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For

GFM Group Pty Ltd

(ACN 675 440 730) in its capacity as trustee of the GFM BTS Trust Subtrust No.4 (ABN 12 757 352 180)

Site location

1 - 7 Waterfront Place
Port Melbourne

Report type

Tree Protection Management Plan

Prepared by

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Friday, 14 February 2025

Ref: 5750 250214 CIR TPR Prourban Waterfront Port Melbourne 1-7 Pl.Docx

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1. Summary

GFM Group Pty Ltd (ACN 675 440 730) in its capacity as trustee of the GFM BTS Trust Subtrust No.4 (ABN 12 757 352 180) have commissioned Greenwood Consulting P/L to provide a Construction Impact/Tree Protection Report (CIR/TPR) for the site at 1-7 Waterfront Place, Port Melbourne.

1. This management plan pertains only to those 34 trees located off site that are proposed to be retained (Trees 1-28 and 31-36).
2. Of the 34 trees that are shown on the feature and levels survey as being located within the subject site (Trees 37-71):
    a. Trees 37 – 48 are proposed to be removed from the site and are not discussed further in this report.
    b. Trees 49 – 71 have been removed from the site and are not discussed further in this report.
3. Trees 29, 30 & 63 were shown on the survey provided but were not found on site.
    a. Trees 29 & 30 are understood to have been removed by council contractors.
    b. Tree 63 has uprooted.

It is proposed that all trees that are located outside the subject site are proposed to be retained.

This CIR/TPR details the estimated construction impacts for each of these trees and provides a structure by which to manage potential construction impacts for these trees during the construction phase of this project.

All recommendations within this CIR/TPR must be adopted and effectively implemented. Further arboricultural advice must be sought in the event that:

1. Any of the current design plans are modified in any way that could reasonably be expected to impact the retained trees.
2. Specific recommendations of this report cannot be complied with.
3. Any event occurs that requires modification of the requirements of this report.

This report addresses the requirements of the **City of Port Phillip Planning Permit No: 490/2020/A dated 3rd August 2021.**

All of the trees addressed in this report are likely to remain viable within the proposed development provided that the recommendations of this report are adopted and effectively implemented.

2. Document control

File reference	File type	Modifications	Date
5750 221222	*CIR TPR*	Original document. Construction Impact/Tree Protection Report for 34 trees.	14/11/2025
5750 230531	*CIR TPR*	Modified document. Root investigations & TPZ corrections Trees 18, 19, 24, 25, 31, 32 & 36.	31/05/2023
5750 241224	*CIR TPR*	Report modified for current plans.	24/12/2024
5750 250206	*CIR TPR*	Report updated based on comments.	06/02/2025

3. Introduction

This management plan was commissioned by GFM Group Pty Ltd to assist in the preservation of the health and longevity of the retained trees at 1-7 Waterfront Place, Port Melbourne.

Specifically, the report addresses the following issues:

- The health and structural condition of these trees.
- Significant issues that might affect the health, structure, and longevity of these trees.
- Actions that might be taken to address any perceived issues.

Trees are numbered as per the original report where possible.

The site was inspected by Daniel van Kollenburg, previously of this office, on Friday the 21st of August, 2020 and Tree Root Investigations were undertaken by Roger Greenwood of this office on the 23rd May 2023.

A further site inspection has not been undertaken at this time.

4. Documents referenced

Date	Title	Author	Company
08/02/2021	Preliminary arboricultural assessment (Ref: 5750 210208 PAR)	DvK	Greenwood Consulting
26/05/2020	Additional feature & level survey (Ref: 31928)	MC/JG/JLM	Veris
17/01/2025	Ground Plan (Ref: 131042 22100 Rev A)	Not stated	Woods Bagot
17/01/2025	Basement 02 (Ref: 131042 22098 Rev A)	Not stated	Woods Bagot
17/01/2025	Basement 01 (Ref: 131042 22099 Rev A)	Not stated	Woods Bagot
17/01/2025	Level 01 Plans (Ref: 131042 22101 Rev A)	Not stated	Woods Bagot
03/08/2021	Planning Permit (Ref: 490/2020/A)	Not stated	City of Port Phillip

5. Scope

This report pertains only to those trees that are proposed to be retained adjacent to the site (Trees 1 – 36 and excluding Trees 29 & 30).

The Tree Protection Report section of this report is based on the adoption and effective implementation of the recommendations of the Construction Impact Report section. Failure to adopt and effectively implement these recommendations may invalidate the Tree Protection Report section.

This report is focused entirely on the protection of those 34 trees that are proposed to be retained adjacent to the site and in close proximity to the site.

Matters relating to the impact of the proposed development on these trees are outlined in Section 10 – Construction Impact.

It is noted that all of the trees within the site, with the exception of Trees 33 - 47 have been removed.

Trees 33 – 36 inclusive are located on the adjoining property to the west and are proposed to be retained.

6. Notes

1. It is understood that the removal of trees from within the site is already permitted under the existing town planning permits.
    a. While this is implied in the permits reviewed, it does not appear to be directly specified within these documents.
2. The TPZ intrusions have been calculated using the surveyed tree locations.
    a. These locations appear to be slightly different from the tree locations used in the original report and so the TPZ intrusions are slightly different.
3. Within this document the document titles of Tree Management Plan, Tree Management Report, Tree Protection Plan and Tree Protection Report have the following meanings.
    a. Tree Management Plan is a broad format plan style document that illustrates the site or sections thereof.
        i. Also known as a Tree Protection Plan.
    b. A Tree Management Report is a report style document that documents in written format all of the details for the tree management program.
        i. Also known as a Tree Protection Report.
2. The column label "**ID"** is used in all the tables throughout this report. This refers to the tree identification number and to the tree numbering found on the "Site plan". This number is the same as the **"Tree ID"** found in the "Tree data" section of the report.

7. Implementation of report

This report will generally specify a series of actions across the construction of the proposed project and these will often form part of the Town Planning Permit for the project.

These actions will generally include site inspections, inspection documentation and report preparation and may be part of a bond return provision for public trees.

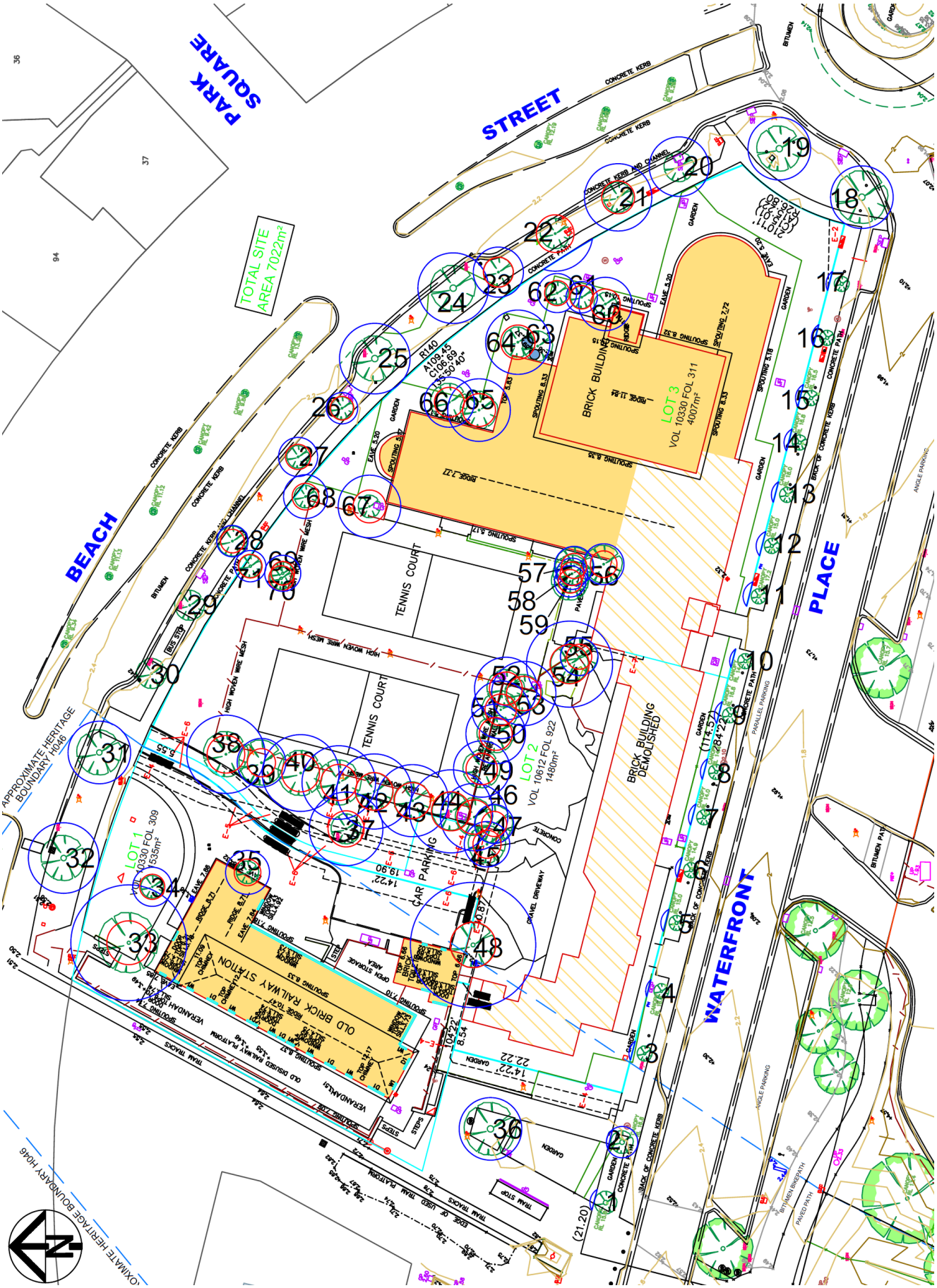
Compliance with these actions is generally part of the Town Planning Permit conditions.

It is the client's responsibility to:

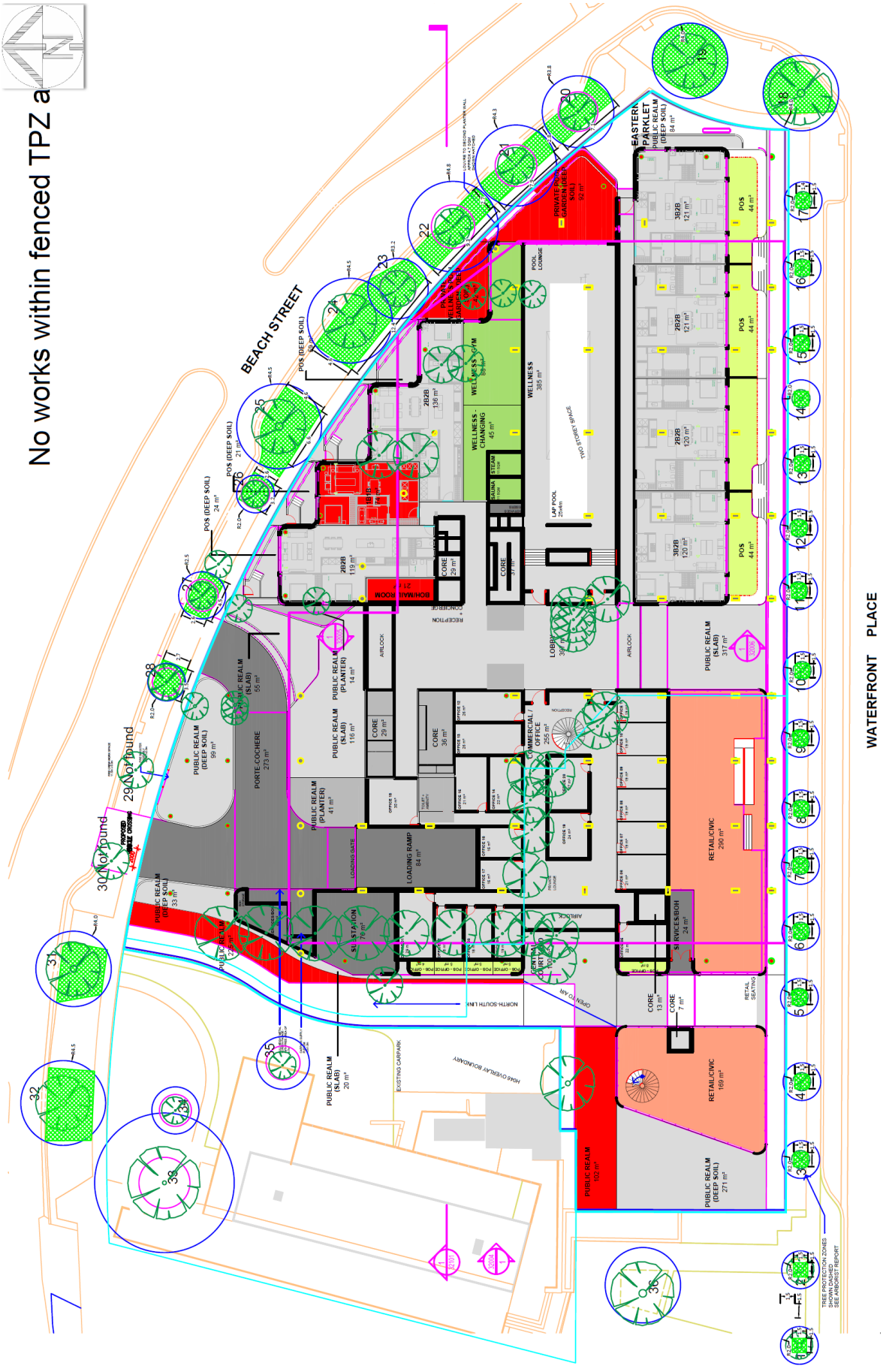
1. Engage a Project Arborist for the project construction.
    a. R. Greenwood Consulting P/L or other qualified arborist.
2. Notify the Project Arborist of the project commencement date.
    a. Commencement is generally the first physical action for the construction of the project.
    b. A weeks' notice of commencement is generally desirable.

3. Ensure that the Tree Management Schedule (Section: 14 Tree management schedule) is effectively implemented.

8. Site plan - existing



9. Site plan - proposed



10. Tree summary data

This table contains a summary of data pertaining to all trees shown and numbered on the enclosed feature and levels survey.

Underlined and italicised species names have not been assessed. Generally these trees are <5m tall, not found or stumps. The construction impact values are blank for these records.

1. **Retention value**: The retention value of the tree to the site.
    a. Tree number and species name are **Bold** for High and Very high values trees.
2. **Retained?:** Indicates whether the tree is proposed to be retained on the site.
3. **Construction impact:** Indicates the impact of the proposed development on the tree.
    a. **None:** Works do not intrude onto the tree's TPZ.
    b. **Low:** Construction intrusion is less than 10% of TPZ and contiguous area exists to compensate for any loss.
    c. **Moderate:** Construction intrusion exceeds 10% of TPZ but construction methods or other factors make tree retention possible.
    d. **High:** Construction intrusion is excessive and tree retention is generally considered not possible within the development as currently proposed.
    e. **Blank:** The tree has not been assessed.
4. **Location:** Whether the tree is located on the site or adjacent to the site.
    a. **Site:** the tree is located on the site.
    b. **Off site:** the tree is located on land adjoining the site.
        i. Trees in this category should generally be preserved without significant impact.

