

Under the Resource Management Act 1991  
In the matter of Notices of Requirement to enable the construction, operation and  
maintenance of the City Rail Link

Between

**Auckland Transport**

Requiring Authority

And

**Auckland Council**

Consent Authority

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**Statement of Evidence of Simon Percival Chapman**

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## Qualifications and Experience

1. My full name is Simon Percival Chapman.
2. I am a Principal and Ecologist at Boffa Miskell Ltd. I have a Bachelor of Science and a Postgraduate Diploma in Applied Science from Lincoln University. I have worked full-time as a professional ecologist since January 2001 and prior to that I worked intermittently and part-time as an ecologist for the four years leading up to December 2000.
3. The main focus of my work is the assessment and management of ecological effects of development, with an emphasis on infrastructure and other large scale developments. Major projects on which I have provided ecological advice include:
  - a) Escarpment Mine Project (2011-ongoing)
  - b) Mokihinui Hydroelectric Project (2010-2011)
  - c) Transmission Gully Project (2009-ongoing)
  - d) Te Uku Windfarm (2008-ongoing)
  - e) SH1 Northern Busway Extension Preliminary Scheme Assessment (2009)
  - f) SH1 Waitiki Landing to Cape Reinga Seal Extension (2008-2009)
  - g) SH1 Avalon Drive Bypass (2007)
  - h) SH1 Northern Busway (2005-2008)
  - i) SH1 Northern Gateway Toll Road (2004-ongoing)
  - j) SH18 Greenhithe Deviation (2002-2003)
4. The City Rail Link (CRL) project is a 3.4km underground passenger railway (including two tracks and three underground stations) running between Britomart Station and the North Auckland Line (NAL) in the vicinity of the existing Mount Eden Station. The CRL also requires an additional 850m of track modifications within the NAL. The stations

included in the CRL Notice of Requirement (**NoR**) have been temporarily named Aotea Station, Karangahape Station, Newton Station.

5. I am very familiar with the project area as I have carried out multiple site visits commencing with an initial survey in March 2012.
6. I have read the Code of Conduct for Expert Witnesses as contained in the Environment Court Consolidated Practice Note (2011), and I agree to comply with it as if this hearing was before the Environment Court. My qualifications as an expert are set out above. I confirm that the issues addressed in this brief of evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

#### **Scope of Evidence**

7. My evidence will address the following:
  - (a) An assessment of the effects of CRL construction and operation on trees, including:
    - (i) The assessment methodology adopted;
    - (ii) The actual and potential effects of construction and operation of the CRL project on trees;
    - (iii) Proposed mitigation and conditions;
  - (b) Response to submissions; and
  - (c) Response to Planner's Report.

#### **Summary of Evidence**

8. The key conclusions of the tree assessment were:
  - (a) Tree surveys identified 23 trees and tree groups which will require translocation or removal for CRL construction, and a further 10 which will require protection from construction activities if retained.

- (b) Recommended mitigation is a combination of translocation of affected trees, the protection of trees abutting surface works areas, and replacement planting. The details of mitigation and tree protection will be provided in the Construction Environmental Management Plan (CEMP) and the Urban Design and Landscape Plan.
9. My evidence will also address the details and conclusions of additional tree assessment work completed after the NoR was lodged. The tree assessment considered effects based on draft CRL construction plans which were revised during the assessment. The list and maps of affected trees appended to the assessment were revised during April 2013 to reflect the potential effects of the designation footprint rather than the construction footprint used previously. I attach the revised list and maps to my evidence as Annexures A and B respectively.
10. The additional tree assessment work identified 132 trees and tree groups, including 16 scheduled trees, within surface designation areas (Annexures A and B). While a much smaller subset of trees will require removal, translocation or protection, all trees within surface designation areas should be considered to be potentially affected by CRL construction. The final determination of which trees and tree groups will be affected by CRL construction will need to be made once construction plans, methodologies and timeframes have been finalised.
11. **Background and role**
12. Boffa Miskell was engaged by Auckland Transport's Principal Advisor team (PA) in support of the NoR work stream. The PA is led by Aurecon NZ Ltd and comprises the principal partners of Aurecon NZ Ltd, Mott MacDonald, Jasmex and Grimshaw. The PA reports directly to Auckland Transport's Infrastructure Delivery work stream which is responsible for delivery of the CRL project. The PA is also supporting the Notice of Requirement (NoR) and Property work streams.
13. My specific role in the CRL project team was to provide an independent assessment of the CRL projects actual and potential effects on trees. In more detail, this role has included:

- (a) A survey of trees within the project area;
- (b) The preparation of the CRL Tree Assessment Report (dated 9 August 2012)<sup>1</sup>;
- (c) The provision of ecological and arboricultural input into the CRL Concept Design Report and Urban Design Framework; and
- (d) An update to the CRL Tree Assessment (dated 8 April 2013).

