Tree Number 1-11		1, 2,10,	3, 4, 5, 6, 7, 8, 9, 11

3.1. Native & Indigenous Trees

out of the trees within site are classified as native trees to Australia and indigenous to the local CRC area. See table #2

Table #2 Native and Exotic Summary.

Total	Native & Indigenous Trees	Exotic Trees
Number of Trees	3	7
Tree Number	1, 2, 7	3, 4, 5, 6, 8, 9, 10

3.2. Noxious Weeds and or Exempt Exotic Species

None of the 11 trees were assessed as noxious weeds or exempt exotic species. According to CRC Tree Management Guidelines for Trees on Private Land 2014.

4. Development Impact Assessment

Tree Development Impact Assessment Schedule is a table of the data collected from the trees on site (see Table 2), which contains the Structural Root Zone and Tree Protection Zone in diameter and meters square, incursion percentage and with Minor Major relating to below or above the 10% permissible incursion percentage within the TPZ. See Appendix #1 observations, for further detailed analysis.

Below Table 3: Development Impact Assessment Table.

Id	Species and Common Name	TPZ m ²	TPZ m	SRZ m	Minor/Major Incursion	Incursion into TPZ %
1	<i>Callistemon spp</i> (Bottlebrush)	26.06	2.88	2.37	None	0%
2	<i>Lophostemon confertus</i> (Brush box)	12.57	2	1.5	None	0.00%
3	<i>Fraxinus excelsior</i> (Common ash)	12.57	2	1.5	None	0.00%
4	<i>Fraxinus excelsior</i> (Common ash)	12.57	2	1.5	None	0.00%
5	<i>Magnolia spp</i> (Magnolia)	12.57	2	2.02	None	0.00%
6	<i>Juniperus spp.</i> (Conifer)	68.81	4.68	2.02	Major	100.00%
7	<i>Callistemon spp</i> (Bottlebrush)	12.57	2	1.53	Major	34.20%
8	<i>Tibouchina urvilleana</i> (Tibouchina)	12.57	2	1.5	Major	14.20%
9	<i>Citrus chinensis</i> (Orange tree)	12.57	2	1.57	Major	100.00%
10	<i>Plumeria alba</i> (frangipani)	12.57	2	1.5	None	0.00%
11	<i>Dead stump</i>	0	0	0	None	0.00%

5. Trees requiring removal

Four trees are required for removal to accommodate the proposed development.

- In its present state 2 trees #6 and #9 have major 100% incursions within their Tree Protection Zone created by the building footprint and or driveway. Tree #11 is dead and has already been removed. Tree #8 is on the edge of the

driveway and has only 4% incursion over the allocated 10%, this tree could remain if no or no major roots are found within the driveway excavation area. Refer to Table 4 Schedule of proposed tree works.

5.1 Development impact on retained trees

- Six trees have no direct impact from the proposed development of the site. These trees all are outside the building envelope and have no major incursion into their TPZ or SRZ and if retained must be protected during the building process, refer to tree protection methodology as outlined in the Tree Management Plan in appendix #3 for implementation practices. Also refer to Australian Standard AS 4970-2009 Protection of Trees on Development Sites.

Table 4: Schedule of Proposed Tree Works

Tree #	Species	Current D.A 19/09/22	Requirements
1	<i>Callistemon spp</i> (Bottlebrush)	Retain	No incursion into the trees TPZ, refer to tree protection measures during construction within Tree Management Plan appendix #3
2	<i>Lophostemon confertus</i> (Brush box)	Retain	No incursion into the trees TPZ, refer to tree protection measures during construction within Tree Management Plan appendix #3
3	<i>Fraxinus excelsior</i> (Common ash)	Retain	No incursion into the trees TPZ, refer to tree protection measures during construction within Tree Management Plan appendix #3
4	<i>Fraxinus excelsior</i> (Common ash)	Retain	No incursion into the trees TPZ, refer to tree protection measures during construction within Tree Management Plan appendix #3
5	<i>Magnolia spp</i> (Magnolia)	Retain	No incursion into the trees TPZ, refer to tree protection measures during construction within Tree Management Plan appendix #3
6	<i>Juniperus spp.</i> (Conifer)	Remove	Major incursion into the trees TPZ of 100%, created by the proposed driveway. Tree with only fair health. Requires removal.
7	<i>Callistemon spp</i> (Bottlebrush)	Remove	Major incursion into the trees TPZ of 34.2%. Tree with included trunk and 20% deadwood within canopy. Requires removal.
8	<i>Tibouchina urvilleana</i> (Tibouchina)	Remove	Major incursion into the trees TPZ of 14.2%, created by the proposed driveway. Removal could be averted by monitoring driveway excavations.

