

Planning Panels Victoria
Melbourne Metro Rail Project

**EXPERT WITNESS STATEMENT
OF JOHN PATRICK**

ARBORICULTURE

PREPARED FOR MELBOURNE METRO RAIL AUTHORITY
INSTRUCTED BY HERBERT SMITH FREEHILLS

11 August 2016



JOHN PATRICK LANDSCAPE
ARCHITECT PTY LTD

324 Victoria Street
Richmond, VIC 3121

T +61 3 9429 4855
F +61 3 9429 8211
admin@johnpatrick.com.au

LANDSCAPE ARCHITECTS

LANDSCAPE HERITAGE CONSULTANTS

LANDSCAPE MANAGEMENT

HORTICULTURAL CONSULTANTS

1 NAME AND ADDRESS OF THE EXPERT

- 1.1 John William Patrick
324 Victoria Street
Richmond Victoria 3121

2 QUALIFICATIONS AND EXPERIENCE

- 2.1 M.Sc. Ecology (University of Durham).
- 2.2 M.Sc. Landscape Ecology, Design and Management (Wye College, University of London).
- 2.3 Associate Member of the Australian Institute of Landscape Architects.
- 2.4 I have worked in the discipline of Landscape Design since 1976. I established my practice in Australia in 1980 becoming full-time in 1988. From 1980-1988 I was Senior Lecturer in Amenity Horticulture at VCAH-Burnley.
- 2.5 In my practice I have undertaken an extended range of Landscape Architectural projects including:
- studies of Old Parliament House and Government House, Canberra;
 - studies of Fitzroy, Flagstaff, Treasury, Alexandra and Carlton Gardens, Melbourne;
 - provision of Landscape Architectural services to hospitals, schools, residential subdivisions, private residences and parks etc;
 - design services for the City of Sydney 'Living Colour' Committee including street design for the Olympic and Paralympic Games 2000, and;
 - heritage studies and conservation management plans for numerous sites including Government House, Melbourne, The Domain, Eureka Stockade Parklands and Central Park, Caulfield.
- 2.6 I am a past presenter of Burke's Backyard, a current presenter on ABC's Gardening Australia, a past Board Member of the Royal Botanic Gardens, Melbourne, the Garden State Advisory Committee and Parks Victoria Dandenong Gardens Advisory Board and written or contributed to 11 books.

3 AREA OF EXPERTISE

- 3.1 I have experience in Landscape Architecture, Landscape Heritage and Landscape Horticulture.

4 EXPERTISE TO PREPARE THIS REPORT

- 4.1 I am regularly involved with the preparation of Landscape Architectural schemes for residential and commercial developments and Heritage Studies and Conservation Management Plans and provided expert evidence to the Tribunal's Planning Division and to Planning Panels on many occasions.

5 INSTRUCTIONS THAT DEFINE THE SCOPE OF THIS REPORT

- 5.1 I have prepared this statement following written and verbal instruction from Herbert Smith Freehills. I have no business or private relationship with Herbert Smith Freehills other than being instructed to prepare this statement.

6 THE FACTS, MATTERS AND ASSUMPTIONS ON WHICH THE REPORT PROCEEDS

- 6.1 This statement assumes that the works area delineated in the EES represents the maximum extent of the project construction area.

7 DOCUMENTS VIEWED IN PREPARING THIS REPORT

- 7.1 In the preparation of this statement I have viewed and reviewed the following items:

- John Patrick Landscape Architects Pty Ltd, Arboriculture Impact Assessment, Melbourne Metro Rail Project, 20 April 2016.
- Lovell Chen with sub-consultants Jacobs (Australia) Pty Ltd and John Patrick Pty Ltd. Melbourne Metro Rail Project Historical Heritage Impact Assessment, 20 April, 2016.
- City of Port Phillip, Street Tree Planting Guide, 2010-2015
- City of Melbourne, Urban Forest Strategy Making a Great City Greener, 2012-2032

8 IDENTITY OF THE PERSON WHO PREPARED THIS REPORT

- 8.1 I have visited the sites and reviewed the Arboriculture Impact Assessment in the field, reviewed its findings and recommendations and prepared this statement.

9. AGREEMENT WITH EXPERT WITNESS GUIDELINES

- 9.1 I understand that I have a paramount duty to assist the Panel on matters relevant to my expertise and agree to be bound by the Panel's expert witness guidelines.

10. A SUMMARY OF THE OPINIONS OF THE EXPERT

- 10.1 My statement is based upon works documented in the Arboriculture Impact Assessment, Melbourne Metro Rail Project dated 20 April 2016 Rev C. (Technical Appendix R).
- 10.2 The field works within this report were completed by Arborists within the practice of John Patrick Pty Ltd and I have undertaken my own field reviews of this work as well as formed my own opinions as set out in this statement. I accept and adopt the general findings of the report noting especially the opinions provided with respect to safeguards and improved outcomes that could be achieved by way of variations to the project approach.
- 10.3 I note that the extent of project works discussed within the Arboriculture Impact Assessment has changed since the EES was established, with the use of Fawkner Park as a launch site and on-going works site being removed from the scope of the project, though its use as the location for an emergency access shaft may still be required.
- 10.4 Without departing generally from the findings of the Arboriculture Impact Assessment I am of the opinion that there are potential benefits from components of the proposed works, in that it will achieve the introduction of a new generation of planting into two of Melbourne's most iconic heritage locations, being Royal Parade, Parkville and the St Kilda Boulevard. In both locations, the project offers the opportunity for a phased replacement of trees in a way that will carry these plantings and their Heritage significance forward into the next century. It is my opinion that the proposed works should form the first stage of a broader review applied to these Heritage sites including the preparation of a Heritage Master Plan for each site, allowing for on-going phased replacement to sustain their heritage significance into the future.
- 10.5 In addition, the establishment of new tree planting that will occur in areas impacted by the proposed development will allow for a new tree population to be established and for up-grading of areas where existing tree cover is in poor condition, for example at University Square.
- 10.6 I note too that the Arboriculture Impact Assessment has conservatively assumed total development of the delineated construction work sites. Detailed works programmes may result in a re-alignment of works boundaries within those delineated on the plans, though not extending those areas, which may reduce the number of trees that are assumed to be removed in the Arboriculture Impact Assessment. I understand Environmental Performance Requirement AR1 is intended to maximise tree retention within construction work areas.
- 10.7 My analysis reveals that a significant proportion of trees assumed to be removed are either of recent planting date (i.e. within the past 5 years) so that they offer little amenity value at the present time, or are considered to be over-mature so that their removal could be viewed as beneficial in that it would accommodate the planting of replacement juvenile vegetation. As an example, within the City of Melbourne, these trees considered as a group represent 54% of the total number of trees that are assumed to be removed. In addition, the removal of trees at the Arden Station site proposes removal of 38 environmental weeds. This represents approximately 30% of removals at that site, and whether mature or immature their removal has beneficial outcomes.
- 10.8 The proposed extent of tree removal can be put into context by recognising that in 2014 the City of Melbourne managed approximately 70,000 trees in public spaces. In its tree management programme it currently removes 1000 trees per annum and plants 3000 per annum. The proposed works for Melbourne Metro represent a single year of tree removals within the City of Melbourne and because many are over-mature the recruitment of replacement trees by the project contributes to a process that the City of Melbourne would itself be implementing.
- 10.9 In my analysis of the project it is my opinion that the site with greatest potential for negative outcomes is that area of the Domain adjacent to Linlithgow Avenue, Queen Victoria Gardens and Toms Bock, where the twin issues of boring a tunnel above the Citylink Tunnel and the location of emergency exits within Heritage landscapes pose a considerable intrusion within a

sensitive landscape. It is my opinion that further work should be undertaken in this area to reduce potential impacts. This could include the certainty of locating the tunnel beneath the Citylink Tunnel so that the risk of soil instability and collapse is avoided and the relocation of emergency exits to less sensitive locations if possible.