ID:	Genus / Species:	Retention Value:	Retained?:	Construction Impact:	Location:	SRZ:	TPZ:	Height (m) / Trunk circ (cm):
1	Trachycarpus fortunei	Moderate	Retained	None	Off site	0	2	13/123
2	Trachycarpus fortunei	Moderate	Retained	None	Off site	0	2	16/129
3	Trachycarpus fortunei	Moderate	Retained	Low	Off site	0	2	7/123
4	Trachycarpus fortunei	Moderate	Retained	Low	Off site	0	2	13/104
5	Trachycarpus fortunei	Moderate	Retained	Low	Off site	0	2	12/94
6	Trachycarpus fortunei	Moderate	Retained	Low	Off site	0	2	14/107
7	Trachycarpus fortunei	Moderate	Retained	Low	Off site	0	2	12/101
8	Trachycarpus fortunei	Moderate	Retained	Low	Off site	0	2	12/101
9	Trachycarpus fortunei	Moderate	Retained	Low	Off site	0	2	15/116
10	Trachycarpus fortunei	Moderate	Retained	Low	Off site	0	2	14/107
11	Trachycarpus fortunei	Moderate	Retained	Low	Off site	0	2	16/110
12	Trachycarpus fortunei	Moderate	Retained	Low	Off site	0	2	14/129
13	Trachycarpus fortunei	Moderate	Retained	Low	Off site	0	2	16/116
14	Trachycarpus fortunei	Moderate	Retained	Low	Off site	0	2	15/119
15	Trachycarpus fortunei	Moderate	Retained	Low	Off site	0	2	15/107
16	Trachycarpus fortunei	Moderate	Retained	Low	Off site	0	2	13/119

ID:	Genus / Species:	Retention Value:	Retained?:	Construction Impact:	Location:	SRZ:	TPZ:	Height (m) / Trunk circ (cm):
17	Trachycarpus fortunei	Moderate	Retained	Low	Off site	0	2	15/113
18	**Phoenix canariensis**	High	Retained	None	Off site	0	3	14/217
19	**Phoenix canariensis**	High	Retained	None	Off site	0	3	14/217
20	Banksia integrifolia	Low	Retained	Low	Off site	2.1	3.8	6/101
21	Banksia integrifolia	Low	Retained	Low	Off site	2.2	4.3	7/113
22	Banksia integrifolia	Moderate	Retained	Moderate	Off site	2.4	4.8	9/126
23	Banksia integrifolia	Low	Retained	Low	Off site	1.9	3.2	7/85
24	Phoenix canariensis	Moderate	Retained	Low	Off site	0	3.5	7/192
25	Phoenix canariensis	Moderate	Retained	Low	Off site	0	3.5	7/211
26	Banksia integrifolia	Low	Retained	Low	Off site	1.5	2	4/41
27	Banksia integrifolia	Low	Retained	Low	Off site	1.6	2.5	7/66
28	Banksia integrifolia	Low	Retained	Low	Off site	1.5	2	5/47
31	Phoenix canariensis	Moderate	Retained	None	Off site	0	3	7/179
32	Phoenix canariensis	Moderate	Retained	None	Off site	0	3.5	7/157
33	Allocasuarina littoralis	Low	Retained	None	Off site	2.8	7.4	10/195
34	Callistemon salignus	Low	Retained	None	Off site	1.6	2.5	4/66
35	Callistemon 'Kings Park Special'	Low	Retained	None	Off site	1.7	2.8	7/72
36	Phoenix canariensis	Moderate	Retained	None	Off site	0	3	9/211

Total number of tree/s referred to in this report(Total): 34

11. Construction impact

ID	Genus / species	DBH	SRZ	TPZ	TPZ	ConP	Ret Value	Retained?
The following 19 tree/s are shown as Retained on the plans provided.								
3	*Trachycarpus fortunei*	39	0	2.0	= TPZ	1.6	Moderate	Retained
4	*Trachycarpus fortunei*	33	0	2.0	= TPZ	1.7	Moderate	Retained
5	*Trachycarpus fortunei*	30	0	2.0	= TPZ	1.4	Moderate	Retained
6	*Trachycarpus fortunei*	34	0	2.0	= TPZ	1.6	Moderate	Retained
7	*Trachycarpus fortunei*	32	0	2.0	= TPZ	1.4	Moderate	Retained
8	*Trachycarpus fortunei*	32	0	2.0	= TPZ	1.5	Moderate	Retained
9	*Trachycarpus fortunei*	37	0	2.0	= TPZ	1.5	Moderate	Retained
10	*Trachycarpus fortunei*	34	0	2.0	= TPZ	1.6	Moderate	Retained
11	*Trachycarpus fortunei*	35	0	2.0	= TPZ	1.2	Moderate	Retained
12	*Trachycarpus fortunei*	41	0	2.0	= TPZ	1.2	Moderate	Retained
13	*Trachycarpus fortunei*	37	0	2.0	= TPZ	1.5	Moderate	Retained
14	*Trachycarpus fortunei*	38	0	2.0	= TPZ	1.4	Moderate	Retained
15	*Trachycarpus fortunei*	34	0	2.0	= TPZ	1.4	Moderate	Retained
16	*Trachycarpus fortunei*	38	0	2.0	= TPZ	1.5	Moderate	Retained
17	*Trachycarpus fortunei*	36	0	2.0	= TPZ	1.6	Moderate	Retained
20	*Banksia integrifolia*	32	2.1	3.8	= TPZ	3.1	Low	Retained
21	*Banksia integrifolia*	36	2.2	4.3	= TPZ	2.9	Low	Retained
22	*Banksia integrifolia*	40	2.4	4.8	= TPZ	2.9	Moderate	Retained
23	*Banksia integrifolia*	27	1.9	3.2	= TPZ	2.8	Low	Retained
SRZ: Structural Root Zone. TPZ: Tree Protection Zone. mTPZ: Tree Protection Zone.(Canopy)								
ConP: Construction Proximity.								
Number of trees in this section (total):		19						

The TPZ intrusion for each of these trees has been calculated from the latest plans and the original surveyed tree locations. This assessment has created a slightly different TPZ intrusion extent from the original reporting for these trees.

11.1. Trees 3 – 17

The construction of the site boundary will permanently excise the occupied soil volume and it is assumed that the basement extends to the property boundary along this side of the site.

The proposed basement will intrude into the TPZ for each of these trees by up to 16.6% of TPZ surface area (Figure 1).

While the basement extends from Tree 6 to Tree 17, the treatment of the soil volume within the area of Trees 3, 4 & 5 is not known and is not detailed in the plans provided.

It is assumed that site works will, for Trees 3, 4 & 5, excise the TPZ up to the property boundary.

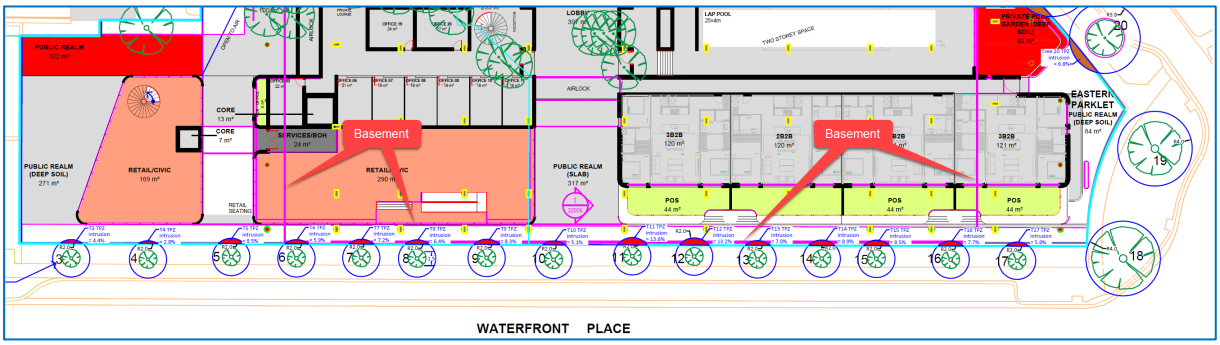


Figure 1 Basement TPZ intrusion for Trees 3 - 20

The TPZ intrusion for these trees is as set out below.

Table 1 TPZ intrusions for Trees 3 - 17

ID	%	ID	%	ID	%	ID	%	ID	%
3	4.4%	**6**	5.9%	**9**	8.3%	**12**	13.2%	**15**	8.5%
4	2.8%	**7**	7.2%	**10**	5.1%	**13**	7.0%	**16**	7.7%
5	8.5%	**8**	6.4%	**11**	13.6%	**14**	8.9%	**17**	5.8%

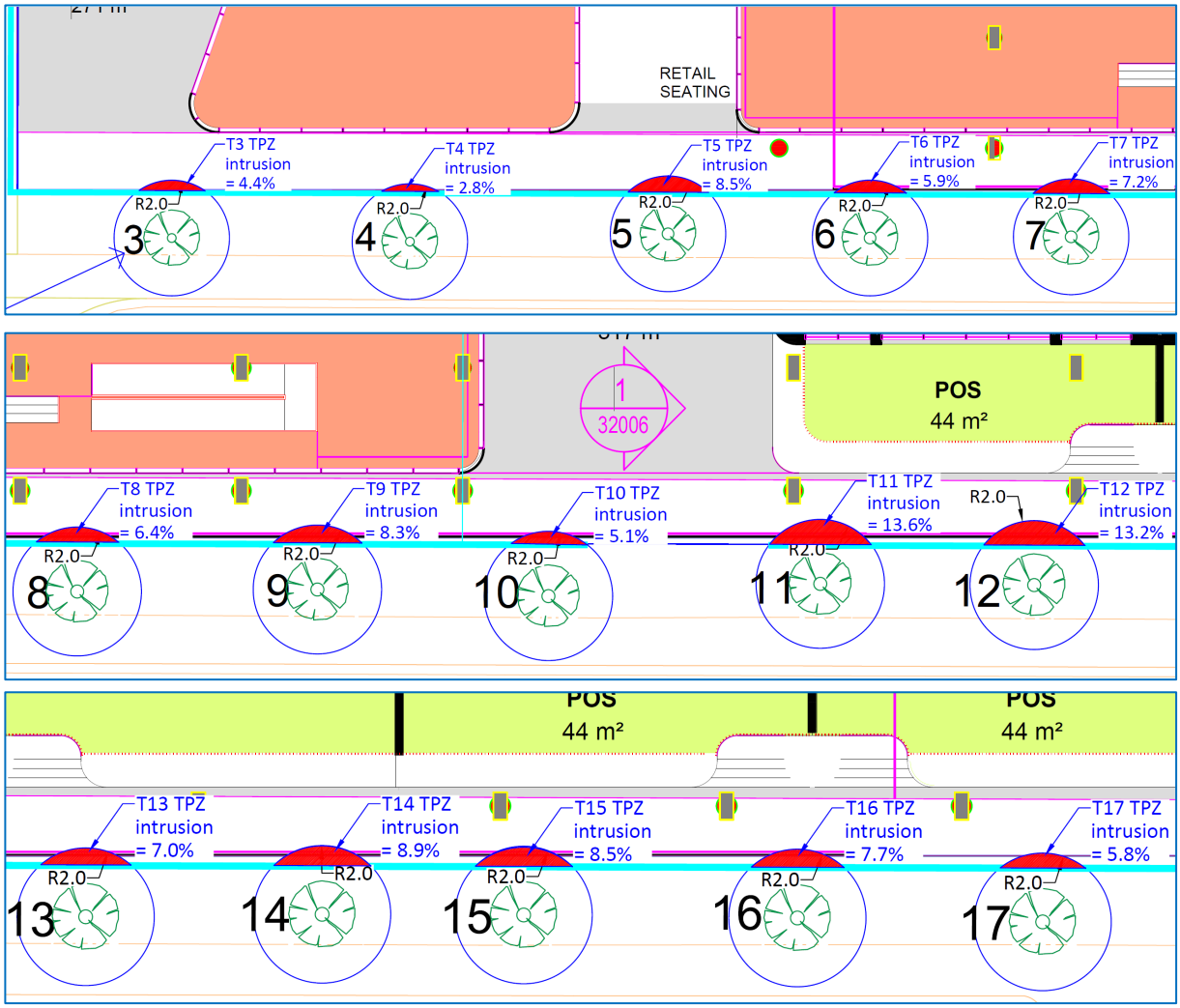


Figure 2 Trees 3 - 17 TPZ intrusion

11.1.1. Trees , 3, 4, 5, 6, 7, 8, 9, 10, 13, 14, 15, 16 & 17

The TPZ intrusion for these trees is less than 10% of TPZ surface area and the impact of the proposed works is expected to be low or very low.

These trees will remain viable within the proposed development.

11.1.2. Trees 11 & 12

The TPZ intrusion for these trees is greater than 10% and, under AS 4970 this is a major encroachment and it must be demonstrated that the trees will remain viable within the proposed works.

Tree root investigations were undertaken along the alignment of the proposed basement excavation for Trees 5, 11, 15 & 16 and no significant tree root mass was observed in these locations (Section 15 Tree root investigations – Trees 5, 11, 15 & 16).

While the TPZ intrusion for these trees exceeds the 10.0% mandated under AS 4970, given the low level of tree root mass within the excavated sections, the tolerance of this species to tree root severance and the large soil volume to each side of the trees, it is expected that these trees will tolerate the proposed TPZ intrusion without any significant reduction in their Useful Life Expectancy.

Accordingly, the TPZ intrusion for each of these trees is considered acceptable and all these trees are expected to remain viable within the proposed development.

The basement excavation must be constrained, within the TPZ for these trees, to the property boundary alignment.

11.2. Trees 20 & 21

These two trees are located on the road reserve and a review of Nearmap aerial imaging indicates that there has been no impediment to the extension of tree roots onto the subject site. Accordingly, it is expected that these trees will have root mass within the subject site.