#### **NoR tree assessment**

14. The tree assessment methodology comprised :

- (a) Multiple walkovers of the project area carried out during 2012 and 2013 and a range of parameters collected for all trees present. Where trees were on private land, visual inspections of the trees were carried out from the adjacent road reserve or other vantage points providing views of those trees.
- (b) The methodology for the tree assessment involved a visual inspection of each tree or groups of trees, carried out from ground level. The purpose of the visual inspection was to:
  - (i) Identify the species of tree or group of trees;
  - (ii) Record an estimated tree height, girth, canopy spread and GPS waypoints;
  - (iii) Briefly assess the general condition of the tree or groups of trees; and
  - (iv) Identify any obvious signs that would suggest structural problems with the tree or any areas where further investigation is warranted.
- (c) Field notes were collated during the site walkover. The field notes included the marking of the trees on high resolution aerial imagery. Trees were mapped on a Tree Survey Plan.

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<sup>1</sup> Appendix 8: Volume 3 CRL NoR suite of documents

- (d) Tree heights were estimated with a Nikon Forestry 550 laser rangefinder where a clear view of the tree was possible. Where a row of trees exist a subsample of tree height estimates was collected and applied to the entire row.
- (e) Trunk girths were recorded at 1.4m above ground level. Where there are multiple trunks, the cumulative measurement of all trunks greater than 250mm was recorded. A random subsample of the trees was measured and the girth rounded to the nearest 100mm. Tree girths are best described as estimates.
- (f) Canopy spread was estimated by stepping out the distance of the tree canopy.
- (g) GPS waypoints were collected using a Garmin GPSMAP® 62s hand-held GPS unit. Typical accuracy of the device is  $\pm 3\text{-}4\text{m}$  in open areas. However, due to the presence of buildings and dense tree canopy in some parts of the project area, accuracy was as low as  $\pm 12\text{m}$ . The GPS waypoints were downloaded and assessed. Where appropriate, waypoints were manually amended to provide a more accurate position. All GPS waypoints should be treated as estimates only.
- (h) Tree condition assessments took into account:
  - (i) The vitality of the tree in relation to its growing environment;
  - (ii) The shapeliness of the canopy; and
  - (iii) The form of the branch structure.
- (i) Appendix 2 of the Auckland City Council District Plan – Central and Isthmus Sections was reviewed to identify Scheduled or Notable Trees. Trees nominated for Scheduled or Notable tree status are listed in Plan Change 305 of the Isthmus Section. Relevant pages of the Auckland Council website were reviewed to identify any nominated trees potentially affected by the CRL.

15. The April 2013 update to the tree assessment included a revised list of potentially affected trees and tree groups (Annexure A) and

corresponding revised maps (Annexure B). The original tree assessment report was based on surface areas of the CRL construction footprint whereas the updated list and maps include all trees and tree groups within surface designation areas.

16. The tree assessment identified the following actual and potential effects of the CRL project:
  - (a) CRL construction will adversely affect trees because 23 trees and tree groups within the surface works footprint, and 10 trees and tree groups present in areas abutting surface works areas, will need to be removed; and
  - (b) The opportunity to incorporate locally appropriate native species as part of replacement planting represents a potential positive effect.
17. The April 2013 updates to the tree assessment appendices reflected a change in approach from one that involved assessing trees within or abutting surface works areas taken from draft construction plans to an approach based on assessing trees within, partially within, or abutting, surface designation areas. Draft CRL construction plans were used as the basis for the original tree assessment because plans of the NoR surface designation areas were not available at the time the tree assessment was completed.
18. A total of 132 trees and tree groups occur within CRL surface designation areas (Annexures A and B). While the draft CRL construction plans upon which the tree assessment was based indicated that a much smaller subset of trees and tree groups would require removal or translocation for CRL construction, in my opinion it is appropriate to consider that all trees within surface designation areas are potentially affected by CRL construction.
19. Scheduled trees within surface designation areas include 15 tulip trees (T36-T38 and T40-T51) at the northern end of Mayoral drive and a large coral tree (T128) on a traffic island at the intersection of Boston Road and Normanby Road. Six of the scheduled tulip trees (T34-T39)

are near the edge of the surface designation footprint and unlikely to be unaffected by CRL construction.