- 10.10 I have made a single Key Assumption in the preparation of this report, namely that the area of work described is the worst case scenario and that while it is possible that all trees within the project area could be removed, it is more likely that a number of these trees will be able to be retained.
- 10.11 Since the Arboriculture Impact Assessment was prepared further trees have been identified at Precincts 1, 2, 4 and 6. This data is attached to my statement as Appendix C.

10.12 RESPONSE TO SUBMISSIONS

I have reviewed the following submissions which raise issues concerning Arboriculture:

| | |
|-------|-------|
| MM007 | MM176 |
| MM017 | MM179 |
| MM059 | MM183 |
| MM068 | MM188 |
| MM070 | MM189 |
| MM081 | MM190 |
| MM089 | MM208 |
| MM091 | MM218 |
| MM096 | MM227 |
| MM100 | MM228 |
| MM128 | MM229 |
| MM133 | MM232 |
| MM135 | MM234 |
| MM137 | MM238 |
| MM151 | MM240 |
| MM162 | MM242 |
| MM172 | MM250 |
| MM173 | MM252 |

| | |
|-------|-------|
| MM175 | MM254 |
| MM255 | MM313 |
| MM256 | MM314 |
| MM268 | MM317 |
| MM270 | MM318 |
| MM283 | MM319 |
| MM284 | MM320 |
| MM289 | MM322 |
| MM293 | MM332 |
| MM298 | MM333 |
| MM299 | MM336 |
| MM300 | MM343 |
| MM301 | MM346 |
| MM304 | MM356 |
| MM310 | MM364 |
| MM312 | MM365 |
| | MM370 |

Refer to attached Appendix B.

10.13 REVIEW OF MMRA TECHNICAL NOTES

I have reviewed MMRA Technical notes 1-18. In my opinion no changes are required to the Environmental Performance Requirements (EPRs) as a result of the MMRA technical notes.

10.14 ENVIRONMENTAL PERFORMANCE REQUIREMENTS

I have reviewed the EPR's relevant to Arboriculture and no changes are recommended.

11 PROVISIONAL OPINIONS.

None.

12 INACCURACIES AND ADDITIONAL MATTERS.

None

A handwritten signature in black ink, appearing to read 'John Patrick', written in a cursive style.

John Patrick
John Patrick Landscape Architects Pty Ltd

APPENDIX A

Curriculum Vitae

John Patrick

JOHN PATRICK

PRINCIPAL



ABOUT JOHN

John Patrick is a registered Landscape Architect, with supplementary qualifications in Landscape Management and Ecology who has over 35 years of professional experience in a variety of project types from Landscape Architecture to Applied Ecology, from design to writing and authorship, from community consultation to conference chairmanship and facilitation.

As a Landscape Architect he has wide ranging experience in areas as diverse as heritage studies, health care design, commercial facility design, park masterplans, housing sub-divisions, hotels and recreation facilities.

John is consistently in demand as an inter-face with the community, at VCAT Hearings, at Community Consultations and as a speaker. His informative and entertaining style allows him to describe and explain challenging concepts and achieve consensus in dispute environments.

Author of 13 books, innumerable conference papers and a television presenter on Burke's Backyard' and more recently 'Gardening Australia' he is a familiar face in Australian Horticulture.

QUALIFICATIONS

Master of Science (Ecology), Durham, 1973

Master of Science (Landscape Ecology, Design & Management), Wye College, London 19736

PROFESSIONAL AFFILIATIONS

Registered Landscape Architect, Australian Institute of Landscape Architects

Graduate Member, Landscape Institute (UK), Management Section

Publications

Contemporary Australian Garden Design, ABC, 2008

The Management of Significant Cultural Landscapes in Hitchmough, J., Urban Landscape Management in Australia, Inkata Press, 1994

Beautiful Gardens With Less Water, Lothian, 1994

Great Garden: No Sweat. Designing a Low Maintenance Garden, Lothian, 1994

Trees for Town and City Gardens, Lothian, 1990

Australian Garden Designs, Penguin, 1985

Recent Projects

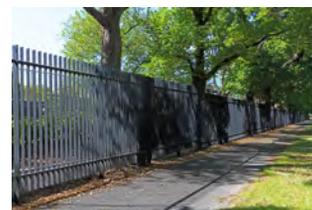
| | |
|----------------------|--------------------|
| Project | Institutional |
| Service | Master Plan Review |
| Client | Trinity College |
| Design Period | 2014 - 2015 |



| | |
|----------------------|----------------|
| Project | VCAT |
| Service | Expert Witness |
| Client | PRIVATE |
| Design Period | 2015 |



| | |
|----------------------|--------------------|
| Project | Institutional |
| Service | Master Plan |
| Client | University College |
| Design Period | 2014 - 2015 |



CONTACT



John Patrick Landscape Architects Pty Ltd
324 Victoria Street, Richmond Victoria 3121



Email
jpatrick@johnpatrick.com.au



Phone
+61 3 9429 4855

APPENDIX B

Response to Submissions

Response to Submissions

| Issue | Submission No | Response | Recommended New or Modified Environmental Performance Requirement |
|--|---------------|--|---|
| Seeks to ensure screening to new walls in Childers Street and planting of new trees. | MM007 | Works should be included in Landscape Design and could include climbing plants to wall faces. The Urban Design Strategy to be implemented by EPR LV1 requires a site responsive approach and to integrate with the context. This approach would ensure that appropriate screening and new trees will be provided. | None |
| Seeks to lift trees to bonsai them for storage and then to replant at completion of project. | MM017 | Evidence suggests that such techniques have a relatively low success rate. Costs involved are considerable and, in practice, it is preferable to plant new, vigorous, young trees with a secure future contribution than to move store and re-plant mature and over-mature vegetation. | None |
| Expresses concern in relation to tree losses from Fawkner Park. Expresses concern in relation to tree removals in St Kilda Road and seeks minimisation of losses. | MM059 | Fawkner Park is no longer proposed as a TBM launch and works site (see TN014). St Kilda Road tree losses to a great degree pre-empt City of Melbourne replacement, losses are to be minimised and a new masterplan for St Kilda Road will ensure planting conforms with the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne policies (See EPRs AR1, AR2, CH20). | None None |
| Expresses concern about extent of tree losses. | MM068 | Tree losses currently documented represent a maximum or 'worst case' scenario. EPR AR1 requires a review of the design to provide for maximum tree retention. Replacement planting is proposed of a new generation of trees to secure | None |