9	<i>Citrus chinensis</i> (Orange tree)	Remove	Major incursion into the trees TPZ of 100%, tree directly under the building footprint, Requires removal.
10	<i>Plumeria alba</i> (frangipani)	Retain	No incursion into the trees TPZ, refer to tree protection measures during construction within Tree Management Plan appendix #3
11	Dead Stump	Removed	Dead already removed.

6. Conclusion & Recommendations

Within the current plans dated 01/09/22, 4 of the 10 trees still standing will incur major disturbance into their TPZ and SRZ and require removal to accommodate the development in its current configuration.

- Of the 4 trees required for removal, see point 5.1 Trees Requiring Removal, trees # 6 and # 9 have a 100% incursion into the TPZ.
- Tree #8: Tibouchina will be situated 1.2m away from the driveway, the TPZ of this tree is 2m and will incur a 4% incursion over the allowable 10%, with careful excavation work conducted within this area this tree can be saved if desired.
- Tree #7 is situated within 50cm from the proposed dwelling and will require removal to accommodate this proposal.
- The remaining 6 trees will have no incursion into their TPZ and should remain viable during and after the construction phases as long as Appendix 3 Tree Management Plan is adhered too. See point 5.2 Development Impact on Retained Trees for individual numbers.
- No excavation work is to be conducted within the TPZ of any remaining tree, a level 5 Arborist must be in attendance to oversee all and any excavation of the soil within the TPZ.
- No root above 40mm in diameter should be severed, any root under this size must be cut by the site arborist using a sharp saw or knife, no ripping or tearing of roots by machinery is acceptable.

- All trees that are to remain must be protected by TPZ fencing which should be 1.8m high chain wire, secured so not to be displaced by any movement of machinery or plant, if adjusting of the fencing positions are required the site arborist must be consulted first.

This report must be given and adhered to by the principal contractor prior to any work being conducted on site. Please refer to Tree Management Plan in appendix 2.

7. References

Australian Standards 2009 *Protection of trees on development sites AS4970-2009*, Sydney NSW.

Australian Standards 2007a *Pruning of Amenity Trees AS4373-2007*, NSW.

Australian Standards 2007b *Temporary Fencing and Hoarding AS4687-2007*, Sydney NSW.

NSW Threatened Species Conservation Act 1995. www.environment.nsw.gov.au

Harris,W, Clark,JR, Mattheny, NP, 2004. *Arboriculture: Integrated management of landscape trees, shrubs, and vines* 4th edition. Australia

M Kokot et al *Arboricultural Assessment and Development Impact Report* 2012

Mattheck, C, 2007. *Field Guide For Visual Tree Assessment* Forschungszentrum Germany

Shigo,A.L,1986. *A New Tree Biology: Facts Photos and Philosophies on Trees and their problems and proper care*, New Hampshire USA.

Lawrence,T, Norquay,P, Liffman,K, 1993, *Practical Tree Management: An Arborist Handbook*. Inkata Press Sydney Australia.

Earthscape Horticultural Services Dec 2011 *Determining The Retention Value of Trees on Development Sites*.