20. The potential and actual adverse effects identified by the tree assessment including the updated list and maps will be mitigated by:
- (a) The translocation of affected trees where appropriate and feasible;
  - (b) The protection of trees abutting surface works areas; and
  - (c) Replacement planting comprised of a minimum of one specimen tree, with a minimum grade of 45L, planted for each tree removed.

### **Response to submissions**

21. I have read submissions lodged to the CRL that raise trees or related issues relevant to my area of expertise. In this section of my evidence I will address these submissions.
22. One submission raised matters in relation to specific trees. Submission 61 by ML Hoeft Partners highlighted that several native trees on private land at 34 Nikau Street were not included in the tree assessment. The trees in question were included in the April 2013 update to the tree assessment. The inclusion of the additional trees does not alter the conclusions of my assessment.
23. Several submitters specifically identified replacement planting as part of a high quality streetscape post-construction. I concur. In my opinion the proposed one-for-one replacement planting is appropriate. Replacement tree species selection and positioning will be addressed by the Urban Design and Landscape Plan, and through consultation with Auckland Council's Parks Department. On that basis I am confident that trees will be incorporated into streetscape designs appropriately.

### **Response to Planner's Report**

24. I have reviewed the Section 42A Planner's Report including Attachment K (Arboricultural Assessment by Mr Grant Sirl of Arboricultural Consultancy Services) which provided a review of the CRL NoR Tree Assessment and draft CRL NoR conditions relevant to tree management.
25. Mr Sirl recommended an exclusion zone down to five metres below the surface along Vincent Street to protect scheduled London plane trees present there. It is my understanding that the designations and construction methodology for that area will avoid construction activities within the exclusion zone sought by Mr Sirl therefore no additional protection is required there.
26. I concur with the conclusions of the tree-related sections of the Planner's Report and Mr Sirl's Arboricultural Assessment. I am not opposed to the amendments to the tree-related draft conditions recommended in the Planner's Report. The requirement for clarification of potentially affected tree and tree group numbers referred to in both the Planner's Report and Mr Sirl's assessment is fulfilled by Annexures A and B to this evidence.

### **Proposed conditions**

27. The proposed draft conditions being prepared by Ms Fiona Blight include appropriate provisions for avoiding and mitigating the adverse effects identified in the tree assessment. In addition to the condition specifically relating to trees, draft conditions also require the development of an Urban Design and Landscape Plan.
28. I have had input into the development of the Urban Design Framework and Principles and, in my opinion, the identified effects on trees that are unsuitable candidates for translocation will be adequately mitigated by replacement planting provided through the Urban Design and Landscape Plan.

### **Conclusion**

29. I confirm that I support the CRL project on the basis that adverse effects on trees have been appropriately assessed and all identified effects on trees can be avoided or mitigated.