| | | | |
|--|-------|--|------|
| | | medium and long term landscape outcomes (AR3). | |
| Expresses concern about Childers Street tree losses especially since trees to be removed replace trees removed earlier. Under false impression over-mature and young trees not to be replaced. | MM070 | Generally concerns not warranted. New landscape plans will secure tree replacement. See EPR AR3. | None |
| Expresses concern about extent of tree removal in St Kilda Road and seeks assurances about specification for replacement tree planting. | MM081 | Generally the concerns expressed are not warranted. Tree removal to be minimised and replacement tree quality to be specified including quality and size of nursery stock and appropriate establishment techniques. (EPRs AR1, AR3). EPR CH20 relates to replacing removed trees in St Kilda Road and requires that it be done to the satisfaction of the responsible authority to re-establish the boulevard formation. | None |
| Expresses concern about loss of 900 trees from St Kilda Road. | MM089 | Tree removal to be minimised and a replacement programme implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne as applicable (EPRs AR1, AR3, CH20). | None |
| Seeks to retain as many trees as possible. | MM091 | Tree removal to be minimised and a replacement programme implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne as applicable (EPRs AR1, AR3). | None |
| Expresses view that removal of 900 trees from SKR will increase noise intrusion and reduce pollution filtration. | MM096 | There is no evidence to suggest that the presence of trees in the spacings and numbers present in St Kilda Road actually impacts upon noise levels. | None |
| Seeks early reinstatement of landscape as sites are progressively cleared of construction activity. | MM100 | While there are no specific timings identified for the implementation of Landscape Architectural reinstatement works following construction it is presumed they will be implemented in an appropriate and logical time span in accordance with the consultation and policy requirements in | None |

| | | | |
|--|--------|---|------|
| | | AR3. | |
| Expresses desire to see tree removals minimised, quality tree replacement and preferably tunnel below City Link. | MM128 | Tree losses to be minimised and a tree replacement programme implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne as applicable (AR1, AR3). | None |
| Seeks like-for-like replacement in Royal Parade. | | The possibility of constructing a tunnel below City Link is being investigated. | None |
| | | Works in Royal Parade will re-establish boulevard character based on use of Elms to meet expectation of City of Melbourne and Heritage Victoria (EPRs AR1 and CH12). | None |
| Expresses view that street tree losses should be minimised, current value \$10 million. | MM 133 | Tree losses to be minimised, current works areas are maximised and may be reduced at the detailed design stage (AR1). | None |
| TPZ protections to be enforced on trees to be retained. | | Tree protection zones will be enforced (AR4). | None |
| Establish appropriate replacement specification and procurement standard for trees. | | Trees to be replaced as part of Landscape Architectural design response. (AR3). Tree procurement and replacement will be the same for all Council (EPRs AR3 and CH17). | None |
| Elms and Windsor Oak at Boer Memorial of special heritage value and need appropriate protections | | Where tree removals are required new planting will be undertaken in line with policies of Heritage Victoria and City of Port Phillip as applicable. The siting of the Memorial and its landscape setting, if it is to be relocated are required to be considered (EPRs AR3, CH19) | None |

| | | | |
|---|-------|---|------|
| <p>Consistent tree replacement program for all Councils.</p> <p>Council involvement in tree replacement and management works.</p> | | <p>Councils will be consulted in relation to tree replacement programs but will not be directly involved in the management of works (AR3).</p> | None |
| <p>Expresses concern at extent of tree loss, seeks adequate reinstatement.</p> | MM135 | <p>Tree losses will be minimised and a tree replacement programme implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne (AR1, AR3).</p> | None |
| <p>Expresses concern at extent of tree loss especially in St Kilda Road.</p> | MM137 | <p>Tree losses will be minimised and a tree replacement programme implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne. EPR CH20 relates to replacing removed trees in St Kilda Road to the satisfaction of the responsible authority to re-establish the boulevard formation (AR1, AR3, CH20).</p> | None |
| <p>Expresses concern about the number of trees to be removed in St Kilda Road and seeks well grown replacements.</p> | MM151 | <p>Tree removal is to be minimised. Replacement planting will be part of the project outcome with advanced trees grown to appropriate specifications (AR1, AR3, CH20).</p> | None |
| <p>Protect and retain trees (900 to go) even at greater project cost.</p> | MM162 | <p>Tree losses to be minimised and a tree replacement programme implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne (AR1, AR3).</p> | None |
| <p>Expresses view that Melbourne Metro should be constructed without tree loss.</p> | MM172 | <p>Tree losses to be minimised and a tree replacement programme implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne (AR1, AR3).</p> | None |

| | | | |
|--|-------|---|------|
| Expresses concern with tree losses around Shrine. | MM173 | Tree losses to be minimised and a tree replacement programme implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne. EPR CH17 relates specifically to the replacing of removed trees and re-establishing the valued landscape character of the Shrine (AR1, AR3, CH17). | None |
| Expresses that all works around Shrine should be beneath ground to protect trees. | MM175 | Tree losses to be minimised and a tree replacement programme implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne (AR1, AR3, CH17). | None |
| Expresses concern that the St Kilda Road hub will lead to tree losses. | MM176 | Tree removal is to be minimised and tree planting is foreseen as part of a programmed replacement for this area by the City of Melbourne (AR1, AR3, CH20.) | None |
| Expresses view that second entry option in west should be selected to protect trees. | MM179 | Both options will be reviewed and protection of trees will be one of the issues to be considered. | None |
| Expresses opinion that cavern mining in St Kilda Road would save trees; their removal is a significant loss. | MM183 | Tree losses to be minimised and may be less than current estimates, which have been assessed as 'worst case'. The main trees to be removed are over-mature. A tree replacement programme will be implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne (AR1, AR3, CH20). | None |
| View expressed that World's best practise should be pursued to minimise tree losses. | MM188 | Tree losses to be minimised I note that a high percentage of trees proposed to be removed as part of the concept design are over-mature. A tree replacement programme will be implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne (AR1, AR3). | None |
| Expresses view that tree loss in St Kilda Road is a failure to protect and appreciate heritage. | MM189 | Tree replacement will conform to the expectation of Heritage Victoria and the City of Melbourne to protect heritage values of St Kilda Road (CH20). | None |

| | | | |
|---|-------|---|------------------|
| Expresses view that existing trees might be valuably lifted and replanted as preferable to removals, seeks confirmation of replacement numbers (should equal removals) and standards for replacement. | MM190 | Tree lifting and replanting is not a viable option, costs are extremely high and not viable for the numbers of trees involved. Tree replacement will be a part of design programme and will offer an improved outcome in the medium and long term (AR1, AR3). | None |
| Seeks exploration of deep cavern construction method to minimise tree loss in St Kilda Road. Encourages retention of Elms and Windsor Oak adjacent to South African Soldiers Memorial. | MM208 | Alternative construction methods will be assessed by the EES Inquiry Panel with potential tree retention one issue to be evaluated. Please refer to my submission above in relation to submission MM133. | None None |
| Expresses view that 900 mature trees should not be removed; there must be a better way in St Kilda Road. | MM218 | Tree removals to be minimised and a tree replacement programme implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne (AR1, AR3, CH20). | None |
| Seeks protection of River Red in Laurens Street and associated "Naturelink" planting. | MM227 | The River Red Gum is identified for protection in the Arboriculture Impact Assessment. | None |
| Expresses view that depth of tunnel excavation (12m) will damage tree roots. | MM228 | Evidence of the nature of tree root growth suggests tunnelling will be well below tree root plates, and no conflict is foreseen. | None |
| Expresses view that deep cavern mining would avoid loss of trees worth \$20 million. | MM229 | Tree loss to be minimised and a tree replacement programme implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne (AR1, AR3). | None |
| Expresses view that "223 long standing" trees should be retained. | MM232 | Tree loss to be minimised to the extent possible allowing for works. A tree replacement programme implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne (AR1, AR3). | None |