APPENDIX 1: TREE OBSERVATION MATRIX


Tree #	Species	Height (m)	DBH Trunk ; Buttress cm	S.U.L.E	Age	Live crown spread m		Diseases or Faulty	Health	Landscape significance	Comments
			1 -2.			N/S	E/W				
1	<i>Callistemon spp</i> (Bottlebrush)	6.5	45;13,12,12,10	Medium:B	Mature	6	6	None	Good	3	Medium SULE rating in good condition, minor problems.
2	<i>Lophostemon confertus</i> (Brush box)	4.5	13;12	Medium:B	Juvenile	4	4	None	Good	4	Medium SULE rating in good condition, minor problems.
3	<i>Fraxinus excelsior</i> (Common ash)	5	11;9	Short: D	Juvenile	1	2	Disease	Fair	6	Short SULE rating in only fair condition.
4	<i>Fraxinus excelsior</i> (Common ash)	5	14;9,7,7	Short: D	Juvenile	4	4	None	Fair	6	Short SULE rating in only fair condition.
5	<i>Magnolia spp</i> (Magnolia)	4.5	31;8,7,6,7	Short: C	Juvenile	4	4	Disease	Fair	5	Short SULE rating in only fair condition.
6	<i>Juniperus spp.</i> (Conifer)	8	45;28,27	Short: C	Mature	6	5	Disease	Fair	4	Short SULE rating in only fair condition.
7	<i>Callistemon spp</i> (Bottlebrush)	5	16;11,5	Short: D	Juvenile	4	4	Faulty	Fair	5	Short SULE rating in only fair condition.
8	<i>Tibouchina urvilleana</i> (Tibouchina)	4	12;8,5	Short: C	Juvenile	2	3	Disease	Fair	5	Short SULE rating in only fair condition.
9	<i>Citrus chinensis</i> (Orange tree)	5	17;10,8,7	Short: A	Mature	3	3	Disease	Fair	5	Short SULE rating in only fair condition.


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10	<i>Plumeria alba</i> (frangipani)	4.5	13;8,7,7	Medium:C	Mature	3	3	None	Good	5	Medium SULE rating in only fair condition, minor problems.
11	<i>Dead Eucalyptus.</i>	0	0	Dead		0	0				Already removed.

APPENDIX 2 TREE LOCATION PLAN

Below

Trees requiring removal. 

Trees to be retained. 

Storage area 



APPENDIX 3: TREE MANAGEMENT PLAN

1. Principals of Tree protection

The development site supervisor is responsible for familiarising and maintaining all tree protection measures as specified within this report, with all site contractors being made aware of and adhering to the tree protection requirements.

1.1 Protecting Trees on Development site.

The Tree Management Plan (TMP) identifies the main principals of protecting trees on development sites. The recommendations provided within the TMP are to be adopted under this proposal so that the trees which require retention remain viable.

The TMP is to be referred to as a tree protection and management tool where all site works are able to abide by the principals of tree protection

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1.2 Site Arborist

The appointed site arborist shall provide certification to the Principal Certifying Authority (PCA) that all tree protection methodologies as specified within this report has been conducted accordingly throughout the course of development works.

1.3 Fencing (TPF)

TPZ fences need to be erected for all trees within the site, see Tree Assessment schedule for TPZ and SRZ boundary's also within table #2 of this report. This must be done prior to any machinery being allowed on site and must not be moved without consent from the site arborist. Fencing materials and heights can be found in the AS 4687-2007 Temporary Fencing and Hoarding.

If development site constraints exit, the location of the TPZ fencing may be reduced or altered. Modifications of the TPZ location is to be specified and approved at a pre development site meeting between the appointed site arborist and the development site supervisor.

The location of the TPZ is to be constructed as to allow for best tree management practices while providing adequate development work access to finalise the construction proposal.

1.4 TPZ exclusion zone

The TPZ is a development exclusion zone, it is an area isolated from construction disturbances so that the tree remains viable. No works or storage of materials is permitted within the TPZ.

Appropriate signage shall be erected on the TPZ fencing identifying the prevention of any unauthorised activity and or access.

1.5 Appointing a Site Arborist

Prior to works commencing a qualified arborist with a minimum Australian Qualification Framework (AQF) Level 4 certification is to be appointed as the Site Arborist to address any development impacts that may occur.

The appointed site arborist is to undertake onsite inspections during any work into the trees SRZ to inspect site conditions, TPF and to provide further recommendations such as additional mulching to maintain soil moisture content within the TPZ.

1.6 The Site Supervisor

The development sit supervisor is responsible for enforcing all tree protection methodology, contacting, and liaising with the appointed site arborist must be made aware of any work being carried out within the TPZ and be onsite during any development activities within the SRZ of trees

1.7 HOLD POINTS

The Site Arborist must be in attendance for all Hold Points.