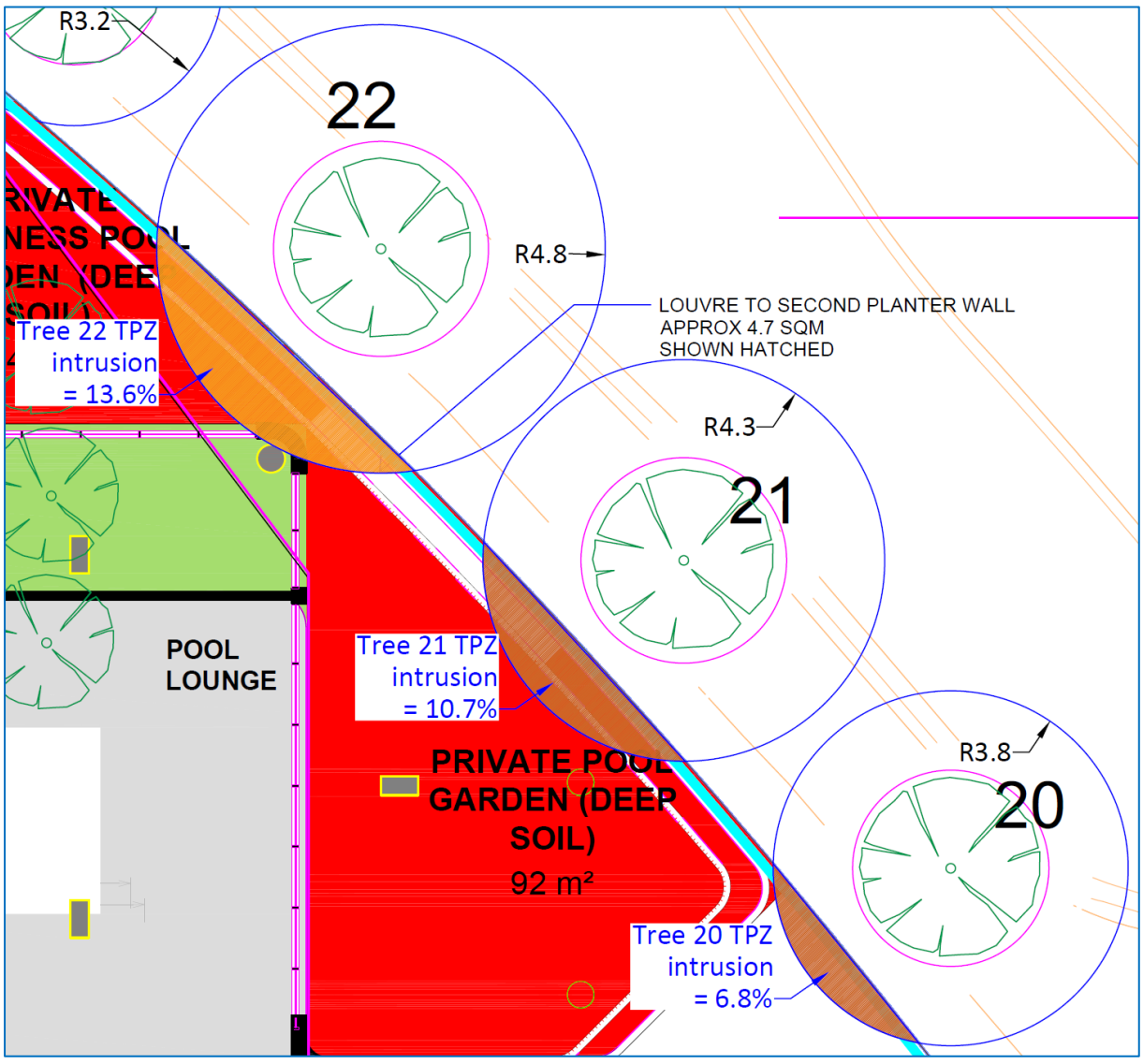


Figure 3 TPZ intrusion for Trees 20, 21 & 22

It is expected that the proposed development will require excavation up to the site boundary and through the full depth of the tree root zone. This soil volume will be permanently excised.

The TPZ intrusions for these two trees are:

1. Tree 20 – 6.8%.
2. Tree 21 – 10.7%.

Given that the TPZ intrusions for these two trees are under the 10% of TPZ surface area, it is likely that these two trees will remain viable within the proposed development.

These trees will remain viable within the proposed development.

11.3. Tree 22

This tree is located on the road reserve and a review of Nearmap aerial imaging indicates that there has been no impediment to the extension of tree roots onto the subject site. Accordingly, it is expected that these trees will have root mass within the subject site.

It is expected that the proposed development will require excavation up to the site boundary and through the full depth of the tree root zone. Approximately 13.6% of the TPZ for this tree will be permanently excised.

Given that a significant part of the TPZ for this tree is occupied by the road carriageway and that this soil volume is likely to be relatively inhospitable to tree root extension, it is likely that this 13.6% TPZ intrusion will have a moderate impact on the health and longevity of this tree.

This impact could be ameliorated by the improvement of the growing conditions for this tree (mulch and irrigation) or by preserving the soil volume for this tree within the site.

Either of these recommendations would avoid significant impact to this tree arising from the proposed development.

If these recommendations cannot be achieved, then it is likely that this tree will be vulnerable to drought and nutrient stress.

This tree will remain viable within the proposed development provided that the recommendations of this report are adopted and effectively implemented.

12. Recommendations

The following recommendations must be adopted and effectively implemented.

12.1. Trees 3 – 17

1. The proposed basement excavation must be constrained to the property boundary alignment.
    a. Excavation or soil slumping beyond the boundary line and within the TPZ for these trees must be avoided.
        i. Shoring may be required to prevent soil slumping into the basement excavation.

12.2. Tree 22

2. Either the growing conditions for this tree must be improved or the soil volume within the site must be preserved.
    a. If the soil volume is to be preserved, then:
        i. The soil volume within the TPZ for this tree, within the subject site and outside the proposed building footprint must be maintained as is.
            1. Excavation or soil disturbance within the area specified above must be avoided.
            2. This specification must be annotated on all of the project plans as appropriate.
    b. If the growing conditions for this tree are to be improved, then:
        i. The entirety of the TPZ within the road reserve and that it outside the paved areas must be mulched to a depth of 10cm.
        ii. Fully automated drip irrigation must be installed within the above area.
        iii. The mulch and irrigation must be maintained for a minimum of 5 years.

12.3. Tree protection

3. Tree protection fencing must be installed as set out below prior to any other works being undertaken.

12.4. Gantry

4. Any proposed gantry must be designed in conjunction with the Project Arborist and installed under the supervision of the Project Arborist.

12.5. Dilapidation report

5. A dilapidation report must be undertaken for all retained trees immediately following the completion of demolition and prior to any other works being undertaken.
    a. A completion dilapidation report must be undertaken at practical completion of the construction phase.

13. Tree Protection Report

13.1. Overview of trees

A total of thirty-four (34) trees are addressed within this report. These trees were assessed using Visual Tree Assessment methodology (Mattheck and Breloer 1994) and their height, trunk Diameter at Breast Height (DBH) was measured.

- Trees 1-17 are located within the Waterfront Place road reserve to the south of the subject site.
- Trees 18 & 19 are located within the road reserve to the east of the subject site.

- Trees 20-28, 30 & 31 are located within the Beach Street road reserve to the north of the subject site.
- Trees 33, 34, 35 & 36 are located on the adjoining land to the west of the subject site.
    - The plans provided indicate that there are no works proposed near Trees 33, 34, 35 & 36 and so the subject site boundary will be sufficient to act as tree protection for these trees.

13.2. Services

1. All services must be located outside of the TPZ of retained trees.
2. Where services cannot be located outside of the TPZ of retained trees, then they must be installed either by;
    a. Directional boring under the TPZ.
        i. The top of bore must be a minimum of 800mm below NGL.
    b. Hydro-vacuum excavation under the supervision of the Project Arborist.
3. Open trenching must be avoided for service installation within the TPZ of retained trees.

13.3. Pruning

It is not expected that pruning of any of the retained trees will be required. However, should any pruning be required then the following recommendations must be adopted and effectively implemented.

1. Where pruning is required to provide a construction clearance, the Project Arborist must be notified to create a pruning specification.
2. Any pruning that might be required must only be undertaken with the written consent of the Responsible Authority i.e. City of Port Phillip.
3. All pruning works must be conducted by a minimum AQF Level 3 (or higher) qualified arborist, in accordance with AS 4373 2007 – Pruning of Amenity Trees.
4. Where required, pruning works must be carried out prior to construction.
    a. Any pruning works required during construction must be carried out under the supervision of the project arborist.

13.4. Dilapidation report

6. A dilapidation report must be undertaken for all retained trees immediately following the completion of demolition and prior to any other works being undertaken.
    a. A completion dilapidation report must be undertaken at practical completion of the construction phase.

13.5. Tree Protection Fencing (TPF)

1. Tree protection fencing must be installed around Trees 1-17 as shown on the Tree Protection Plan (Ref: *5750 230531 TPP*) created for this site (Section 9) prior to the commencement of any works to prevent impact to the above ground parts of these trees.
    a. Trees 1-17 must be boxed with mesh fencing or plywood boxing (Figs. 1 & 2).
        i. Boxing must be a minimum of 1.5m x 1.5m (width & depth) around the trees, 1.8m in height.
        ii. Boxing must be free standing, with no part of the tree protection attached to the trees.
    b. The Tree Protection Zone, as identified by the Tree Protection Fence must not be entered without consent from the Project Arborist.
    c. TPZ areas enclosed in tree protection fencing must be irrigated as required throughout the project.
        i. The Project arborist must advise as to the requirement for irrigation over the duration of the project.

Figure 1 Mesh boxing example

Figure 2 Plywood boxing example

    d. There is to be no placement of fill within the Tree Protection Zone.
    e. Machinery is not to come within 2 metres of the above ground portion of any tree, except where this overhangs an existing roadway or driveway.
    f. No fuel or other chemicals are to be stored or mixed within the vicinity of a Tree Protection Zone.