| | | | |
|--|-------|--|------------------|
| Expresses concern at the extent of tree loss in St Kilda Road. | MM234 | Tree losses will be minimised and a tree replacement programme implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne. EPR CH20 relates to replacing removed trees in St Kilda Road to the satisfaction of the responsible authority to re-establish the boulevard formation (AR1, AR3, CH20). | None |
| Supports second option for western portal to protect Childers Street trees. | MM238 | Both options will be reviewed and protection of trees will be one of the issues to be considered. | None |
| Seeks assurances that trees lost from St Kilda Road will be replaced. | MM240 | Landscape Architectural plans to be prepared will ensure tree replacement conforms with the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne and this will ensure appropriate tree replacement (AR1, AR3, CH20). | None |
| Expresses view that cavern mining in SKR is preferable because it minimises tree losses. Seeks minimisation of tree losses within the St Kilda Road exchange. | MM242 | Tree losses to be minimised within constraints of the project (AR1, AR3, CH20). Tree losses to be minimised throughout the project. The losses currently identified represent a maximum number (AR1). Appropriate tree replacement to re-establish trees removed from St Kilda Road required by EPR CH20. | None None |
| Expresses the view that relatively shallow tunnel construction may negatively impact on mature trees. | MM250 | Evidence of the nature of tree root growth suggests tunnelling will be well below tree root plates, and no conflict is foreseen. | None |

| | | | |
|--|--------------|--|-------------|
| <p>Seeks retention of trees in St Kilda Road, most especially trees adjacent to South African Soldiers Memorial.</p> | <p>MM252</p> | <p>Where tree removals are required new planting will be undertaken in line with policies of Heritage Victoria and City of Port Phillip as applicable. The siting of the Memorial and its landscape setting, if it is to be relocated are required to be considered (EPRs AR3, CH19)</p> | <p>None</p> |
| <p>Seeks retention of as many trees as possible.</p> <p>Encourages replacement planting to be consistent with City of Melbourne Urban Forest Strategy and Domain Parklands Master Plan.</p> <p>Suggests appropriately qualified Arborists should be utilised on the project.</p> | <p>MM254</p> | <p>Tree losses are proposed to be minimised within constraints of the project (AR1, AR3, CH20).</p> <p>Landscape Architectural plans to be prepared will ensure tree replacement conforms with the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne and this will ensure appropriate tree replacement. (AR1, AR3, CH20)</p> | <p>None</p> |
| <p>Seeks appropriate professional involvement including soil scientist and arborists to ensure that replacement tree planting is established in appropriate soils and soil volumes.</p> | <p>MM255</p> | <p>Tree replacement planting will utilise trees specifically grown for the project to advanced size and will be planted in soil volumes appropriate for their growth and with high quality soil (AR2).</p> | <p>None</p> |
| <p>Seeks minimisation of tree removals in St Kilda Road and other significant streetscapes on the route.</p> | <p>MM256</p> | <p>Tree losses to be minimised throughout the project. The losses currently identified represent a maximum number (AR1). Appropriate tree replacement to re-establish trees removed from St Kilda Road required by EPR CH20.</p> | <p>None</p> |

| | | | |
|---|--------------|---|-------------------------|
| <p>Seeks minimisation of tree removals.</p> <p>Recommends the lifting, storing and re-planting of trees on sites within the project.</p> | <p>MM268</p> | <p>As indicated above, tree losses currently documented represent a maximum or 'worst case' scenario. EPR AR1 requires a review of the design to provide for maximum tree retention. Replacement planting is proposed of a new generation of trees to secure medium and long-term landscape outcomes (AR3).</p> <p>Evidence suggests that such techniques have a relatively low success rate. Costs involved are considerable and, in practice, it is preferable to plant new, vigorous, young trees with a secure future contribution than to move store and re-plant mature and over-mature vegetation.</p> | <p>None</p> <p>None</p> |
| <p>Seeks retention of gum tree in proximity to dwelling.</p> | <p>MM270</p> | <p>Loss of trees will be minimised. Current extent of works is a maximum and where possible trees will be retained and subject to tree protection measures (AR1).</p> | <p>None</p> |
| <p>Seeks reduction in tree removal in St Kilda Road.</p> <p>Expresses the view that tree replacement in St Kilda Road should utilise Elms and Planes as replacement for existing trees.</p> | <p>MM283</p> | <p>Tree losses to be minimised throughout the project. The losses currently identified represent a maximum number (AR1). Appropriate tree replacement to re-establish trees removed from St Kilda Road required by EPR CH20.</p> <p>EPR CH20 relates to replacing removed trees in St Kilda Road to the satisfaction of the responsible authority to re-establish the boulevard formation (AR1, AR3, CH20).</p> | <p>None</p> <p>None</p> |
| <p>Seeks minimisation of tree removals in St Kilda Road.</p> | <p>MM284</p> | <p>Tree removal to be minimised and a replacement programme implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne as applicable (EPRs AR1, AR3, CH20).</p> | <p>None</p> |

| | | | |
|--|-------|--|-------------------------|
| <p>Seeks reduction in tree removal in St Kilda Road.</p> <p>Seeks replacement of planes and elms removed from St Kilda Road with similar vegetation.</p> | MM289 | <p>Tree removal to be minimised and a replacement programme implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne as applicable (EPRs AR1, AR3, CH20).</p> <p>Landscape Architectural plans to be prepared will ensure tree replacement conforms with the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne and this will ensure appropriate tree replacement (AR1, AR3, CH20).</p> | <p>None</p> <p>None</p> |
| <p>Seeks use of alternative option at western portal to minimise tree losses.</p> | MM293 | <p>Both options will be reviewed and protection of trees will be one of the issues to be considered.</p> | None |
| <p>Seeks reduction in tree loss from St Kilda Road.</p> | MM298 | <p>Tree removal to be minimised and a replacement programme implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne as applicable (EPRs AR1, AR3, CH20).</p> | None |
| <p>Expresses concern that tunnel depth (12.5m is quoted) may cause damage to the root plates of mature trees.</p> | MM299 | <p>Evidence of the nature of tree root growth suggests tunnelling will be well below tree root plates, and no conflict is foreseen.</p> | None |
| <p>Expresses concern that tunnel depth (12.5m is quoted) may cause damage to the root plates of mature trees.</p> | MM300 | <p>Evidence of the nature of tree root growth suggests tunnelling will be well below tree root plates, and no conflict is foreseen.</p> | None |