**Simon Chapman**

**2 July 2013**

## **Annexure A: Tree List (April 2013)**

Tree #	Common name	Botanical name	Estimated height (m)	Estimated girth (mm)	Estimated spread (m)	Arboricultural comments	Tree # from previous assessment
T1	Pohutukawa	<i>Metrosideros excelsa</i>	5	500	5	Healthy tree in raised concrete bed	
G2	Kauri x 18	<i>Agathis australis</i>	2 to 6.5	120 to 440	1.5	Feature planting formed of three rows of six trees. Two within the NE corner are more recent planting and the most NE tree has snapped. Overall condition of most of the Kauri is good. Further investigation into feasibility of transplanting is required.	G2
G3	Pohutukawa x 4	<i>Metrosideros excelsa</i>	2	120	1	Fairly recent planting (say within the last 1 – 2 years) within circular concrete planter boxes. Likely to be successfully transplanted if required.	G3
G4	Cabbage Tree x 3	<i>Cordyline australis</i>	1 to 2.5	260	1	Planted in two concrete planters with understory <i>Coprosma</i> sp. and <i>Carex</i> sp. Could potentially be transplanted.	G4
G5	Queensland Box Gum x	<i>Lophostemon confertus</i>	11	Cum. 2000	7	Overall in good condition. No obvious signs of structural problems.	T5
T6	Pohutukawa	<i>Metrosideros excelsa</i>	7	Cum. >2000	12	Three trunks from near base. A branch has previously been tom near the NE canopy edge.	T6
G7	Honey Locust x 2	<i>Gleditsia triacanthos</i>	4	570	5	Tree is within a raised concrete planter (approx. knee height). A power pole and lamp are directly adjacent. Overall condition is considered good.	T7
T8	Evergreen Magnolia	<i>Magnolia grandiflora</i>	8	800	6	Located within a small concrete planter. Two lamps are either side of the canopy. Overall condition is good.	T8
T9	Italian Alder	<i>Alnus cordata</i>	15	930	7	Good health and shapeliness. On the fringe of the rail link envelope.	T9
T10	Evergreen Magnolia	<i>Magnolia grandiflora</i>	3.5	330	3	Tree potentially could be transplanted, if required.	T10
T11	Evergreen magnolia	<i>Magnolia grandiflora</i>	6	640	4	In a concrete planter with Mondo grass beneath. Healthy crown.	T11
T12	Evergreen Magnolia	<i>Magnolia grandiflora</i>	6	640	4	Same as above (T11). Slight sweep of crown towards the west.	T12
T13	Elm	<i>Ulmus</i> sp.	8	800	4	Could be within private land. Camellia hedge beneath.	T13
T14	Evergreen Magnolia	<i>Magnolia grandiflora</i>	6	600	2	Overall condition is fair to good. Is within a knee height concrete planter within Mondo grass.	T14
T15	Evergreen Magnolia	<i>Magnolia grandiflora</i>	6	600	3	Similar growing environment as above. This tree is in good condition.	T15
T16	Evergreen Magnolia	<i>Magnolia grandiflora</i>	6	600	3	Same as above (T15).	T16
T17	Evergreen Magnolia	<i>Magnolia grandiflora</i>	12	1100	5.5	Good overall condition. Base is approximately 1m from the edge of the kerb. A lamp post is adjacent to the tree.	T17
T18	Evergreen Magnolia	<i>Magnolia grandiflora</i>	12	1100	5.5	Same as above.	T18
T19	Evergreen Magnolia	<i>Magnolia grandiflora</i>	12	1100	5.5	Tree divides into two trunks at approximately 2m above ground level. Healthy canopy and overall in good condition.	T19
T20	Evergreen Magnolia	<i>Magnolia grandiflora</i>	10	600	7	Healthy canopy with no obvious signs of structural problems.	T20
T21	Evergreen Magnolia	<i>Magnolia grandiflora</i>	9	820	4	Healthy tree that divides into two stems at approx. 4m above ground level.	T21
T22	Evergreen Magnolia	<i>Magnolia grandiflora</i>	9	800	4	Overall in good condition.	T22
T23	Evergreen Magnolia	<i>Magnolia grandiflora</i>	10	1300	8	Overall in good condition.	T23
T24	Evergreen Magnolia	<i>Magnolia grandiflora</i>	7	600	5	No obvious structural problems. Overall in good condition.	T24
T25	Evergreen Magnolia	<i>Magnolia grandiflora</i>	7	800	8	Tree roots can be seen running along the face of the kerb and channel. Tree is adjacent to a power pole.	T25
T26	Evergreen Magnolia	<i>Magnolia grandiflora</i>	6	600	5	Overall in good condition. A power plinth is located adjacent to the tree.	T26
T27	Evergreen Magnolia	<i>Magnolia grandiflora</i>	10	1000	9	Overall condition is good. A power pole is located adjacent to the canopy.	T29
T28	Evergreen Magnolia	<i>Magnolia grandiflora</i>	8	800	8	Thin canopy and assessed to the in fair condition. Leaves appear larger than adjacent Magnolia's. This could be a sign of stress.	T30
T29	Evergreen Magnolia	<i>Magnolia grandiflora</i>	9	1000	8	Overall condition is good.	T31
T30	Evergreen Magnolia	<i>Magnolia grandiflora</i>	9	800	8	Overall condition is good.	T32
T31	Oriental Plane	<i>Platanus orientalis</i>	12	1200	14	"The Harvey Tree". Overall condition is poor.	T33
G32	Evergreen Magnolia	<i>Magnolia grandiflora</i>	5 to 12	750		Row of three trees in good condition.	
G33	Pohutukawa x 11	<i>Metrosideros excelsa</i>	7	600	3	Within or directly adjacent to footprint of Aotea Station. Row of trees that have been planted within a raised garden bed. Transplanting of some may be feasible if required.	T34
T34	Queensland Box Gum	<i>Lophostemon confertus</i>	13	1600	12	Good specimen however there is no fluting at the base of the trunk. Further investigation should be carried out to ensure not root decay.	T49
T35	Queensland Box Gum	<i>Lophostemon confertus</i>	8	1200	7	Good specimen.	T50
T36	Tulip Tree	<i>Liriodendron tulipifera</i>	9	1100	5	Good specimen. Small trunk wound at base.	T51
T37	Tulip Tree	<i>Liriodendron tulipifera</i>	9	1100	5	Good specimen.	T52
T38	Tulip Tree	<i>Liriodendron tulipifera</i>	6	1000	5	Central leader has been lost and the road side canopy is almost non-existent. Poor shapeliness.	T53