13.5.1. Tree Protection Fencing – Trees 1 – 3 & 36

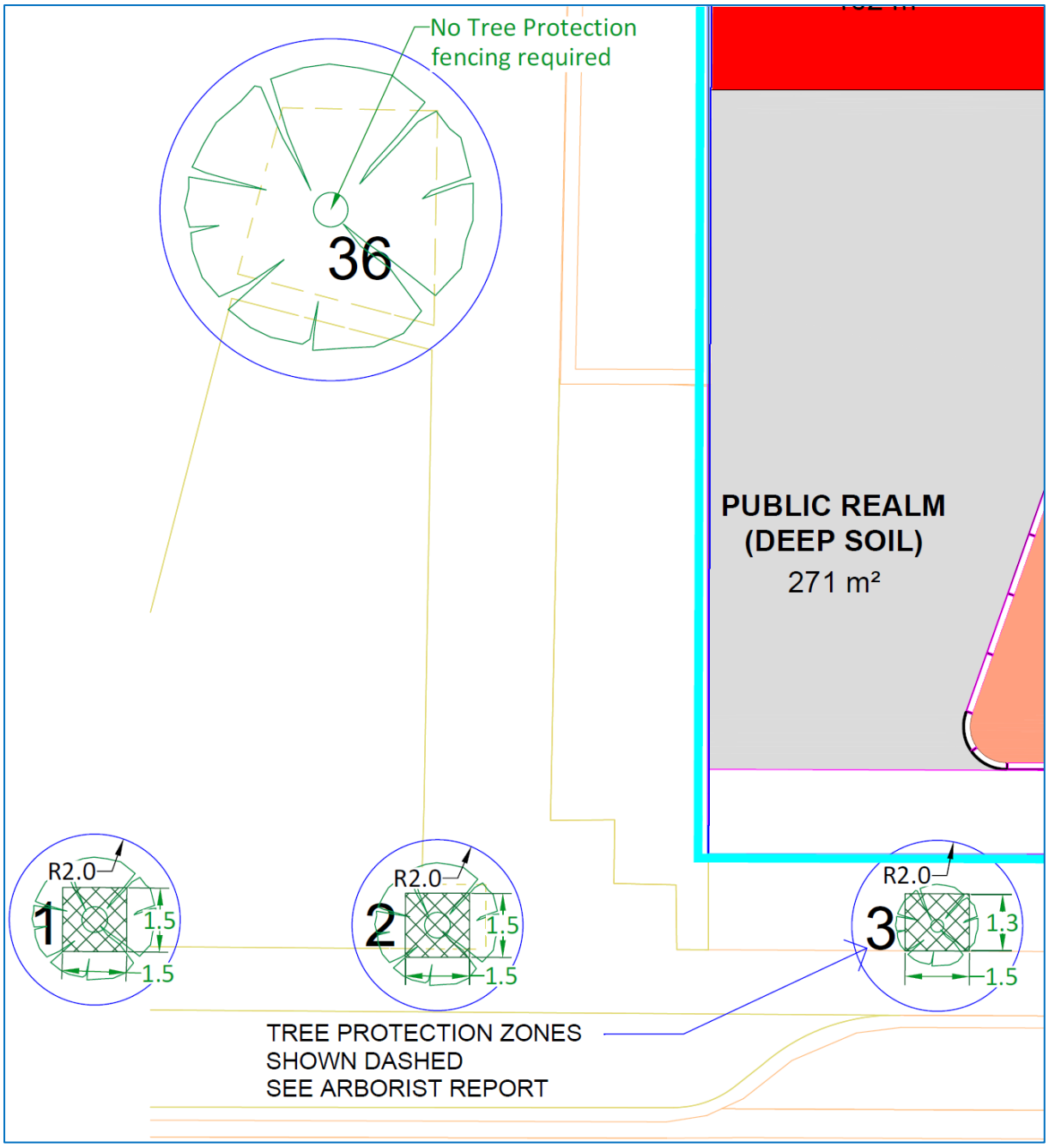


Figure 4 Tree protection Fencing for Trees 1 - 3 & Tree 36

13.5.1. Tree Protection Fencing – Trees 4 – 8

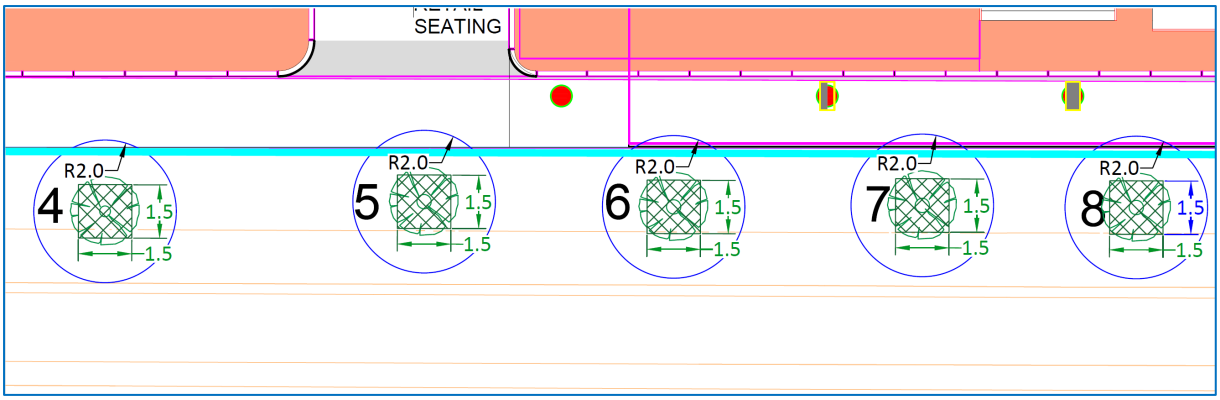


Figure 5 Tree protection Fencing for Trees 4 - 8

13.5.2. Tree Protection Fencing – Trees 9 - 13

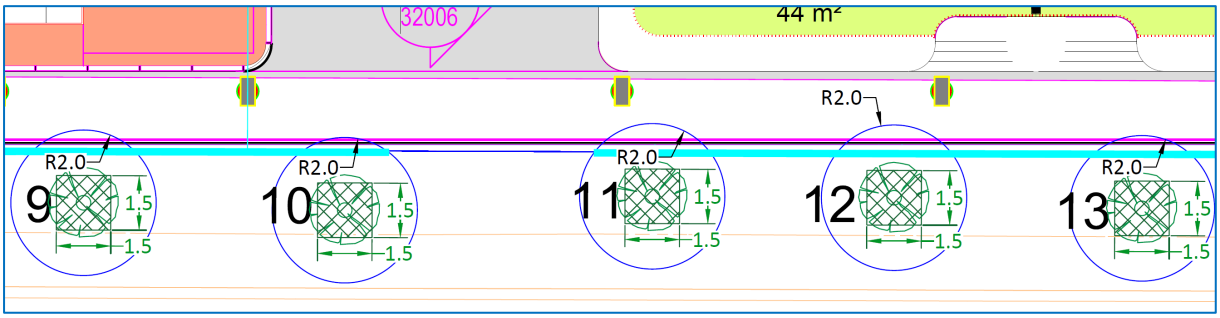


Figure 6 Tree protection Fencing for Trees 9 - 13

13.5.3. Tree Protection Fencing – Trees 14 – 17

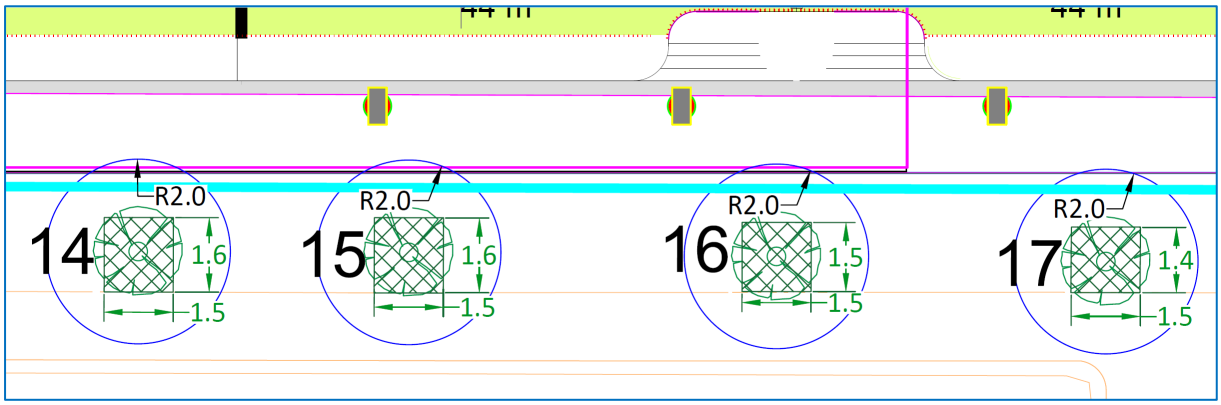


Figure 7 Tree Protection Fencing for Trees 14 - 17

13.5.4. Tree Protection Fencing – Trees 18 - 20

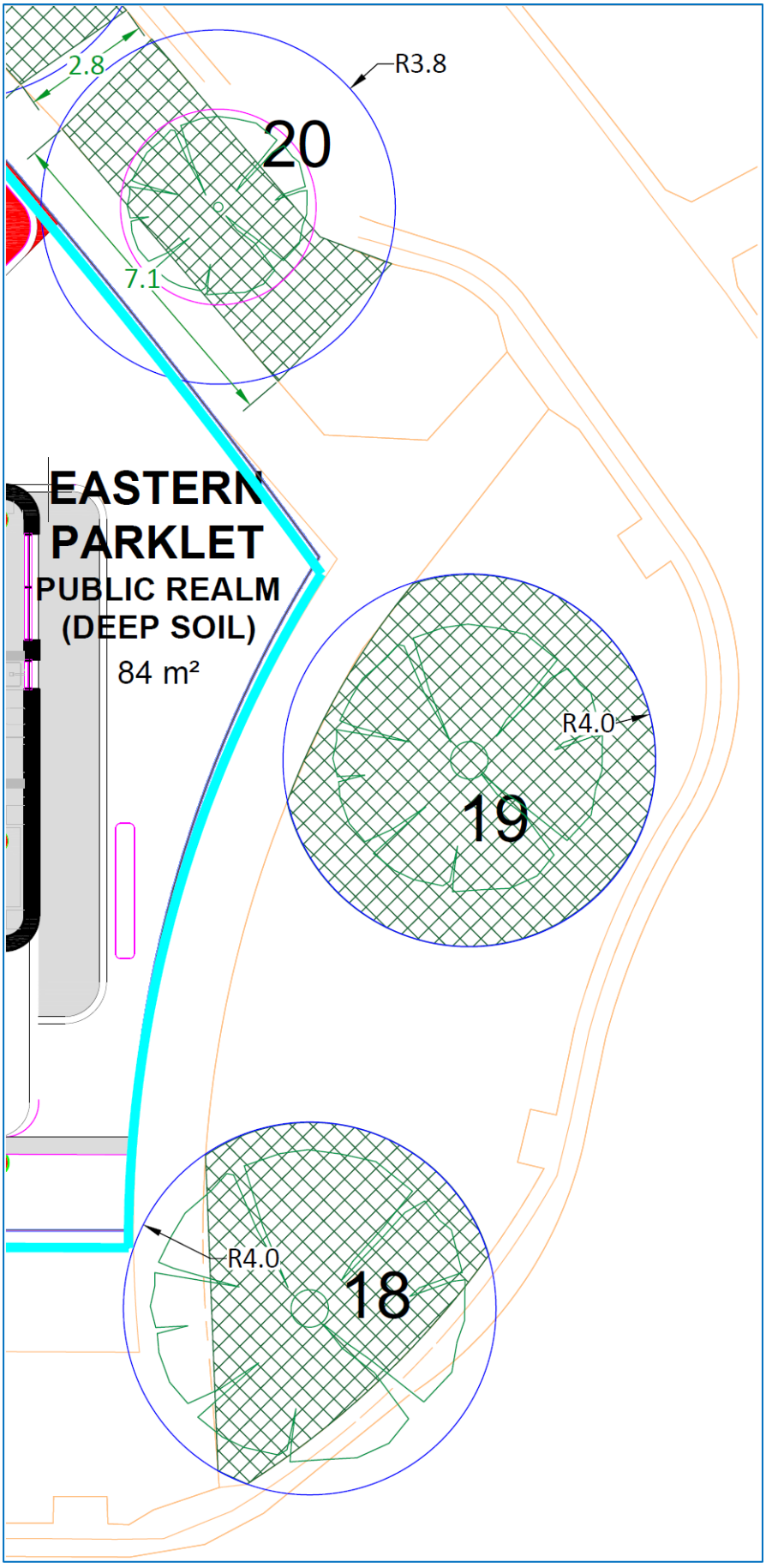


Figure 8 Tree Protection Fencing for Trees 18 - 20

13.5.6. Tree Protection Fencing for Trees 21 - 24

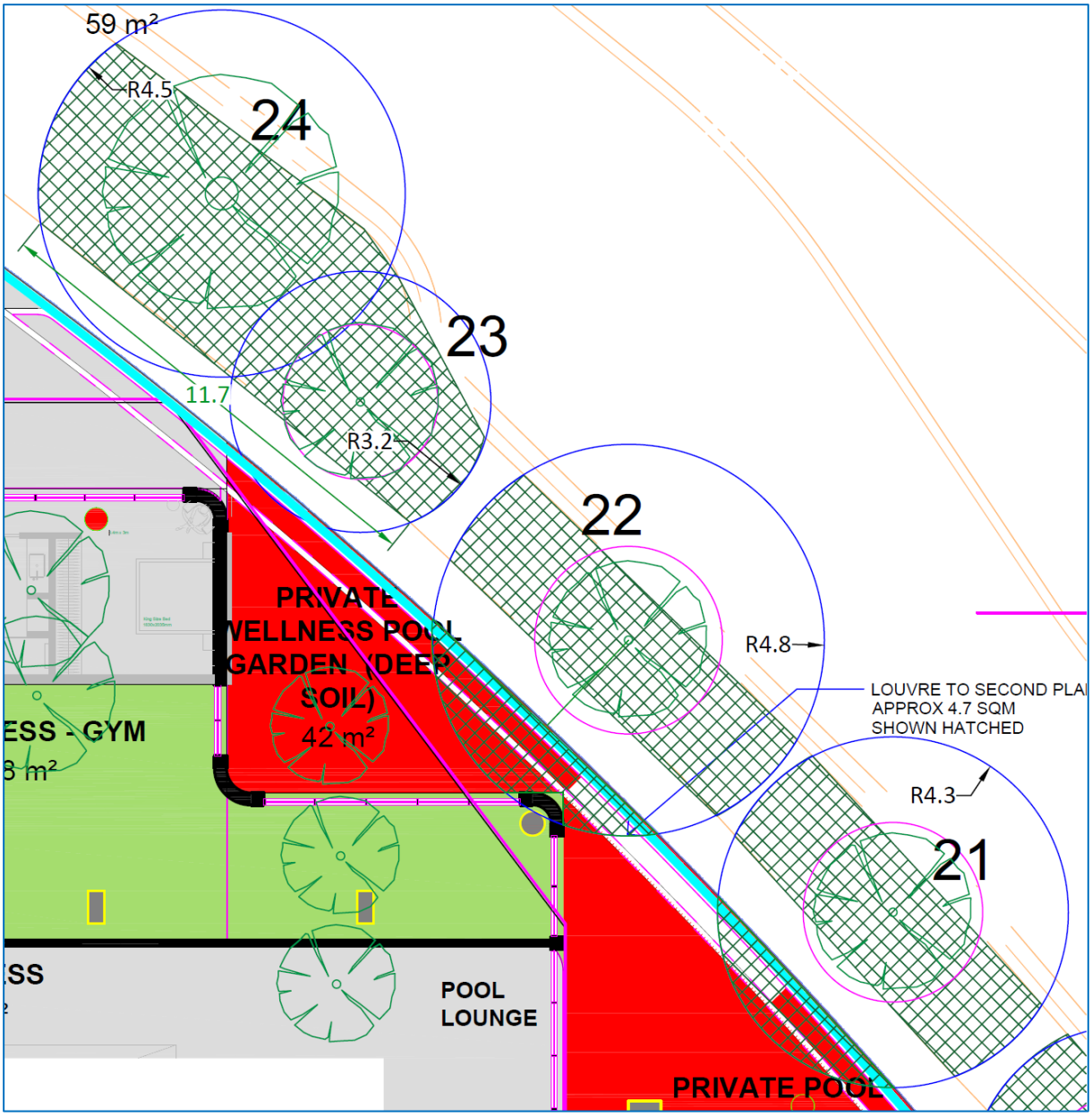


Figure 9 Tree Protection Fencing for Trees 21 - 24

13.5.7. Tree Protection Fencing for Trees 25 - 28

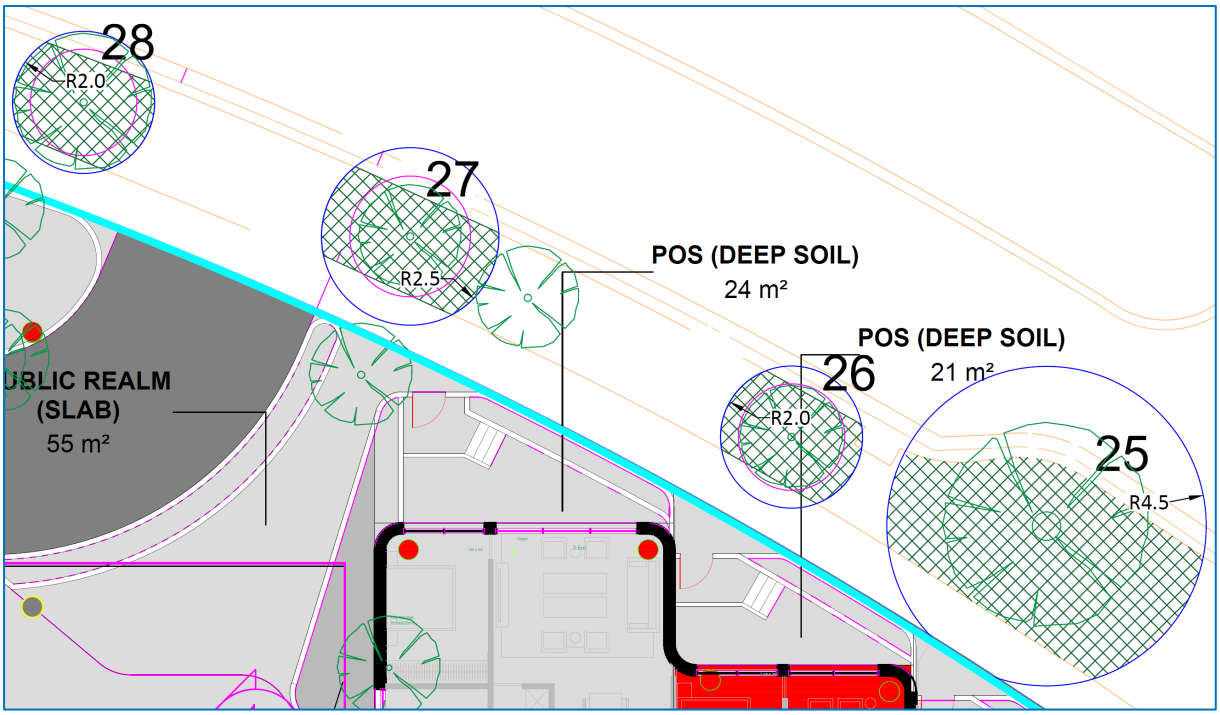


Figure 10 Tree Protection Plan for Trees 25 - 28

13.5.8. Tree Protection Fencing for Trees 31 & 32

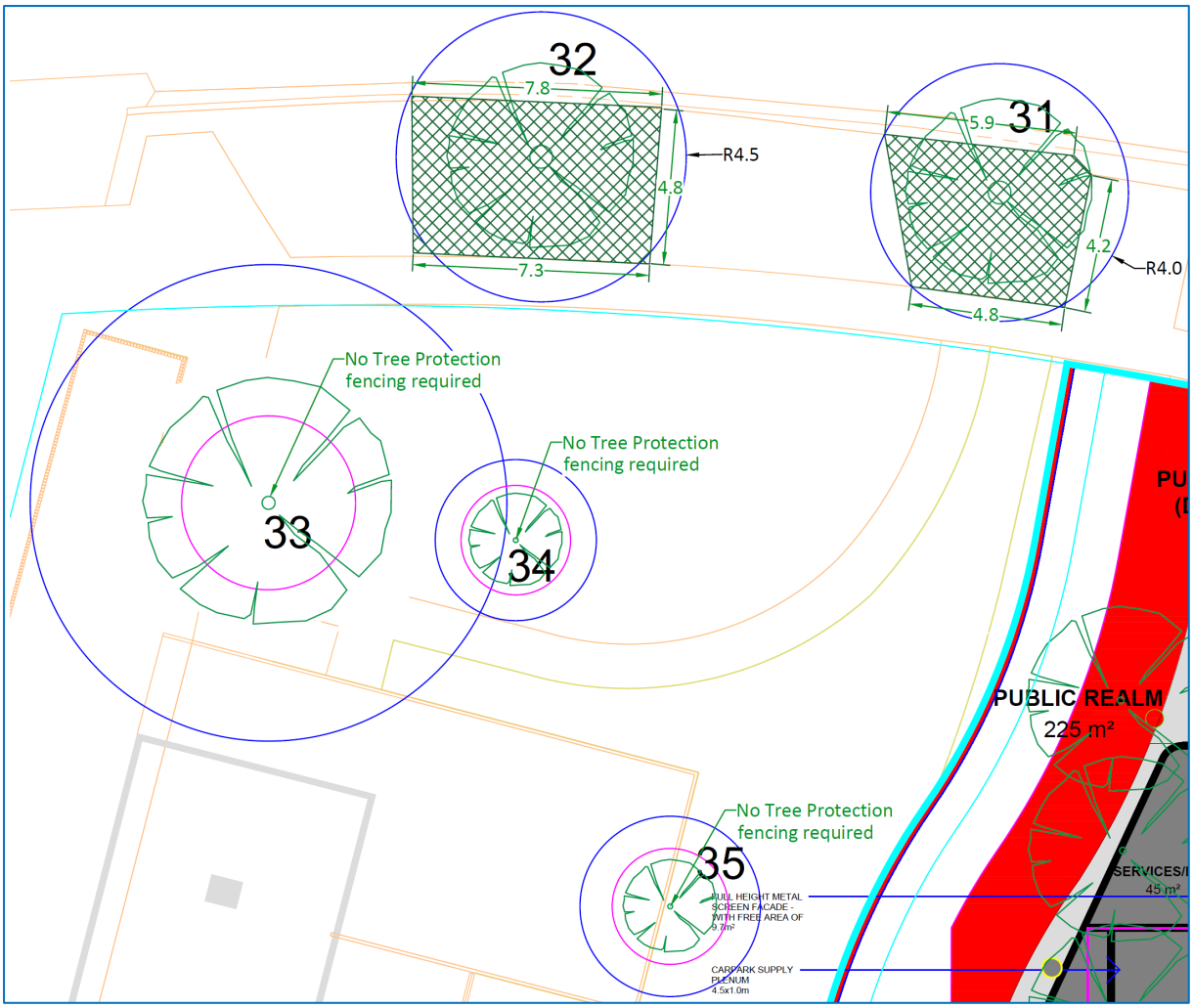


Figure 11 Tree Protection Fencing for Trees 31 - 35

13.6. Construction phase

1. Any civil works to remove/replace the existing pavement within the TPZ of Tree 1-32 must be conducted under the supervision of the Project Arborist.
    a. There must be no excavation below that of the existing pavement subbase during these works.
2. The existing site conditions outside the subject site but within the TPZ of these trees must be preserved.
3. If a public protection gantry is proposed to be constructed at any part of the site, then it must be designed to accommodate Trees 1-32.
    a. Gantry design must be undertaken in conjunction with the Project Arborist.
    b. Gantry erection near these trees must be conducted under Project Arborist supervision and impacts to the above ground parts of the trees must be avoided.

13.7. Post construction

1. Remove tree protection fencing if still in place.
2. The Project Arborist must inspect all trees and certify that all tree protection measures have been adopted and effectively implemented.

14. Tree management schedule

PA = Project Arborist. PM = Project Manager.

Item #	Project stage	Action	Responsible	Notes
1.	Pre-commencement.	Appoint project arborist.	PM	
2.	Pre-commencement.	Pre-commencement meeting between project arborist, project manager and main contractor to identify all works within the TPZ of retained trees and to identify any tree preservation issues.	PM	Notification of project commencement required.
3.	Pre-commencement.	Review Tree Management Report to ensure that it accurately reflects the proposed works and tree protection requirements.	PA	
4.	Demolition	All demolition within the TPZ for retained trees must be supervised by the project arborist unless specifically stated otherwise above.	PM	Notification of demolition works required.
5.	Pre-construction.	Undertake a dilapidation report for all retained trees.	AP	Immediately following demolition and prior to any other works.
6.	Pre-construction.	Installation of tree protection fencing and ground protection as specified	PM	
7.	Pre-construction.	Verification of tree protection fencing	PA	Notification required from PM
8.	Construction.	Monthly inspections to ensure that all tree preservation measures remain intact and effective and to check for damage to trees.	PA	Any tree protection breaches to be notified to all stake holders and rectified ASAP. Compile all inspection reports.
9.	Post construction.	Undertake a final site inspection / dilapidation report and compile inspection reports following practical completion of site works.	PA	Practical completion to be notified by project manager.
10.	Post construction.	Determine the need for any ongoing tree management actions and document as required.	PA	
11.	Post construction.	Implement ongoing tree management activities as required.	PA	

15. Tree root investigations – Trees 5, 11, 15 & 16

At the request of the City of Port Philip, a non-destructive tree root investigation was conducted for Trees 5, 11, 15 & 16 because the TPZ intrusion is greater than 10% for these trees. The root investigation was carried out by this office on Wednesday the 10th of May, 2023.

A 2.0m trench was excavated along the edge of the TPZ intrusion for these trees to a depth of approximately 500mm-600mm. Compressed air excavation was used for these works.

Minor fibrous root mass was observed in each of the trenches. As stated above, palm trees can readily replace damaged or severed tree roots. The extent of root mass encountered is not expected to impact on tree health and longevity.

15.1. Tree 5

15.2. Tree 11




15.3. Tree 15

15.4. Tree 16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16. General Tree Protection requirements.

This section outlines the general tree protection requirements that pertain to the entire site. These must be addressed in the induction of all contractors on the site. It is the responsibility of the Site Supervisor / Project Manager to ensure that these requirements are observed and effectively implemented throughout the duration of the project.

If it is not possible to meet these requirements, then alternative measures must be agreed with the project arborist and responsible authority as appropriate.

16.1. Definitions

The following definitions apply within this report:

Item	Definition
Tree Protection Zone (TPZ)	A definition of the soil volume that the tree is likely to require to obtain sufficient water and nutrients to retain physiological function. (12 x Diameter at Breast Height (in metres) as per AS 4970.
Structural Root Zone (SRZ)	The likely extent of the structural scaffold roots that stabilise the tree (as per AS 4970)
Effective Tree Protection Zone (EFTPZ)	The total area of the TPZ that is proposed to be protected and as set out in this report. This zone may be protected using fencing, ground protection or other methods.
Fenced Tree Protection Zone (FTPZ)	That part of the TPZ that is to be protected using fencing of some form. This is distinct from other TPZ areas that are to be protected using Ground Protection. Multiple trees may be protected within a single FTPZ or multiple FTPZ's may apply to a single tree.
Ground Protection Zone (GPZ)	That part of the TPZ that is within the Effective Tree Protection Zone but which cannot reasonably be protected with fencing. This area is protected using methods set out below. Multiple trees may be protected within a single GPZ or multiple GPZ's may apply to a single tree.

16.2. Project Arborist

A Project Arborist must be appointed to oversee the implementation of this plan and also be the primary point of contact should any requirement in this Tree Management Plan be unable to be adhered to or where construction supervision is required.