| | | | |
|--|-------|---|------------------|
| Expresses concern that tunnel depth (12.5m is quoted) may cause damage to the root plates of mature trees. | MM301 | Evidence of the nature of tree root growth suggests tunnelling will be well below tree root plates, and no conflict is foreseen. | None |
| Seeks to minimise tree loss from City Square. | MM304 | Tree removal to be minimised throughout work areas. Generally trees to be removed from City Square are of modest age and can be re-established (AR1). | None |
| Expresses the view that methodologies should be utilised to minimise tree loss from City Square and to other parts of the construction site. Seeks guidance on timeframe for reinstatement of landscape in City Square and growth rate. | MM310 | Tree removals quoted represent a maximum figure. Trees will be retained wherever possible and subject to appropriate tree protection conforming with AS4970-2009 (AR1). Landscape Architectural plans will be implemented as sites become available. Growth rates will be high if native trees are used but immediate impact will be achieved by using advanced stock (AR1 and AR3). | None None |
| Expresses view that alternative construction techniques should be utilised to minimise tree loss in St Kilda Road. | MM312 | Tree removals will be minimised where possible during detailed design in accordance with AR1. A replacement programme implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne as applicable (EPRs AR1, AR3, CH10). | None |
| Seeks reduction in tree removals from St Kilda Road. | MM313 | Please see my comment above. | None |
| Seeks assessment of vegetation in western turn back and protection of trees of identified amenity value. | MM314 | The Arboricultural Survey did not identify trees in this area. This will be re-checked prior to the Hearing. Tree removals will be minimised in accordance with AR1. | None |

| | | | |
|--|--------|---|------------------|
| Encourages retention of about 20 trees proposed to be removed from City Square. | MM317 | Tree removal to be minimised throughout work areas. Generally trees to be removed from City Square are of modest age and can be re-established (AR1). | None |
| Seeks minimisation of tree removals from the University of Melbourne Gratten Street frontage. Encourages use of environmentally appropriate landscape outcomes in final design. | MM318 | Tree removals will be minimised throughout the project and are likely to be less than those currently identified (AR1). Landscape Architectural plans will be prepared for all sites and these are likely to meet high environmental standards. | None None |
| Encourages relocation of Domain Station to north side of St Kilda Road to parkland to minimise tree loss. | MM319 | Domain Station has been located to minimise impact on heritage landscapes and to maximise accessibility. | None |
| Recommending sites on VHR should be subject to specific Heritage responses. | MM320 | Refer to Lovell Chen Report which deals with heritage issues relating to the project. | None |
| Encourages minimisation of tree removal form St Kilda Road. | MM322 | Tree removal to be minimised and a replacement programme implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne as applicable (EPRs AR1, AR3, CH20). | None |
| Expresses concern about tree loss and long-term damage to soils in Tom's Block by soil grouting techniques. Expresses concern about location of | MM 332 | Tree loss and impact on Tom's block should be minimised either by locating the tunnel beneath Citylink or using soil stabilisation techniques that avoid impact where possible upon upper soil levels where tree roots are present (AR1, AR2, AR3, AR4, CH17). Location of emergency exits should be identified to | None |

| | | | |
|--|--|---|-------------|
| <p>emergency exists within the Alexandra Gardens, Queen Victoria Gardens and Tom's Block.</p> | | <p>minimise intrusion on Heritage landscapes and the associated built form appropriately and sensitively designed and located (AR4, CH1, CH9).</p> | <p>None</p> |
| <p>Seeks appropriate replacement of Elms within Royal Parade with spacing appropriate to maintain avenue planting character.</p> | | <p>Elms should be replanted in an avenue formation following development of an appropriate Construction Management Plan and Masterplan that takes into account proposed works and heritage value (AR1, AR2, AR4, CH12).</p> | <p>None</p> |
| <p>Seeks minimisation of removals in the University of Melbourne Grattan Street frontage and re-establishment of Coast Redwoods.</p> | | <p>Removals are proposed from the University of Melbourne frontage though these will be minimised in line with EPR AR1. Replacement will reflect University's future vision (AR1, AR4).</p> | <p>None</p> |
| <p>Seeks retention of Spotted Gums at the corner of Franklin Street and Victoria Street near CBD North Station.</p> | | <p>Trees have no heritage protection. Tree removals will be minimised and new tree planting established to replace removals (AR1, AR3).</p> | <p>None</p> |
| <p>Seeks appropriate replacement tree planting for the Elm within City Square on the corner of Swanston and Collins Streets.</p> | | <p>New tree planting will be an integral part of works proposed to achieve a replacement canopy in line with City of Melbourne policy (AR2, AR3).</p> | <p>None</p> |
| <p>Seeks protection of as many trees in the Shrine precinct as possible and appropriate replacement planting if required.</p> | | <p>In line with the EPRs for the project, tree removal will be minimised and detailed design developed to protect trees including Tree Management Plans (AR1, AR3, AR4).</p> | <p>None</p> |

| | | | |
|--|-------|---|------------------|
| Seeks reduction in trees losses from St Kilda Road. | MM333 | Tree removal to be minimised and a replacement programme implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne as applicable (EPRs AR1, AR3, CH20). | None |
| Seeks retention of trees in St Kilda Road. | MM336 | See comment above. | None |
| Seeks retention of trees in St Kilda Road. Encourages retention of trees around Boer War Memorial. | MM343 | See comment above. Where tree removals are required new planting will be undertaken in line with policies of Heritage Victoria and City of Port Phillip as applicable. The siting of the Memorial and its landscape setting, if it is to be relocated are required to be considered (EPRs AR3, CH19) | None None |
| Seeks retention of trees in St Kilda Road. | MM346 | Tree removal to be minimised and a replacement programme implemented that meets the expectations of Heritage Victoria, City of Port Phillip and City of Melbourne as applicable (EPRs AR1, AR3, CH20). | None |
| Seeks minimisation of tree removals in St Kilda Road. Seeks protection of elms and the Windsor Oak associated with the Boer War Memorial. | MM356 | See comment above. Where tree removals are required new planting will be undertaken in line with policies of Heritage Victoria and City of Port Phillip as applicable. The siting of the Memorial and its landscape setting, if it is to be relocated are required to be considered (EPRs AR3, CH19) | None None |

| | | | |
|---|--------|--|-------------------------|
| <p>Seeks establishment of replacement planting of similar type and spacing to established pattern.</p> <p>Encourages lifting and replanting of existing trees.</p> | | <p>Tree replacement will conform to the expectation of Heritage Victoria and the City of Melbourne to protect heritage values of St Kilda Road (CH20).</p> <p>Evidence suggests that such techniques have a relatively low success rate. Costs involved are considerable and, in practice, it is preferable to plant new, vigorous, young trees with a secure future contribution than to move store and re-plant mature and over-mature vegetation.</p> | <p>None</p> <p>None</p> |
| <p>Seeks retention of trees in University Square.</p> <p>Seeks retention of trees in Royal Parade.</p> | MM364 | <p>Trees within University Square have been identified as having low retention value. Their removal has been identified within work proposed by City of Melbourne.</p> <p>Removal of trees in Royal Parade will be part of a masterplan proposed for Royal Parade to maintain a boulevard character and will conform to expectations of Heritage Victoria and City of Melbourne (AR1, AR3).</p> | <p>None</p> <p>None</p> |
| <p>Suggests that removal of 55 trees and stabilisation works within Kings Domain (Tom's Block) would create a dead zone with new tree establishment a difficult process leading to permanent impact within a heritage precinct.</p> <p>Suggests that the location of an emergency access shaft within the Queen Victoria Gardens adjacent to the Floral Clock and Edward VII Statue is inappropriate.</p> | MM 365 | <p>Tree loss and impact on Tom's block should be minimised either by locating the tunnel beneath Citylink or using soil stabilisation techniques that do not impact upon upper soil levels where tree roots are present. (AR1, AR2, AR3, AR4, CH17)</p> <p>Location of emergency exits should be identified to minimise intrusion on Heritage landscapes and the associated built form appropriately and sensitively designed and located. (AR4, CH1, CH9)</p> | <p>None</p> <p>None</p> |