Tree #	Common name	Botanical name	Estimated height (m)	Estimated girth (mm)	Estimated spread (m)	Arboricultural comments	Tree # from previous assessment
T39	Queensland Box Gum	<i>Lophostemon confertus</i>	12	2000	10	Very good tree. Lamp post is to the south of the tree.	T54
T40	Tulip Tree	<i>Liriodendron tulipifera</i>	6	800	7	Overall in good condition. There is one tear wound on the road side of the trunk.	T35
T41	Tulip Tree	<i>Liriodendron tulipifera</i>	10	600	4	Some twiggy deadwood and a thinner crown than the adjacent tree.	T36
T42	Tulip Tree	<i>Liriodendron tulipifera</i>	8	1000	7	Overall condition is good.	T37
T43	Tulip Tree	<i>Liriodendron tulipifera</i>	8	800	6	The central stem of the tree has been lost; affecting the form.	T38
T44	Tulip Tree	<i>Liriodendron tulipifera</i>	11	1600	8	Some pavement lifting beneath the tree. Largest Tulip within the immediate vicinity and in good health.	T39
T45	Tulip Tree	<i>Liriodendron tulipifera</i>	11	900	5	Large 'kink' in the trunk at approximately 2m above ground level. Healthy canopy.	T40
T46	Tulip Tree	<i>Liriodendron tulipifera</i>	7	900	7	Central leader is dead. Overall the tree is in poor health. Lowest southern limb is also dead.	T41
T47	Tulip Tree	<i>Liriodendron tulipifera</i>	7	900	7	Thin canopy with twiggy deadwood. A power pole is adjacent to the tree.	T42
T48	Tulip Tree	<i>Liriodendron tulipifera</i>	7	600	4	Tree is in poor condition with a dead upper canopy. It appears that the central stem has snapped out previously.	T43
T49	Tulip Tree	<i>Liriodendron tulipifera</i>	8	600	6	Thinning canopy. Trunk wound towards the northern side.	T44
T50	Tulip Tree	<i>Liriodendron tulipifera</i>	5	450	3	Central leader has previously been removed and two lateral branches have now assumed the dominate leaders. Form of the tree is poor and the health fair.	T45
T51	Tulip Tree	<i>Liriodendron tulipifera</i>	13	1300	10	Tall and overall a good specimen.	T46
G52	Griselinia x 3	<i>Griselinia littoralis</i>	To 5.5	600	5	Group of trees on the bank to the side of, and below, an adjacent bus stop. Overall condition of the trees is good.	G47
	Titoki x 3	<i>Alectryon excelsus</i>					
	Cabbage tree	<i>Cordyline australis</i>					
G53	Pittosporum	<i>Pittosporum sp.</i>	To 12		6m	Native planting contiguous with G54	
G54	Griselinia	<i>Griselinia littoralis</i>	To 6	650	5	Native planting contiguous with G53	
	Pittosporum	<i>Pittosporum sp.</i>					
	Cabbage tree	<i>Cordyline australis</i>					
G55	Magnolia	<i>Magnolia sp.</i>	To 6	-	-	Row of evergreen magnolias within a carpark.	G207
T56	Honey Locust x 14	<i>Gleditsia triacanthos</i>	To 7	800	5	Mixed row of young to semi-mature trees within an adjacent carpark. In some areas the overhang is 2 to 3m over the footpath. By and large the condition of the trees is good.	T48
G57	Honey Locust x 2	<i>Gleditsia triacanthos</i>	To 6	600	4	Young trees within the same carpark as G207. The trees are in good condition. Adjoins T48	G208
G58	Honey Locust x 8	<i>Gleditsia triacanthos</i>	To 7	800	5	Mixed row of young to semi-mature trees within a carpark. The condition of the trees is good. Parallel row in same carpark as 208	G209
G59	Magnolia x 6	<i>Magnolia sp.</i>	To 6	-	-	Row of evergreen magnolias within a carpark.	G210
G60	Magnolia x 9	<i>Magnolia sp.</i>	To 7	-	-	Continuation of the G210 row of evergreen magnolias in the carpark.	G211
T61	Pohutukawa	<i>Metrosideros excelsa</i>	3	120	2	Single small tree in large garden bed.	
G62	Pohutukawa x 5	<i>Metrosideros excelsa</i>	2 to 10	To 600	2 to 4	Row of street trees in fair to good condition.	
G63	Pohutukawa x 3	<i>Metrosideros excelsa</i>	3 to 6	To 500	2 to 4	Row of street trees in fair to good condition.	
	Rewarewa	<i>Knightia excelsa</i>					
G64	Monkey apple	<i>Syzygium smithii</i>	15	2200	15	Large tree with coprosma shrubs at base.	
	Taupata	<i>Coprosma repens</i>					
G65	Rewarewa x 3	<i>Knightia excelsa</i>	3 to 5	200	1 to 2	Row of three street trees in fair to good condition.	
T66	Queensland Box Gum	<i>Lophostemon confertus</i>	15	2000	14	Street tree in good condition.	
G67	London Plane x 3	<i>Platanus x acerifolia</i>	To 10	1600	To 13	Overall condition of the trees is good.	T149
T68	London Plane	<i>Platanus x acerifolia</i>	8	1000	8	Tree grate at base is choking the tree. This probably is the cause of a thin canopy and lots of twiggy deadwood. Otherwise fair condition.	T148
T69	Pohutukawa	<i>Metrosideros excelsa</i>	4	Cum. 800	4	Formed of two primary trunks with a seam running between. Some decay is present above the union in the inner surface. Surface roots visible around the open ground at the base. Fair specimen.	T146
T70	Pohutukawa	<i>Metrosideros excelsa</i>	4	Cum. 600	4	Tree has been crown lifted quite high for age of tree. Multi-leader from knee height.	T147
T71	Evergreen Magnolia	<i>Magnolia grandiflora</i>	7	1000	5	Canopy and trunk is close to shop awning. Overall condition is good.	T150
T72	Evergreen Magnolia	<i>Magnolia grandiflora</i>	7	1000	5	Same as above.	T151