The Project Arborist must be appointed by the project manager prior to the commencement of any works on the site.

16.3. Tree Protection Fencing

Tree Protection Fencing must be installed prior to the commencement of works more or less as shown in Figure 12.

Tree Protection Fencing must:

4. Be approved by the Responsible Authority prior to the commencement of any works.
5. Encompass the available TPZ as set out earlier in this document.
6. Be at least 1.8 metres high.
7. Be constructed of cyclone (chain mesh) wire or similar.
8. Be supported so as not to be easily moved.
9. Be braced as required to provide an adequately robust structure.
10. Be retained in place until the completion of construction.
11. Be accessible via a single gate that must remain locked at all times except for when access is required for tree inspection and maintenance.
12. Be mulched to a depth of 100 mm using arboricultural grade mulch.

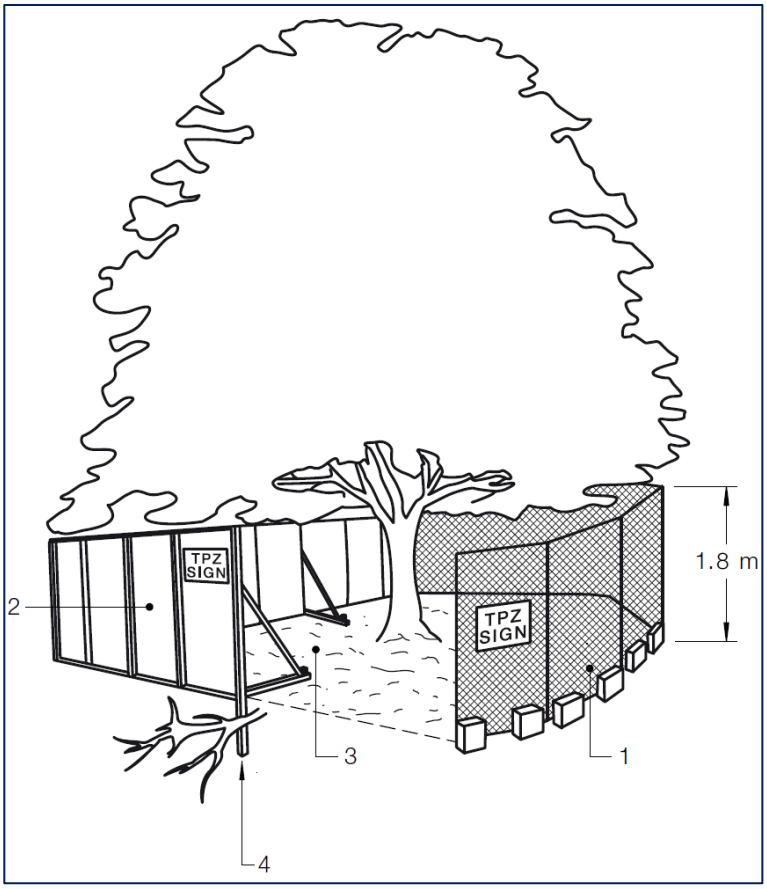


Figure 12

1 - Chain wire mesh panels with shade cloth held in place with concrete anchors, star pickets or similar.

2 – Alternative plywood, wooden paling panels or similar.

3 – Mulch available TPZ to a depth of 10cm (as recommended). No excavation, construction activity, grade changes, surface treatment or materials storage.

4 - Brace as required provided root damage is avoided.

13. Be identified with a sign as shown in Figure 3. The sign must be:
14. A minimum size of 420mm x 297 mm (A3)
15. Cleary visible from within the site.
16. Clearly visible and weather proof.
17. Labelled with the name and contact number of the Project Arborist.

18. If the above specification cannot be implemented, then alternative tree protection fencing must be agreed with the project arborist and the Responsible Authority.

Figure 13 Tree protection fencing

16.4. Ground protection

Ground protection must be installed where Tree Protection is required for retained trees but where the installation of Tree Protection Fencing is not practical because of construction clearance or access requirements and as set out in this report.

Ground Protection must prevent soil compaction loads and/or root damage within the Effective Tree Protection Zone. This may be achieved, depending on the situation and likely traffic using:

1. TrakMat™.
2. 12mm ply wood covered with soil.
3. 25mm steel plate.
4. EcoWeb™ ground stabilisation matrix.
5. Bog mats.
6. Other similar systems that will achieve the soil and root protection objectives outlined above.

Ground protection must:

1. Be strong enough to prevent soil point loading within the Effective Tree Protection Zone.
2. Be arranged to create a more or less level and stable work / transport surface.
3. Be firmly anchored to prevent movement or tipping.

16.4.1. Tree protection zone signage

Figure 14 Tree Protection Fence sign example

16.5. Construction Phase

19. No vehicular or pedestrian access, storage or dumping of tools, equipment or waste (including runoff) is permitted within the Tree Protection Fencing area.
20. No trenching or soil excavation shall occur within the TPZ of this tree except as stated within this report, or with the prior written consent of the or with the express permission of the Responsible Authority.
21. All services shall be routed outside of this tree's TPZ, or bored at a minimum depth of 600mm below existing grade when within the TPZ.
    a. The location of services must be approved by the Responsible Authority.

16.6. Landscaping around retained trees

22. Grade changes must be avoided within the available TPZ other than as stated in this document.
23. Excavation must be avoided within the SRZ of any retained tree except as set out above or otherwise approved by the Responsible Authority.
24. Where vegetation is to be planted within the TPZ of any retained tree then all excavation must be done by hand.
    a. If roots from a retained tree with a diameter of 20 mm or greater are found when planting, the site must be relocated or further advice sought from the project arborist.

b. Any irrigation or other below ground landscape services must be treated as per section 16.5 Construction Phase - Item 21 above.

16.7. Tree removal, pruning & inspection

1. Prior to the commencement of works those trees permitted for removal must be marked for removal by the project arborist.
2. The retained trees must be inspected as set out above in this report.
3. Relocation of the tree protection fencing must be approved by the project arborist and the Responsible Authority.
4. Significant tree pruning must be assessed by the project arborist and approved by the Responsible Authority.
    a. Significant tree pruning is regarded as pruning of limbs greater than 10cm, removal of more than 10% of the trees canopy or pruning of roots larger than 5cm.
    b. Pruning works must be undertaken by a qualified arborist.
    c. Pruning works must conform to *Australian Standard AS 4373 – 2007 Pruning of Amenity Trees*.

16.8. Tree Protection Guidelines

The following guidelines are applicable within the Fenced Tree Protection Zones as shown on this Tree Management Plan.

The “Fenced Tree Protection Zones” are those areas that are specified in this report as being protected within or adjacent to the site using Tree Protection Fencing. The Fenced Tree Protection Zones are considered separately from the Ground Protection Zones.

The following guidelines must be observed unless otherwise specified by specific tree protection recommendations within this report. Where contradictions exist between these guidelines and the specific tree protection recommendations elsewhere in this report, then the specific tree protection recommendations must be observed.

1. Tree Protection Fencing (TPF) is to be installed following tree removal and prior to the commencement of demolition or construction works at this site.
    a. Tree Protection Fencing must be constructed as shown in Figure 12.
2. The Tree Protection Zone, as identified by the Tree Protection Fence must not be entered without permission from the Project Arborist.
3. There is to be no excavation or placement of fill within the Tree Protection Zone other than as stated earlier in this report.
4. Machinery is not to come within 2 metres of the above ground portion of any tree, except where this overhangs an existing roadway or driveway.
5. No fuel or other chemicals are to be stored or mixed within the vicinity of a Tree Protection Zone.
6. Site cabins or other temporary buildings must only be installed within the Tree Protection Zone of any retained tree with permission and under the supervision of the Project Arborist and as approved by the Responsible Authority.
7. No fixtures of any sort are to be attached to any tree for any reason.