| | | | |
|---|--------------|---|---|
| <p>Requires any emergency access shaft within Toorak Road, West to respect the TPZ of the National Trust registered trees (<i>Araucaria bidwillii</i>).</p> <p>Suggests that the use of public open space during construction and for installation of permanent structures should be avoided.</p> <p>Seeks retention of trees within the Arden Siding to be integrated with future urban renewal.</p> <p>Seeks to minimise removal of mature elms within Royal Parade Heritage Precinct.</p> <p>Seeks to direct access to Edmund Herring Oval via Dallas Brooks Drive allowing retention of mature trees.</p> | | <p>The establishment and implementation of Tree Protection Zones for vegetation adjacent to works will secure the protection of significant trees (AR4)</p> <p>Construction works require temporary use of public open space. Reinstatement including appropriate re-planting will be undertaken to repair loss. Detailed resolution of access and site works will minimise impact. (AR1, AR3, AR4)</p> <p>Tree removals will be minimised throughout the project. (AR1)</p> <p>Works will retain trees to the greatest extent possible, however in sites with heritage value works should conform with expectations of Heritage Victoria and in Royal Parade. This is likely to be in line with an appropriate CMP and Masterplan. (AR1, AR2, AR4, CH12)</p> <p>Tree loss will be minimised throughout the project. Detailed design should ensure modified access to maximise protection of mature vegetation.</p> | <p>None</p> <p>None</p> <p>None</p> <p>None</p> <p>None</p> |
| <p>Expresses concern at the extent of tree loss in the St Kilda Road, Domain and Albert Park Reserve.</p> | <p>MM370</p> | <p>St Kilda Road tree losses to a great degree pre-empt City of Melbourne replacement, losses are to be minimised and a new masterplan for St Kilda Road will ensure planting conforms with the expectations</p> | <p>None</p> |

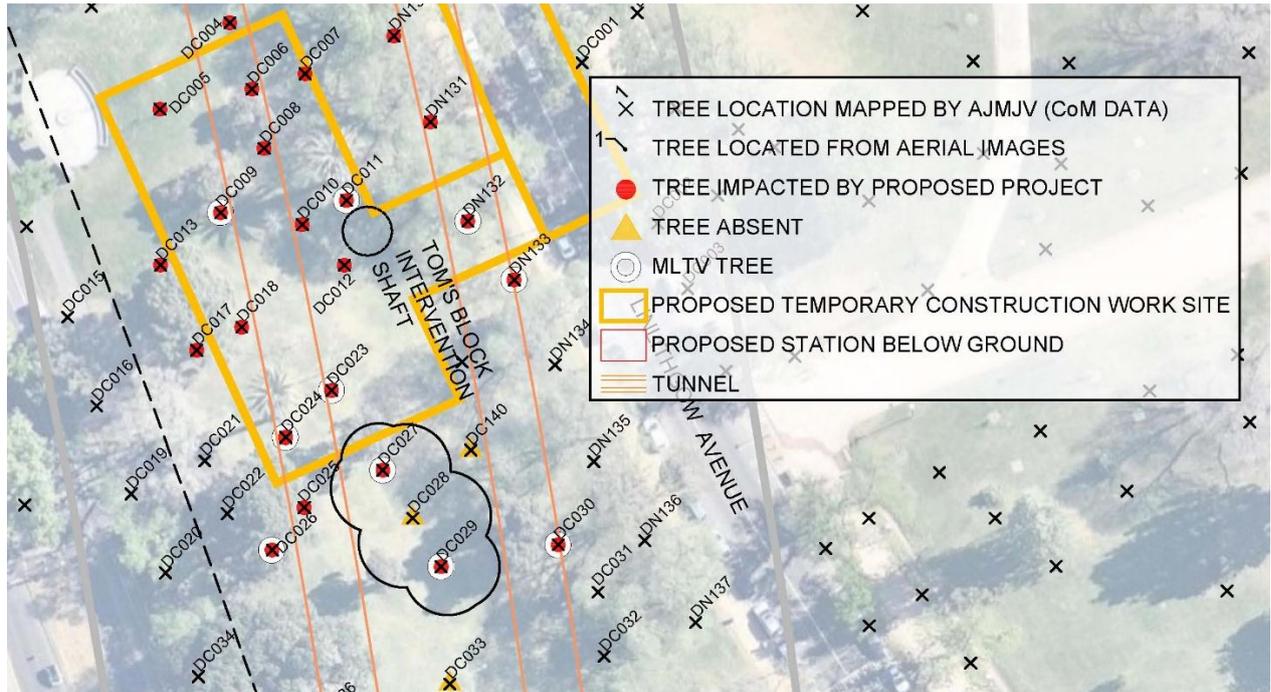
| | | | |
|--|--|--|---|
| <p>Suggests that extent of incursion in Fawkner Park is excessive.</p> <p>Expresses a view that St Kilda Road vegetation should be relocated.</p> <p>Encourages replanting of lost vegetation.</p> <p>Recommends preparation of a report in accordance with AS4970-2009 Protection of Trees on Development Sites.</p> <p>Encourages replacement of trees on a specie (sic) for specie (sic) basis.</p> | | <p>of Heritage Victoria, City of Port Phillip and City of Melbourne policies. Losses generally will be minimised and are likely to be less than current maximum numbers suggest (See EPRs AR1, AR2, CH20).</p> <p>Fawkner Park is no longer proposed as a TBM launch and works site (see TN014).</p> <p>Evidence suggests that such techniques have a relatively low success rate. Costs involved are considerable and, in practice, it is preferable to plant new, vigorous, young trees with a secure future contribution than to move store and re-plant mature and over-mature vegetation.</p> <p>Planting in St Kilda Road will ensure planting conforms with the expectations of Heritage Victoria policies and this is likely to include replacement of like with like.</p> <p>Tree retention programmes will be prepared and will require works to conform to AS4970-2009.</p> <p>Heritage Victoria is likely to require this approach. All plans prepared for tree planting in St Kilda Road will be approved by Heritage Victoria.</p> | <p>None</p> <p>None</p> <p>None</p> <p>None</p> <p>None</p> |
|--|--|--|---|