Tree Removals

1.7.1 During the removal on any trees on site that are within 6m of any tree that is to be retained. The tree removal works must be completed prior to the demolition stage.

Prior to Demolition

1.7.2 Directly after the erection of the TPZ fencing and laying of mulch and rumble boards where required within the TPZ area that will/may receive vehicular traffic prior to the demolition phase.

Prior to Construction

1.7.3 Site Arborist is to inspect and assess all retained trees after the demolition phase and before the beginning of the construction phase to ensure tree protection measures have been carried out as per the DA conditions for the site. Documentation is to be submitted to the consenting authority.

Tree Protection works – During Construction

1.7.4 The site arborist must attend site every 3 months during the construction phase to inspect and assess all retained trees and ensure all TPZ fencing is in accordance with point 1.3 of this TMP.

Tree Protection works – Post Construction

1.7.5 Upon completion of construction work the Site Arborist is to carry out an assessment of all trees retained and or affected by works. This assessment is to document any required on-going remedial care needed to ensure viable retention of trees affected. Documentation is to be submitted to the consenting authority.

2. Excavations within SRZ

Unless otherwise specified no works are permitted within the SRZ radius of any tree without prior onsite arborist consultation or direct site involvement. The SRZ setback is a development exclusion zone. Where works are proposed within the SRZ an air knife root investigation or hand digging is required to identify the potential impact which is to be assessed by the appointed site arborist.

2.1 Excavations With in the TPZ

To appropriately protect the root zone air knife investigation or hand digging is recommended to locate and expose any tree root which may be affected by the proposal of ripping by site machinery. Any tree root 40mm in diameter shall be clean cut, further advice from the site arborist is required where larger woody roots have been exposed.

2.2 Landscaping within the TPZ

Unless approved within this report no grade changes including cut and fill is to occur within the TPZ radius. Maintaining the existing soil levels, moisture and aeration is the key to significant tree preservation. All efforts are to be made in maintaining the TPZ soil moisture content and soil microorganism activity essential for maintaining good tree vigour.

2.3 Fill Materials Within the TPZ.

Fill materials within the TPZ shall be avoided where possible with the exception of an Arborist or Horticulturalist approved landscape grade soil for the purpose of minor landscaping requirements only.

2.4 Site Machinery

Demolition, excavation, and site construction machinery must ensure that no direct conflicts occur to trees, which may include canopy overhanging towards development activities.

In the event of tree damage, the appointed site arborist is to be notified immediately. The site arborist is to undertake remedial action to minimise any adverse impact. (et al M Kokot 2012)

2.5 Building and Scaffolding Modifications

Scaffolding should be erected outside the TPZ where possible according to the Australian Standard 2009. AS 2009 states the use of ply boards or mulching over an impervious sheeting to avoid soil contamination where scaffolding incurs into a trees TPZ.

2.6 Branch and Root Pruning

Branch reduction pruning should only be undertaken on trees which have a significant incursion into their canopy. In this case pruning should not exceed 10% and be in accordance with AS 4373-2007 as well as the Tree Preservation Order for LC. Diagrams and instructions on how to prune branches are found in (Lawrence, Norquay and Liffman 1993, p24). Where possible, branches should be tied back or

away from the development or scaffolding to reduce the amount of pruning. (Matheny and Clark, 1998, p81.)

Most tree roots are found in the top 1m of soil (Shigo, 1986, p197.). Any significant roots found should be cut with a root pruning saw (Harris, Clark, and Matheny, 2004, p277). Poor pruning at any stage in a tree's life can lead to decay entering the trees tissue. Pruning both above and below ground must be carried out by a minimal level 4 arborist.

2.7 TPZ Maintenance

The mulching and watering of the TPZ during the development process should be consistent with guidelines set out in AS 4970-2009, healthy vigorous trees will have a greater chance of overcoming development stresses and compartmentalising wound wood (Matheny and Clark, 1998, p90.) Therefor care is needed when excavating around trees. It is recommended that a fertiliser and maintenance program be started prior to and until the end of construction. According to (Harris, Clark, and Matheny 2004, p76) applying a fertiliser to retained trees the season prior and until the end of construction, with up to one-year post development may be beneficial.