8. If a tree is accidentally damaged then the Project Arborist must be contacted immediately and not later than 24 hours after the damage event.
    a. The damage must be assessed by the project arborist.
    b. Remedial action must be undertaken as required and as soon as practically possible.
    c. Follow up treatment must be undertaken as required.
    d. The entire process of assessment, treatment planning, treatment action and ongoing treatment must be documented as supplied to the Responsible Authority.
9. Modifications to these recommendations must be agreed in writing with the Project Arborist prior to the any modification being made.
10. All services plans must be checked for tree impact by the Project Arborist.
    a. No services must be installed until the services plans have been approved by the Project Arborist and the Responsible Authority.

16.9. Tree protection fencing relocation

Relocation of the Tree Protection Fencing must only occur in accordance with tree specific recommendations within this management plan or with the agreement of the Project Arborist or responsible authority. The Tree Protection Fencing must be reinstated as soon as the works that required the relocation of the fencing are completed.

If the Tree Protection Fencing cannot be reinstated on the same day that the removal of the fencing is undertaken then temporary barricades must be installed until the Tree Protection Fencing can be re-instated.

All changes to the Tree protection fencing must be documented and approved by the project arborist and the Responsible Authority.

16.10. Machinery movement

All machinery movement is to occur outside the Tree Protection Fencing of retained tree unless with the agreement of the Responsible Authority.

16.11. Site office and material storage location

All site offices, other temporary buildings and materials storage areas must be placed in locations outside the Tree Protection Zone of any retained trees.

Placement of temporary buildings within the Tree Protection Zone for any retained tree may only be undertaken with the agreement of the Responsible Authority.

Installation of any temporary buildings within the Tree Protection Zone for any retained trees must be supervised by the project arborist.

16.12. Site induction

The Tree Protection requirements are to be included in the induction program for this site and all contractors working on the site are to be aware of them. The induction must include but not be limited to:

a) The Tree Protection fencing is not to be moved unless without the permission of the Responsible Authority and under the supervision of the Project Arborist.

b) Tree specific issues dependent on the nature of works being performed by an individual contractor.

16.13. Design and construction changes

Any changes to the endorsed construction plans that affect the Tree Protection Zone of any tree must be agreed with the Responsible Authority and accessed by the Project Arborist.

16.14. Removal and retention of trees

All trees to be removed must be clearly marked for removal prior to any activity on the site.

All trees that require removal are to be removed prior to the commencement of project demolition works and before the installation of Tree Protection Fencing.

16.14.1. Root pruning

Where significant roots are encountered during excavation on the site they must be pruned as set out below. Significant roots are those with a diameter of 30mm or greater:

a) Roots are to be cut cleanly using sharp hand tools.

b) Where possible roots are to be cut on a 90^{o} angle minimising the size of the area cut (Figure 0).

c) Exposed roots are to be either covered with soil once cut or alternatively with moist hessian until backfilling can occur.

   a. If covered with hessian the hessian must be kept moist at all times.

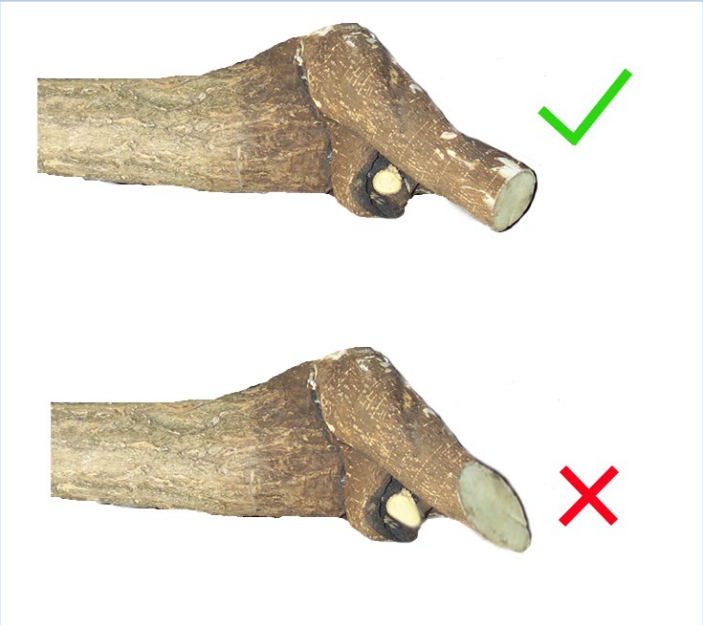


Figure 15 Correct angle for root pruning

d) All root pruning must be undertaken by a qualified arborist.

16.15. Construction and post construction tree maintenance

The post construction tree maintenance requirements for all retained trees must be documented by the project arborist and forwarded to the Responsible Authority at the completion of all works at the site.

The need for irrigation, mulch or other tree maintenance practices should be reviewed by the Project Arborist as required.

17. Appendix 2 - Tree data

Note: Where **Retention value** = "**Remove**" only the arboricultural attributes of the tree (i.e. health, structure and ULE) are considered. Other factors that may affect the decision to retain or remove the tree are not considered.

- Where the **'Construction Proximity'** is larger than the **'Tree Protection Zone (TPZ)'** it is probable that the development will have **no significant impact on the health and longevity** of the tree.
- Where the '**Construction Proximity'** is larger than the '**Structural Root Zone (SRZ)'** it is probable that the development will have **no significant impact on the stability** of the tree.
- The following information should be read in conjunction with the **'Explanation of Terms'** and the **'Glossary / Notes'** sections found later in this report.

SRZ (m):	AS 4970-2009 Protection of trees on development sites. (Radius)	Total Number of trees
TPZ (m):	AS 4970-2009 Protection of trees on development sites (Radius)	34
mTPZ (m):	Modification to TPZ as required to protect canopy	
Construction Proximity:	0.1 indicates construction over or immediately adjacent to the tree	

Tree ID: 1

Genus / species: *Trachycarpus fortunei*

Evergreen Chusan Palm

Height (m):	13	**Structure:**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	39 Measured	**Maturity:**	Mature
Origin:	Exotic	**ULE (years):**	30 - 40
Retained?:	Retained	**Form:**	Good

Retention Value: Moderate

Removal / retention reason: Road reserve.

Amenity value: Moderate

Works Required: N/A.

SRZ (m):	***0***	**Works priority:**	N/A
TPZ (m):	***2.0***	***Construction Proximity:***	***14.4***
mTPZ (m):	***= TPZ***		

Tree ID: 2

Genus / species: *Trachycarpus fortunei*

Evergreen Chusan Palm

Height (m):	16	**Structure:**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	41 Measured	**Maturity:**	Mature
Origin:	Exotic	**ULE (years):**	30 - 40
Retained?:	Retained	**Form:**	Good

Retention Value: Moderate

Removal / retention reason: Road reserve.

Amenity value: Moderate

Works Required: N/A.

SRZ (m):	***0***	**Works priority:**	N/A
TPZ (m):	***2.0***	***Construction Proximity:***	***6.7***
mTPZ (m):	***= TPZ***		

Tree ID: 3

Genus / species: *Trachycarpus fortunei*
Evergreen Chusan Palm

Height (m):	7	**Structure:**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	39 Measured	**Maturity:**	Mature
Origin:	Exotic	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Moderate
Removal / retention reason: Road reserve.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): 0 ***Works priority:*** N/A
TPZ (m): 2.0 ***Construction Proximity: 1.8***
mTPZ (m): = TPZ

Tree ID: 4

Genus / species: *Trachycarpus fortunei*
Evergreen Chusan Palm

Height (m):	13	**Structure:**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	33 Measured	**Maturity:**	Mature
Origin:	Exotic	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Moderate
Removal / retention reason: Road reserve.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): 0 ***Works priority:*** N/A
TPZ (m): 2.0 ***Construction Proximity: 2.1***
mTPZ (m): = TPZ

Tree ID: 5

Genus / species: *Trachycarpus fortunei*
Evergreen Chusan Palm

Height (m):	12	**Structure:**	Very poor
Width (m):	2	**Health:**	Good
DBH (cm):	30 Measured	**Maturity:**	Mature
Origin:	Exotic	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Moderate
Removal / retention reason: Road reserve.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): 0 ***Works priority:*** N/A
TPZ (m): 2.0 ***Construction Proximity: 1.2***
mTPZ (m): = TPZ

Tree ID: 6

Genus / species: *Trachycarpus fortunei*
Evergreen Chusan Palm

Height (m):	14	**Structure:**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	34 Measured	**Maturity:**	Mature
Origin:	Exotic	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Moderate
Removal / retention reason: Road reserve.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): 0 ***Works priority:*** N/A
TPZ (m): 2.0 ***Construction Proximity: 1.9***
mTPZ (m): = TPZ

Tree ID: 7

Genus / species: *Trachycarpus fortunei*
Evergreen Chusan Palm

Height (m):	12	**Structure:**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	32 Measured	**Maturity:**	Mature
Origin:	Exotic	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Moderate
Removal / retention reason: Road reserve.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): 0 ***Works priority:*** N/A
TPZ (m): 2.0 ***Construction Proximity: 1.8***
mTPZ (m): = TPZ

Tree ID: 8

Genus / species: *Trachycarpus fortunei*
Evergreen Chusan Palm

Height (m):	12	**Structure:**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	32 Measured	**Maturity:**	Mature
Origin:	Exotic	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Moderate
Removal / retention reason: Road reserve.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): 0 ***Works priority:*** N/A
TPZ (m): 2.0 ***Construction Proximity: 2***
mTPZ (m): = TPZ

Tree ID: 9

Genus / species: *Trachycarpus fortunei*
Evergreen Chusan Palm

Height (m):	15	**Structure:**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	37 Measured	**Maturity:**	Mature
Origin:	Exotic	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Moderate
Removal / retention reason: Road reserve.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): 0 ***Works priority:*** N/A
TPZ (m): 2.0 ***Construction Proximity: 1.5***
mTPZ (m): = TPZ

Tree ID: 10

Genus / species: *Trachycarpus fortunei*
Evergreen Chusan Palm

Height (m):	14	**Structure:**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	34 Measured	**Maturity:**	Mature
Origin:	Exotic	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Moderate
Removal / retention reason: Road reserve.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): 0 ***Works priority:*** N/A
TPZ (m): 2.0 ***Construction Proximity: 3.1***
mTPZ (m): = TPZ

Tree ID: 11

Genus / species: *Trachycarpus fortunei*
Evergreen Chusan Palm

Height (m):	16	**Structure:**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	35 Measured	**Maturity:**	Mature
Origin:	Exotic	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Moderate
Removal / retention reason: Road reserve.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): 0 ***Works priority:*** N/A
TPZ (m): 2.0 ***Construction Proximity: 1.3***
mTPZ (m): = TPZ

Tree ID: 12

Genus / species: *Trachycarpus fortunei*
Evergreen Chusan Palm

Height (m): 14 **Structure:** Good
Width (m): 2 **Health:** Good
DBH (cm): 41 Measured **Maturity:** Mature
Origin: Exotic **ULE (years):** 30 - 60
Retained?: Retained **Form:** Good
Retention Value: Moderate
Removal / retention reason: Road reserve.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): ***0*** ***Works priority:*** N/A
TPZ (m): ***2.0*** ***Construction Proximity:*** ***1.4***
mTPZ (m): ***= TPZ***

Tree ID: 13

Genus / species: *Trachycarpus fortunei*
Evergreen Chusan Palm

Height (m): 16 **Structure:** Good
Width (m): 2 **Health:** Good
DBH (cm): 37 Measured **Maturity:** Mature
Origin: Exotic **ULE (years):** 30 - 60
Retained?: Retained **Form:** Good
Retention Value: Moderate
Removal / retention reason: Road reserve.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): ***0*** ***Works priority:*** N/A
TPZ (m): ***2.0*** ***Construction Proximity:*** ***1.4***
mTPZ (m): ***= TPZ***

Tree ID: 14

Genus / species: *Trachycarpus fortunei*
Evergreen Chusan Palm

Height (m): 15 **Structure:** Good
Width (m): 2 **Health:** Good
DBH (cm): 38 Measured **Maturity:** Mature
Origin: Exotic **ULE (years):** 30 - 60
Retained?: Retained **Form:** Good
Retention Value: Moderate
Removal / retention reason: Road reserve.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): ***0*** ***Works priority:*** N/A
TPZ (m): ***2.0*** ***Construction Proximity:*** ***1.5***
mTPZ (m): ***= TPZ***

Tree ID: 15

Genus / species: *Trachycarpus fortunei*
Evergreen Chusan Palm

Height (m):	15	**Structure:**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	34 Measured	**Maturity:**	Mature
Origin:	Exotic	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Moderate
Removal / retention reason: Road reserve.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): 0 ***Works priority:*** N/A
TPZ (m): 2.0 ***Construction Proximity: 1.3***
mTPZ (m): = TPZ

Tree ID: 16

Genus / species: *Trachycarpus fortunei*
Evergreen Chusan Palm

Height (m):	13	**Structure:**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	38 Measured	**Maturity:**	Mature
Origin:	Exotic	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Moderate
Removal / retention reason: Road reserve.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): 0 ***Works priority:*** N/A
TPZ (m): 2.0 ***Construction Proximity: 1.3***
mTPZ (m): = TPZ

Tree ID: 17

Genus / species: *Trachycarpus fortunei*
Evergreen Chusan Palm

Height (m):	15	**Structure:**	Good
Width (m):	2	**Health:**	Good
DBH (cm):	36 Measured	**Maturity:**	Mature
Origin:	Exotic	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Moderate
Removal / retention reason: Road reserve.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): 0 ***Works priority:*** N/A
TPZ (m): 2.0 ***Construction Proximity: 2***
mTPZ (m): = TPZ

Tree ID: 18

Genus / species: *Phoenix canariensis*
Evergreen Canary Island Date Palm

Height (m):	14	**Structure:**	Good
Width (m):	6	**Health:**	Good
DBH (cm):	69 Measured	**Maturity:**	Mature
Origin:	Exotic	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: High
Removal / retention reason: Road reserve.
Amenity value: High
Works Required: N/A.

SRZ (m): ***0*** ***Works priority:*** N/A
TPZ (m): ***3.0*** ***Construction Proximity:*** ***9***
mTPZ (m): ***= TPZ***

Tree ID: 19

Genus / species: *Phoenix canariensis*
Evergreen Canary Island Date Palm

Height (m):	14	**Structure:**	Good
Width (m):	6	**Health:**	Good
DBH (cm):	69 Measured	**Maturity:**	Mature
Origin:	Exotic	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: High
Removal / retention reason: Road reserve.
Amenity value: High
Works Required: N/A.

SRZ (m): ***0*** ***Works priority:*** N/A
TPZ (m): ***3.0*** ***Construction Proximity:*** ***11.6***
mTPZ (m): ***= TPZ***

Tree ID: 20

Genus / species: *Banksia integrifolia*
Evergreen Coast Banksia

Height (m):	6	**Structure:**	Fair
Width (m):	5	**Health:**	Good
DBH (cm):	32 Measured	**Maturity:**	Mature
Origin:	Melbourne	**ULE (years):**	15 - 30
Retained?:	Retained	**Form:**	Good

Retention Value: Low
Removal / retention reason: Road reserve.
Amenity value: Low
Works Required: N/A.