APPENDIX C

Tree Data

APPENDIX C ADDITIONAL TREE ASSESSMENTS AND CORRECTIONS

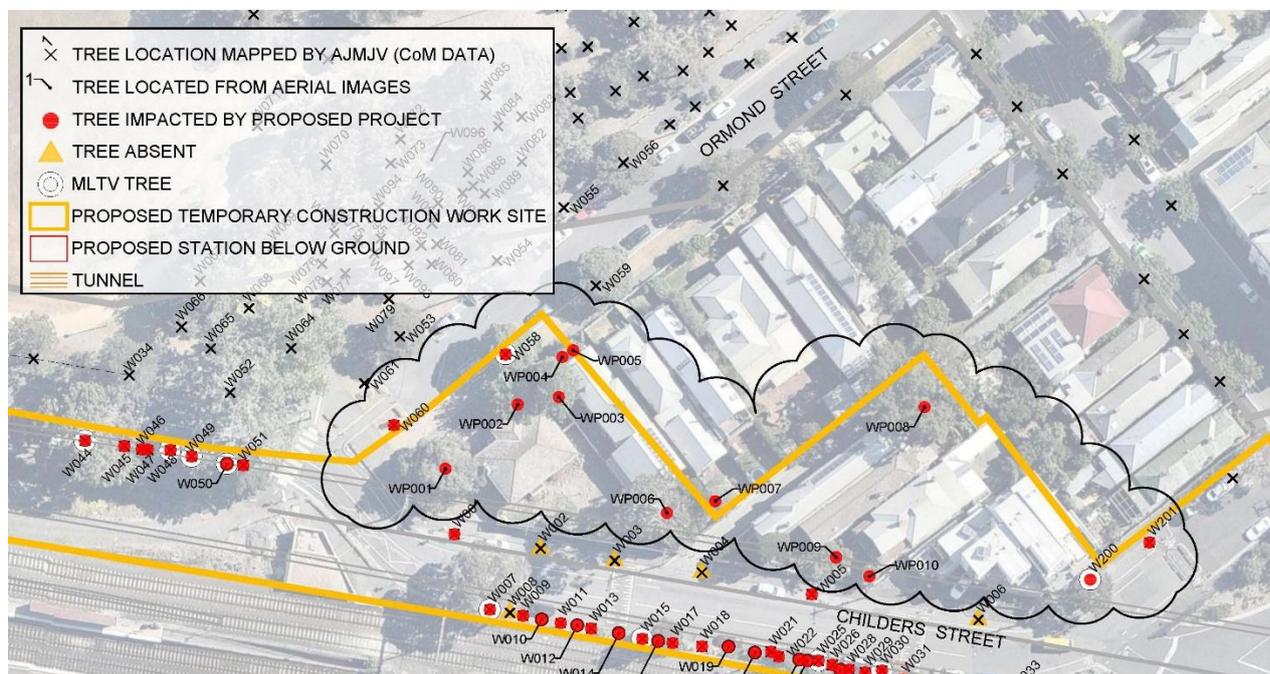
1.1 PRECINCT 1 – TUNNELS



Two additional trees assessed (previously recorded as missing) – Tom's Block

| No | Species | Common name | ULE | Age |
|---|---------------------------|-------------------|-------|-------------|
| Trees highlighted grey are semi-mature to over mature trees in the public realm with a ULE > 10years (MLTV Trees) | | | | |
| DC027 | <i>Corymbia ficifolia</i> | Red-flowering Gum | 21-30 | Semi-mature |
| DC029 | <i>Corymbia ficifolia</i> | Red-flowering Gum | 21-30 | Semi-mature |

1.2 PRECINCT 2 – WESTERN PORTAL



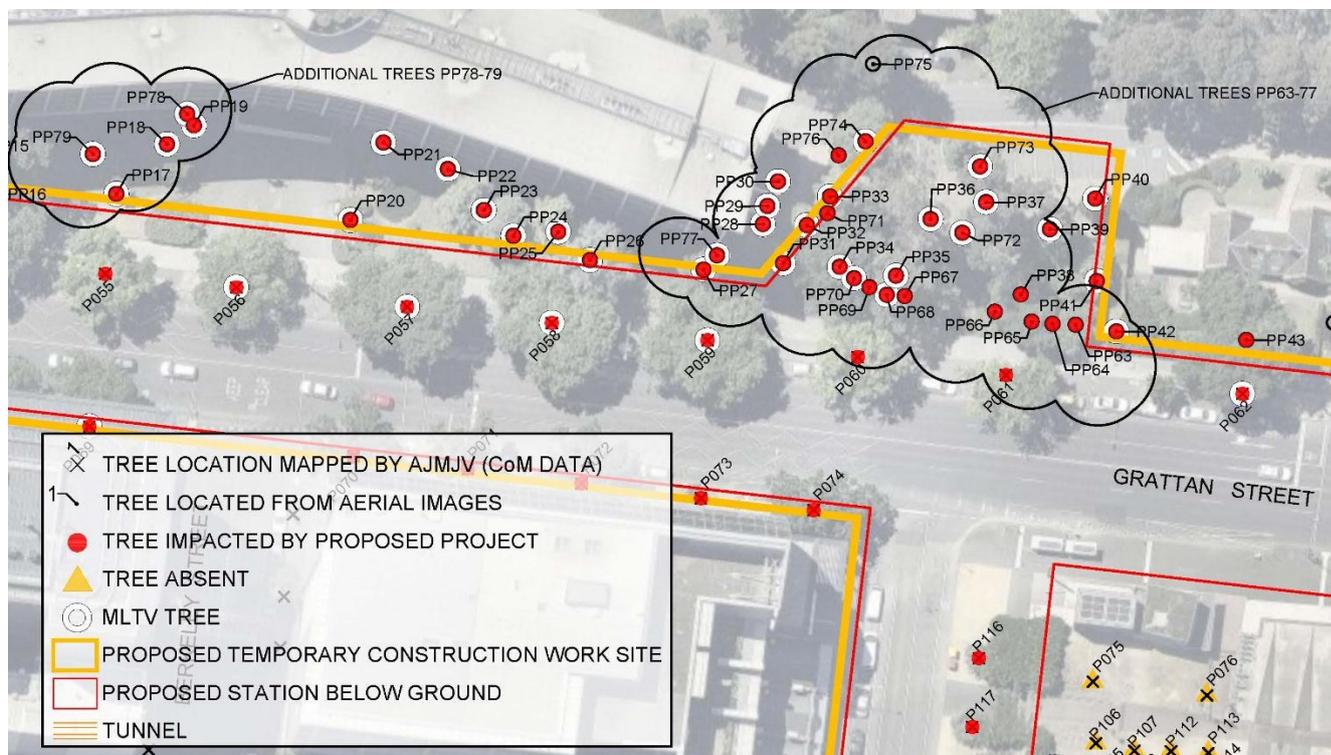
Two Additional Trees Assessed – Tennyson St

| No | Species | Common name | ULE | Age |
|---|--------------------------------|-------------|-------|-------------|
| Trees highlighted grey are semi-mature to over mature trees in the public realm with a ULE > 10years (MLTV Trees) | | | | |
| W200 | <i>Eucalyptus polyanthemos</i> | Red Box | 31-60 | Semi-mature |
| W201 | <i>Eucalyptus polyanthemos</i> | Red Box | 60+ | Juvenile |