SRZ (m): ***2.1*** ***Works priority:*** N/A
TPZ (m): ***3.8*** ***Construction Proximity:*** ***6.1***
mTPZ (m): ***= TPZ***

Tree ID: 21

Genus / species: *Banksia integrifolia*
Evergreen Coast Banksia

Height (m):	7	**Structure:**	Good
Width (m):	6	**Health:**	Good
DBH (cm):	36 Measured	**Maturity:**	Mature
Origin:	Melbourne	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Low
Removal / retention reason: Road reserve.
Amenity value: Low
Works Required: N/A.

SRZ (m): ***2.2*** ***Works priority:*** N/A
TPZ (m): ***4.3*** ***Construction Proximity:*** ***3.3***
mTPZ (m): ***= TPZ***

Tree ID: 22

Genus / species: *Banksia integrifolia*
Evergreen Coast Banksia

Height (m):	9	**Structure:**	Good
Width (m):	7	**Health:**	Good
DBH (cm):	40 Measured	**Maturity:**	Mature
Origin:	Melbourne	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Moderate
Removal / retention reason: Road reserve.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): ***2.3*** ***Works priority:*** N/A
TPZ (m): ***4.8*** ***Construction Proximity:*** ***5.4***
mTPZ (m): ***= TPZ***

Tree ID: 23

Genus / species: *Banksia integrifolia*
Evergreen Coast Banksia

Height (m):	7	**Structure:**	Good
Width (m):	5	**Health:**	Good
DBH (cm):	27 Measured	**Maturity:**	Mature
Origin:	Melbourne	**ULE (years):**	15 - 30
Retained?:	Retained	**Form:**	Good

Retention Value: Low
Removal / retention reason: Road reserve.
Amenity value: Low
Works Required: N/A.

SRZ (m): ***1.9*** ***Works priority:*** N/A
TPZ (m): ***3.2*** ***Construction Proximity:*** ***5.2***
mTPZ (m): ***= TPZ***

Tree ID: 24

Genus / species: *Phoenix canariensis*
Evergreen Canary Island Date Palm

Height (m):	7	**Structure:**	Good
Width (m):	7	**Health:**	Good
DBH (cm):	61 Measured	**Maturity:**	Mature
Origin:	Exotic	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Moderate
Removal / retention reason: Road reserve.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): ***0*** ***Works priority:*** N/A
TPZ (m): ***3.5*** ***Construction Proximity:*** ***7.2***
mTPZ (m): ***= TPZ***

Tree ID: 25

Genus / species: *Phoenix canariensis*
Evergreen Canary Island Date Palm

Height (m):	7	**Structure:**	Good
Width (m):	7	**Health:**	Good
DBH (cm):	67 Measured	**Maturity:**	Mature
Origin:	Exotic	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Moderate
Removal / retention reason: Road reserve.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): ***0*** ***Works priority:*** N/A
TPZ (m): ***3.5*** ***Construction Proximity:*** ***6.9***
mTPZ (m): ***= TPZ***

Tree ID: 26

Genus / species: *Banksia integrifolia*
Evergreen Coast Banksia

Height (m):	4	**Structure:**	Good
Width (m):	3	**Health:**	Good
DBH (cm):	13 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Low
Removal / retention reason: Road reserve.
Amenity value: Low
Works Required: N/A.

SRZ (m): ***1.5*** ***Works priority:*** N/A
TPZ (m): ***2.0*** ***Construction Proximity:*** ***5.2***
mTPZ (m): ***= TPZ***

Tree ID: **27**

Genus / species: *Banksia integrifolia*
Evergreen Coast Banksia

Height (m):	7	**Structure:**	Good
Width (m):	4	**Health:**	Good
DBH (cm):	21 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Low
Removal / retention reason: Road reserve.
Amenity value: Low
Works Required: N/A.

SRZ (m): ***1.7*** ***Works priority:*** N/A
TPZ (m): ***2.5*** ***Construction Proximity:*** ***5.7***
mTPZ (m): ***= TPZ***

Tree ID: **28**

Genus / species: *Banksia integrifolia*
Evergreen Coast Banksia

Height (m):	5	**Structure:**	Good
Width (m):	4	**Health:**	Good
DBH (cm):	15 Measured	**Maturity:**	Immature
Origin:	Melbourne	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Low
Removal / retention reason: Road reserve.
Amenity value: Low
Works Required: N/A.

SRZ (m): ***1.5*** ***Works priority:*** N/A
TPZ (m): ***2.0*** ***Construction Proximity:*** ***5.6***
mTPZ (m): ***= TPZ***

Tree ID: **31**

Genus / species: *Phoenix canariensis*
Evergreen Canary Island Date Palm

Height (m):	7	**Structure:**	Good
Width (m):	6	**Health:**	Good
DBH (cm):	57 Measured	**Maturity:**	Mature
Origin:	Exotic	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Moderate
Removal / retention reason: Road reserve.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): ***0*** ***Works priority:*** N/A
TPZ (m): ***3.0*** ***Construction Proximity:*** ***9.2***
mTPZ (m): ***= TPZ***

Tree ID: 32

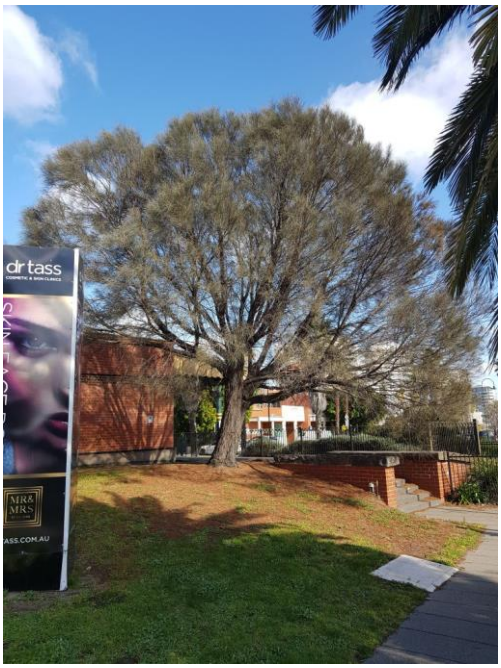
Genus / species: *Phoenix canariensis*
Evergreen Canary Island Date Palm

Height (m):	7	**Structure:**	Good
Width (m):	7	**Health:**	Good
DBH (cm):	50 Measured	**Maturity:**	Mature
Origin:	Exotic	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Moderate
Removal / retention reason: Road reserve.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): ***0*** ***Works priority:*** N/A
TPZ (m): ***3.5*** ***Construction Proximity:*** ***20.3***
mTPZ (m): ***= TPZ***

Tree ID: 33



Genus / species: *Allocasuarina littoralis*
Evergreen Black She-Oak

Height (m):	10	**Structure:**	Fair
Width (m):	14	**Health:**	Fair
DBH (cm):	62 Measured	**Maturity:**	Mature
Origin:	Australian	**ULE (years):**	1 - 5
Retained?:	Retained	**Form:**	Fair

Retention Value: Low
Removal / retention reason: Adjoining property.
Amenity value: Moderate
Works Required: N/A.

SRZ (m): ***2.7*** ***Works priority:*** N/A
TPZ (m): ***7.4*** ***Construction Proximity:*** ***27.2***
mTPZ (m): ***= TPZ***

Tree ID: 34

Genus / species: *Callistemon salignus*
Evergreen Willow Bottle Brush

Height (m):	4	**Structure:**	Fair
Width (m):	4	**Health:**	Good
DBH (cm):	21 Measured	**Maturity:**	Mature
Origin:	Australian	**ULE (years):**	15 - 30
Retained?:	Retained	**Form:**	Good

Retention Value: Low
Removal / retention reason: Adjoining property.
Amenity value: Low
Works Required: N/A.

SRZ (m): ***1.7*** ***Works priority:*** N/A
TPZ (m): ***2.5*** ***Construction Proximity:*** ***18.6***
mTPZ (m): ***= TPZ***

Tree ID: **35**

Genus / species: *Callistemon 'Kings Park Special'*
Evergreen Crimson Bottle Brush

Height (m):	7	**Structure:**	Fair
Width (m):	4	**Health:**	Good
DBH (cm):	23 Measured	**Maturity:**	Mature
Origin:	Australian	**ULE (years):**	15 - 30
Retained?:	Retained	**Form:**	Good

Retention Value: Low
Removal / retention reason: Adjoining property.
Amenity value: Low
Works Required: N/A.

SRZ (m):	***1.8***	**Works priority:**	N/A
TPZ (m):	***2.8***	***Construction Proximity:***	***12.5***
mTPZ (m):	***= TPZ***		

Tree ID: **36**

Genus / species: *Phoenix canariensis*
Evergreen Canary Island Date Palm

Height (m):	9	**Structure:**	Good
Width (m):	6	**Health:**	Good
DBH (cm):	67 Measured	**Maturity:**	Mature
Origin:	Exotic	**ULE (years):**	30 - 60
Retained?:	Retained	**Form:**	Good

Retention Value: Moderate
Removal / retention reason: Adjoining property.
Amenity value: Moderate
Works Required: N/A.

SRZ (m):	***0***	**Works priority:**	N/A
TPZ (m):	***3.0***	***Construction Proximity:***	***8.4***
mTPZ (m):	***= TPZ***		

18. Appendix 2 - TPMP* Certification

*Tree Management Protection Plan.

Site address			
Project arborist (PA)			
PA contact			
Project manager (PM)			
PM contact			

18.1. Stage 1 – Pre-Demolition

18.1.1. Site induction – Demolition contractors

Site meeting held	Yes / No	**Meeting date / time**	
Persons present			
TPMP to all parties?			Yes / No
TPMP modification required?			Yes / No

18.1.2. Site access

Site access determined & acceptable?	Yes / No

18.1.3. TPZ pruning & vegetation / infrastructure clearance.

Tree pruning required?	Yes / No
Tree pruning to AS4373?	Yes / No / NA
Tree pruning in accordance with TPMP?	Yes / No / NA
TPZ vegetation clearance in accordance with TPMP?	Yes / No / NA
TPZ infrastructure removal in accordance with TPMP recommendations?	Yes / No / NA

18.1.4. Fencing/ Trunk & Branch Protection/ Ground Protection/ Mulching

Tree protection fencing installed as per TPMP?	Yes / No / NA
Ground protection installed as per TPMP?	Yes / No / NA

Trunk & branch protection installed as per TPMP?		Yes / No / NA
Mulch installed as per TPMP (depth = 10cm)?		Yes / No / NA
Mulch type in accordance with TPMP?		Yes / No / NA
18.1.5. Signage		
Signage present?		Yes / No / NA
Signage in accordance with TPMP?		Yes / No / NA
Signage contains project arborist contact details?		Yes / No / NA
18.1.6. Root pruning		
Root pruning in accordance with TPMP?		Yes / No / NA
Additional tree root pruning?		Yes / No / NA
Root Pruning notes (list below).		
Root #	Description	Root Diam (cm)
1		
2		
3		
4		
5		
6		
18.1.7. Irrigation		
Irrigation in accordance with TPMP?		Yes / No / NA
Other required actions (list below)		
		Yes / No / NA
		Yes / No / NA
		Yes / No / NA
		Yes / No / NA
Images taken:		Yes / No / NA
Date inspected:	**Compliance date:**	
Signed:		
Notes:		

18.1. Stage 2 – Pre-Construction			
Site induction – Construction contractors			
Site meeting held?	Yes / No	**Meeting date / time:**	
Persons present:			
TPMP to all parties?			Yes / No
TPMP modification required?			Yes / No
18.1.1. Site access			
Site access determined & acceptable?			Yes / No
18.1.2. Materials storage			
Designated area for materials & waste storage?			Yes / No / NA
Materials storage in accordance with TPMP?			Yes / No / NA
18.1.3. Utility services			
Utility services marked out on site?			Yes / No / NA
Utility services all outside TPZ?			Yes / No / NA
Utility services to be bored / NDD excavated?			Yes / No / NA
18.1.4. Footings			
Footings in accordance with TPMP?			Yes / No / NA
18.1.5. Tree Protection Maintenance			
Tree Protection System (TPS) correctly located & installed?			Yes / No / NA
TPS modification required?			Yes / No / NA
Mulch installed and to depth?			Yes / No / NA
Mulch type appropriate?			Yes / No / NA

18.1.6. TPZ pruning & vegetation / infrastructure clearance

Tree pruning required?	Yes / No / NA
Tree pruning to AS4373?	Yes / No / NA
Tree pruning in accordance with TPMP?	Yes / No / NA
TPZ vegetation clearance in accordance with TPMP?	Yes / No / NA
TPZ infrastructure removal in accordance with TPMP recommendations?	Yes / No / NA
Signage in accordance with TPMP?	Yes / No / NA
Irrigation	
Irrigation in accordance with TPMP?	Yes / No / NA
Other required actions (list below)	
	Yes / No / NA
	Yes / No / NA
	Yes / No / NA
	Yes / No / NA
Images taken:	Yes / No / NA

Date inspected:		**Compliance date:**	

Signed:

18.2. Stage 3 – Construction

TPMP modification required?	Yes / No
Notes:	

18.2.1. Footings

Footings in accordance with TPMP?	Yes / No / NA

18.2.2. Site access

Site access remains acceptable?	Yes / No

18.2.3. Materials storage

Designated area for materials & waste storage?	Yes / No / NA

Materials storage in accordance with TPMP?	Yes / No / NA

18.2.1. Tree Protection Maintenance

Tree Protection System (TPS) correctly located & installed?	Yes / No / NA
TPS modification required?	Yes / No / NA
Mulch installed and to depth?	Yes / No / NA
Mulch type appropriate?	Yes / No / NA
Irrigation	
Irrigation in accordance with TPMP?	Yes / No / NA
Other required actions (list below)	
Images taken:	Yes / No / NA

Date inspected:		**Compliance date:**	

Signed:

Notes:

18.3. Stage 4 – Post Construction & Landscape Construction

18.3.1. Site induction – Landscape contractors

Site meeting held	Yes / No	Meeting date / time	
Persons present:			

TPMP to all parties?	Yes / No
TPMP modification required?	Yes / No

18.3.2. Site access

Site access remains acceptable?	Yes / No
Modified site access required?	Yes / No

18.3.3. Materials storage

Designated area for materials & waste storage?	Yes / No / NA
Materials storage in accordance with TPMP?	Yes / No / NA

18.3.4. Tree Protection Removal

Can TPS be removed?	Yes / No / NA
Specialised tree protection measures required?	Yes / No / NA

18.3.5. Landscape construction

Works within TPZs in accordance with TPMP?	Yes / No / NA
Irrigation	
Irrigation in accordance with TPMP?	Yes / No / NA
Other required actions (list below)	
	Yes / No / NA
	Yes / No / NA
	Yes / No / NA
	Yes / No / NA
Images taken:	Yes / No / NA

Date inspected:		Compliance date:	

Signed:

Notes:

18.4. Stage 5 – Final certification

The Project Arborist has inspected all stages of the project as defined by the Tree Protection Management Plan. Any action that has not complied has been rectified and approved by the Project Arborist. All works as noted within the approved Tree Protection Management Plan have been undertaken and any modifications to the Tree Protection Management Plan have been approved in writing by the local responsible authority.			
Images taken:			Yes / No / NA
Date inspected:		Final certification date:	
Signed:			
Notes:			

19. Appendix 3 - References

Coder, K.D 1996, Construction Damage Assessments, University of Georgia. http://www.forestry.uga.edu/warnell/service/library/for96-039a/index.html

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Mattheck, C., Bethge, K. & Weber, K., 2015, *The body language of trees*, Karlsruhe Institute of Technology – Campus North, KS Druck GmbH, Germany.