Trees assessed in private properties north of Childers St

| No | Species | Common name | ULE | Age |
|-------|---------------------------------|-------------------|-------|-------------|
| WP001 | <i>Agonis flexuosa</i> | Willow Myrtle | 11-20 | Semi-mature |
| WP002 | <i>Liquidambar styraciflua</i> | Liquidamber | 21-30 | Semi-mature |
| WP003 | <i>Grevillea robusta</i> | Silky Oak | 21-30 | Semi-mature |
| WP004 | <i>Hymenosporum flavum</i> | Native Frangipani | 21-30 | Semi-mature |
| WP005 | <i>Cupressus sempervirens</i> | Pencil Pine | 31-60 | Semi-mature |
| WP006 | <i>Eucalyptus mannifera</i> | Red Spotted Gum | 31-60 | Semi-mature |
| WP007 | <i>Casuarina cunninghamiana</i> | River She-oak | 21-30 | Semi-mature |
| WP008 | <i>Corymbia citriodora</i> | Lemon-scented Gum | 21-30 | Semi-mature |
| WP009 | <i>Radermacheria sinica</i> | Emerald Tree | 6-10 | Semi-mature |
| WP010 | <i>Pittosporum tenuifolium</i> | Kohuhu | 1-5 | Semi-mature |

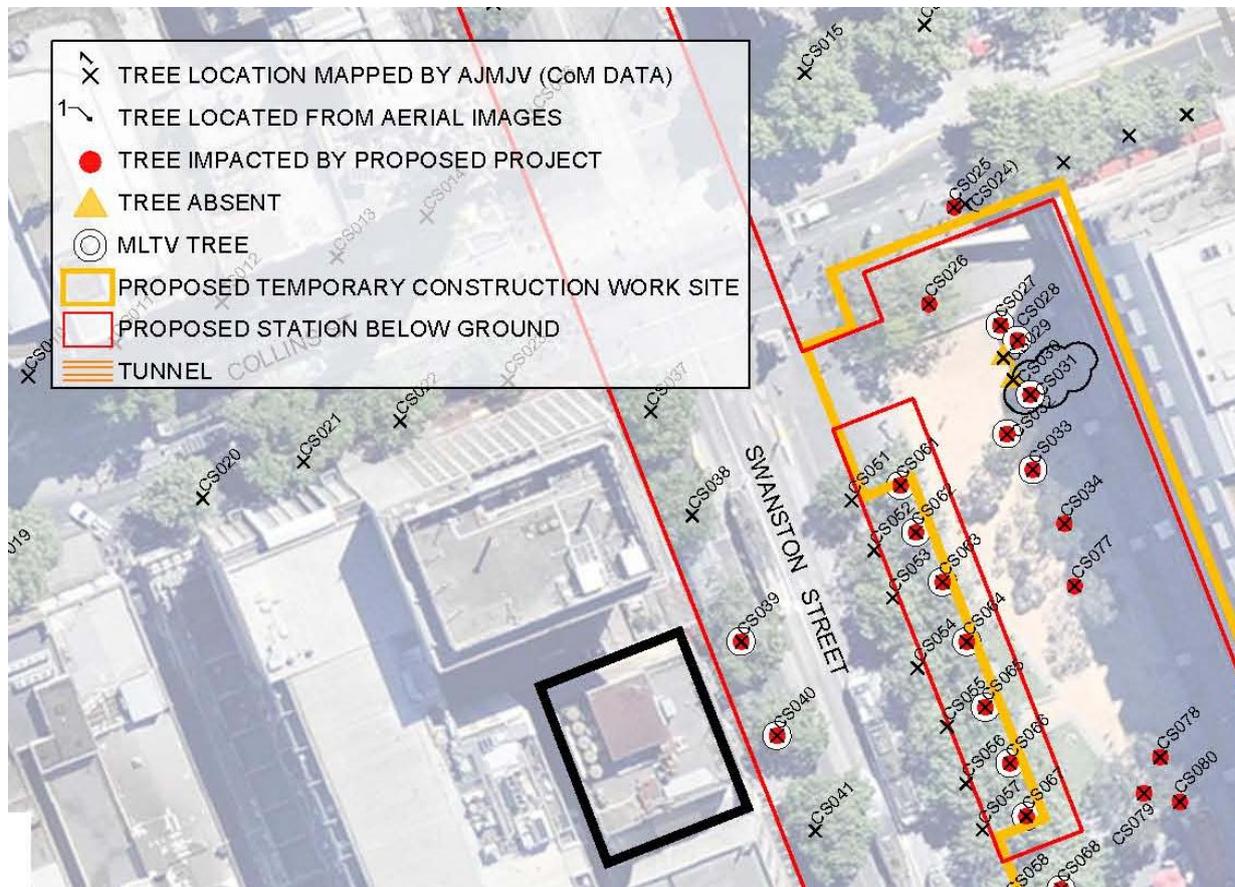
1.3 PRECINCT 4 – PARKVILLE, UNIVERSITY OF MELBOURNE



Additional trees assessed, University of Melbourne

| No | Species | Common name | ULE | Age |
|------|----------------------------------|---------------------|-------|-------------|
| PP63 | <i>Cotoneaster glaucophyllus</i> | Cotoneaster | 0 | Semi-mature |
| PP64 | <i>Cotoneaster glaucophyllus</i> | Cotoneaster | 0 | Semi-mature |
| PP65 | <i>Pittosporum undulatum</i> | Sweet Pittosporum | 0 | Semi-mature |
| PP66 | <i>Sequoiadendron giganteum</i> | Giant Redwood | 60+ | Juvenile |
| PP67 | <i>Pinus sp.</i> | Pine | 60+ | Juvenile |
| PP68 | <i>Larix decidua</i> | European Larch | 31-60 | Semi-mature |
| PP69 | <i>Syzygium smithii</i> | Lilly Pilly | 31-60 | Juvenile |
| PP70 | <i>Cupressus funebris</i> | Funeral Cypress | 11-20 | Semi-mature |
| PP71 | <i>Pinus sp.</i> | Pine | 60+ | Juvenile |
| PP72 | <i>Araucaria cunninghamii</i> | Hoop Pine | 60+ | Semi-mature |
| PP73 | <i>Cupressus torulosa</i> | Bhutan Cypress | 21-30 | Semi-mature |
| PP74 | <i>Quercus suber</i> | Cork Oak | 31-60 | Semi-mature |
| PP76 | <i>Pinus mugo</i> | Swiss Mountain Pine | 60+ | Juvenile |
| PP77 | <i>Azara microphylla</i> | Azara | 11-20 | Semi-mature |
| PP78 | <i>Hamamelis sp.</i> | Witch Hazel | 31-60 | Semi-mature |
| PP79 | <i>Prunus sp.</i> | Plum | 21-30 | Semi-mature |

1.4 PRECINCT 6 – CBD SOUTH – CITY SQUARE



Additional trees assessed (previously recorded as missing) – City Square

| No | Species | Common name | ULE | Age |
|---|--------------------------|-------------|-------|-------------|
| Trees highlighted grey are semi-mature to over mature trees in the public realm with a ULE > 10years (MLTV Trees) | | | | |
| CS031 | <i>Corymbia maculata</i> | Spotted Gum | 31-60 | Semi-mature |