Standards Australia, 2009, *AS 4970 - 2009 Protection of trees on development sites*, Standards Australia, Sydney.

20. Appendix 4 - Explanation of terms

The assessment of Health, Structure, Condition, U.L.E. (Useful Life Expectancy), Origin, Maturity, Form and Retention value are based on the following definitions. In the case of health and structure these definitions encompass only the more common indicators for these assessments. Other indicators not included in these definitions may lead to the ascribing of a particular health or structure category.

20.1. Origin

The notation of "Origin" is based on the following categories.

Category	Description
Melbourne	Native to the greater Melbourne metropolitan area as defined by Flora of Melbourne (S. G. A. P. M., 1991).
Victorian	Native to Victoria but not the greater Melbourne Metropolitan area.
Australian	Native to Australia but not Victoria.
Exotic	Not native to Australia.

20.2. Maturity

The notation of "Maturity" is based on the following categories.

Category	Description
Immature	Less than 20% of the life expectancy for that tree.
Mature	20 – 80% of the life expectancy for that tree.
Over mature	> 80% of the life expectancy for that tree.

20.3. Works required

The works required listed in this report are of a general nature only and should be reviewed following the completion of any works on the site.

Where a tree is recommended for removal (Recommendation) it is not listed in the Works required section of the report.

20.4. Priority

The priority accorded particular works is based on a projected increased site usage following the completion of a development on the site. The priority is of a general nature only and should be reviewed following the completion of any works on the site.

"Priority" is based on the following categories.

Category	Description
N/A.	Works are only required to improve tree health and could be performed at any time.
Very low	Works should be performed within five years.
Low	Works should be performed within three years.
Moderate	Works should be performed within 18 months.
High	Works should be performed within 6 months.
Urgent	Works should be performed immediately.

20.5. Retention value (RV)

The Retention value ascribed to each tree in this report is not definitive and should be used as a guide only. Many factors influence the comparative value of a tree and a number of these factors are outside the scope of arboricultural assessment. These factors cannot therefore be addressed in a single rating system.

Retention value is comprised of two parts. These are the Amenity Value of the tree rated as Very Low to Very high and the Useful Life Expectancy (ULE) of the tree.

The Amenity Value of the tree relates to the contribution of the tree to the aesthetic amenity of the area. The primary determinants of amenity value are tree health, size and form.

This value is then modified by the ULE of the tree with short ULE values reducing the RV of the tree and long ULE values increasing the RV of the tree.

Trees that are listed on a register of heritage or significant trees are not accommodated within this rating system as these values are often independent from the arboricultural attributes of the tree. Heritage and significant trees may be ascribed a very low retention value despite their listing on any register. Where a tree is known to have a heritage or significant register listing it will be noted in the report.

RV is assessed on each tree as a single entity. The value of a group of trees is not considered in this context and each tree within the group will be assessed as an individual.

Amenity value is based on the following categories and is ascribed an Amenity Value Value (AVV) ranging from 2 - 10.

Category	Example	AVV
➢ **Very high**	Generally a very large tree that exhibits excellent health and/or form.	10
➢ **High**	Generally a large tree that exhibits good health and/or form.	8
➢ **Medium**	Generally a medium tree that exhibits good health and/or form. May be a large tree that exhibits fair health and/or form.	6
➢ **Low**	Generally a small tree that exhibits good health and/or form. May be a large or medium tree that exhibits fair or poor health and/or form.	4
➢ **Very low**	Generally a small tree that exhibits poor health and/or form. May be a large or medium tree that exhibits poor, or worse, health and/or form.	2

U.L.E. is based on the following categories each of which have a modifier (ULEM) ranging from 0 – 12.

Category	Example	ULEM
➢ **0**	The tree is dead or almost dead or constitutes an immediate and unacceptable hazard.	0
➢ **0 – 5**	The tree is unlikely to provide useful amenity for longer than 5 years. The tree is in serious decline, poses an unacceptable hazard and/or requires a level of maintenance disproportionate with its' value.	4
➢ **5 – 15**	The tree is unlikely to provide useful amenity for longer than 15 years. The tree may be in serious decline, be a very short lived species, present a moderately elevated hazard and/or require high levels of maintenance.	7
➢ **15 – 25**	The tree is unlikely to provide useful amenity for longer than 25 years. The tree may be in moderate decline, a short lived species, present a slightly elevated hazard and/or require moderate levels of maintenance.	10
➢ **25 – 50**	The tree is likely to provide useful amenity for up to 50 years. The tree may be in fair to good condition, have a moderate life-span, present a low to moderate level of hazard and/or require moderate levels of maintenance.	11
➢ **> 50**	The tree is likely to provide useful amenity for greater than 50 years. The tree may be in good to excellent condition, a long lived species, present a low level of hazard and/or require low levels of maintenance.	12

RV is then derived from the multiplication of AVV by ULEM and the resulting score is categorised as Very high to Very low.

Category	Example	RV value
➢ **Very high**	Every effort should be made to preserve trees in this category	96 - 120
➢ **High**	These trees should be retained if at all possible	72 - 95
➢ **Moderate**	These trees should be retained if they do not overly constrain development on the site.	48 - 71
➢ **Low**	These trees should not create a material constraint on development of the site. These trees should be removed where they conflict with development of the site.	24 - 47
➢ **Very low**	These trees should not create any constraint on development of the site and generally should be removed as a matter of course.	1 – 23
➢ **None**	These trees should be removed.	0

20.6. Health

Pertains to the health and growth potential of the tree.

The notation of “Health” is based on the following categories.

Category	Example
➢ **Good**	Crown full, with good foliage density. Foliage is entire with average colour, minimal or no pathogen damage. Above average growth indicators such as extension growth, leaf size and canopy density. Little or no canopy die-back. Generally no dead wood on the perimeter of the canopy. Good wound wood development. **Tree exhibits above average health and no works are required.**
➢ **Fair**	Tree may have more than 30% dead wood, or may have minor canopy dieback. Foliage density may be slightly below average for the species. Foliage colour may be slightly lower than average and some discolouration may be present. Typical growth indicators, e.g. extension growth, leaf size, canopy density for species in location. Average wound wood development. **The tree exhibits below average health and remedial works may be employed to improve health.**
➢ **Poor**	Tree may have more than 30% dead wood and canopy die back may be present. Leaves may be discoloured and/or distorted, often small, and excessive epicormic growth may be present. Pathogens and/or stress agents may be present that could lead, or are leading to, the decline of tree. Poor wound wood development. **The tree exhibits low health and remedial works or removal may be required.**
➢ **Very poor**	The tree has more than 30% dead wood. Extensive canopy die back is present. Canopy is very sparse. Pathogens and/or stress agents are present that are leading to the decline of the tree. Very poor wound wood development. **The tree exhibits very low health and remedial works or removal are required.**
➢ **Dead**	**Tree is dead and generally should be removed.**

20.7. Structure

Pertains to the physical structure of the tree including the main scaffold branches and roots. Structure includes those attributes that may influence the probability of major trunk, root or limb failure.

The notation of "Structure" is based on the following categories.

Category	Example
➢ **Good**	The tree has a well-defined and balanced crown. Branch unions appear to be strong with no defects evident in the trunk or the branches. The tree is unlikely to suffer trunk or branch failure under normal conditions. **The tree is considered a good example of the species with a well-developed form.**
➢ **Fair**	The tree has some minor problems in the structure of the crown. The crown may be slightly out of balance and some branch unions may exhibit minor structural faults or have the potential to create faults. If the tree is single trunked, this may be on a slight lean or be exhibiting minor defects. **These defects are not likely to result in catastrophic trunk or branch failure although some branch failure may occur under normal conditions.**
➢ **Poor**	The tree has significant problems in the structure of the scaffold limbs or trunk. It may be lop-sided or have few branches on one side or have large gaps in the crown. Large branches may be rubbing or crossing over. Branch unions may be poor, and faults at the point of attachment or along the branches may be evident. The tree may have a substantial lean. The tree may have suffered significant root damage. The tree may have some degree of basal or trunk damage. **These defects may predispose the tree to major trunk or branch failure.**
➢ **Very poor**	The tree has some very significant problems in the structure of the crown. It may be lop-sided or have few branches on one side or have large gaps in the crown. Branches may be rubbing or crossing over and causing damage to each other. Branch unions may be poor, and faults at the point of attachment or along the branches may be evident. The tree may have a substantial lean. The tree may have suffered major root damage. The tree may have extensive basal or trunk damage. **These defects are likely to predispose the tree to trunk or scaffold limb failure.**

20.8. U.L.E. (Useful Life Expectancy)

U.L.E. pertains to the span of time that the tree might reasonably be expected to provide useful amenity value with an acceptable level of safety at an acceptable cost. Depending on the situation, available financial resources and other factors, two identical trees may be accorded different longevity ratings.

The notation of U.L.E. is based on the following categories.

Category	Example
➢ **0**	The tree is dead or almost dead or constitutes an immediate and unacceptable hazard. **The tree should generally be removed unless other considerations require its' retention.**
➢ **0 – 5**	The tree is unlikely to provide useful amenity for longer than 5 years. The tree is in serious decline, poses an unacceptable hazard and/or requires a level of maintenance disproportionate with its' value. **The tree should generally be removed unless other considerations require its' retention.**
➢ **5 – 15**	The tree is unlikely to provide useful amenity for longer than 15 years. The tree may be in serious decline, be a very short lived species, present a moderately elevated hazard and/or require high levels of maintenance. **The tree could be retained or removed depending on the situation.**
➢ **15 – 25**	The tree is unlikely to provide useful amenity for longer than 25 years. The tree may be in moderate decline, be a short lived species, present a slightly elevated hazard and/or require moderate levels of maintenance. **The tree should generally be retained unless other factors dictate its' removal.**
➢ **25 – 50**	The tree is likely to provide useful amenity for up to 50 years. The tree may be in fair to good condition, have a moderate life-span, present a low to moderate level of hazard and/or require moderate levels of maintenance. **The tree should generally be retained unless other factors dictate its' removal.**
➢ **> 50**	The tree is likely to provide useful amenity for greater than 50 years. The tree may be in good to excellent condition, a long lived species, present a low level of hazard and/or require low levels of maintenance. **The tree should generally be retained unless other factors dictate its' removal.**

20.9. Form

The notation of “Form” pertains to the aesthetic qualities of the trees live canopy. Generally good form is indicative of a symmetrical, well-balanced canopy although this is dependent on the particular species. Some species naturally develop an asymmetric canopy and in this case a highly irregular canopy might be described as good.

The form of a tree is considered assuming that the tree stands in isolation from any surrounding trees. This may mean that a group of trees that exhibit good form as a group, may be described as having poor form as individuals.

The notation of “Form” is based on the following categories.

Category	Example
➢ **Very good**	An outstanding specimen of that species. Generally a very evenly balanced and symmetrical canopy with no deformation. If the development of that species is naturally irregular then an outstanding specimen of that species.
➢ **Good**	A good specimen of that species. Generally a well balanced and symmetrical canopy with minor deformation. If the development of that species is naturally irregular then a good specimen of that species.
➢ **Fair**	An average specimen of that species. Generally a balanced canopy with some minor to moderate asymmetry. If the development of that species is naturally irregular then an average specimen of that species.
➢ **Poor**	A below average specimen of that species. Generally a moderate to high degree of asymmetry. If the development of that species is naturally irregular then a poor specimen of that species.
➢ **Very poor**	A very poor specimen of that species. Generally a high to extreme degree of asymmetry. If the development of that species is naturally irregular then a very poor specimen of that species.

21. Glossary / notes

Tree Protection Zone (TPZ)	TPZ is based on AS 4970-2009 (Protection of trees on development sites) and defines the a radius that is likely to be required to encompass enough of the trees absorbing root system that will enable the tree to survive. The distance specified as the Root Protection Zone is an estimate of the minimum distance that excavation or other activities that might result in root damage should occur to the tree to avoid negative impacts on the health of the tree. It is generally accepted that a small percentage of the TPZ may be intruded upon without significant injury to the tree.
Structural Root Zone (SRZ)	Is based on AS 4970-2009 (Protection of trees on development sites) and defines the likely spread of the trees scaffold root system. These roots are the primary anchoring roots for the tree and damage to these roots may render the tree liable to uprooting.
DBH (Diameter at Breast Height)	Is the diameter of the tree at approximately 1.3 meters above ground level. Where a trunk is divided at or near 1.4 meters above ground the DBH is generally measured at the narrowest point of the trunk between ground level and 1.4 meters. Alternatively, where a higher level of accuracy is required with multi stemmed trees, DBH is derived from the combined cross sectional area of all trunks. The DBH of all accessible trees is measured except where there are numerous trunks at or near ground level where DBH is estimated. The DBH of trees is measured where access can be gained to the property, otherwise it is estimated.
Measured	Indicates whether the DBH has been measured or estimated.
Remove/retain	Indicates whether the tree is shown as being removed or retained on the site plans provided or by other means.
Recommendation	This recommendation is based solely on the arboricultural and environmental attributes of the tree (i.e. health, structure, condition) and does not take into account any other factors (e.g suitability within the proposed development, available space within the proposed development etc)
Reason	Pertains to the reason that removal or retention or other works are recommended. Other than trees on adjoining properties or road reserves a reason for retention is usually not given. In this case N/A is used.
Height & canopy width	The height of trees that have a Value rating of moderate, high or very high and that are recommended for retention is measured with an Impulse Laser infrared range finder. The heights of all other trees are estimated. The canopy widths of all trees are estimated.
Genus / species	The identification of trees is based on accessible visual characteristics and given that key identifying features are often not available the accuracy of identification cannot be guaranteed. Where the species of any tree is not known, sp. is used.

22. Assumptions & limiting conditions

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9. Unless expressly stated otherwise:
    9.1. The information in this report covers only those items which were examined and reflects the condition of those items at the time of the inspection.
    9.2. Our inspection is limited to visual examination of accessible components without dissection, excavation or probing. There is no warranty or guarantee, express or implied, that even if they were not present during our inspection, problems or defects in plants or property examined may not arise in the future.
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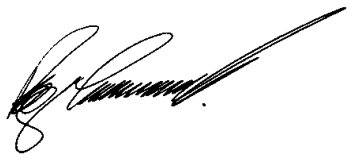
Yours sincerely,



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