Tree #	Common name	Botanical name	Estimated height (m)	Estimated girth (mm)	Estimated spread (m)	Arboricultural comments	Tree # from previous assessment
T73	Titoki	<i>Alectryon excelsus</i>	6	600	4	Canopy is windswept from southerly winds. Lowest branch has a seam running from the union down the trunk. Some minor twiggy deadwood. Overall fair form and good health.	T152
G74	Puriri	<i>Griselinia littoralis</i>	To 10	-	-	Viewed from street as trees on private land. Privet, cabbage tree and Prunus sp. also present in group.	
	Karaka	<i>Pittosporum sp.</i>					
	Ginkgo	<i>Cordyline australis</i>					
G75	Pittosporum	<i>Pittosporum sp.</i>	12	950	8	Pittosporum 12 x 8 m x 30cm	
T76	Titoki	<i>Alectryon excelsus</i>	7	1000	7	Tree within car park and close to the adjacent dwelling. One low branch overhangs the entrance to the car park.	T153
G77	Puka x 2	<i>Meryta sinclairii</i>	2	300	2	Two individual trees with understorey Flax (Purple leaved). Within private property.	G154
	Flax	<i>Phormium sp.</i>					
G78	Flax	<i>Phormium sp.</i>	1	-	1	Purple leaved cultivar that is grouped within private property.	G155
T79	?	?	4	Cum. 600	5	Unidentified species within a traffic island.	T156
T80	?	?	2.5	Cum. 600	5	2 x trunks at base with crack and decay in between union. Structurally in poor condition.	T157
G81	Nikau	<i>Rhopalostylis sapida</i>	To 8	-	-	1x nikau 8m 2 x puka 5m, 1 x purple grey leaved weed (4 x 2m x 20cm) starts with f	
	Puka	<i>Meryta sinclairii</i>					
	Buddleia	<i>Buddleia sp.</i>					
G82	Brush wattle	<i>Paraserianthes</i>	To 5	-	-	Patch of woody weeds.	
T83	Pohutukawa	<i>Metrosideros excelsa</i>	7	1000	5	Blocks surround the tree and girdling roots within the open planting pit. Overall health is good.	T192
T84	Cabbage tree	<i>Cordyline australis</i>	To 3	-	-	Group in raised bed	T179
		Flax					
T85	Crepe Myrtle	<i>Lagerstroemia indica</i>	4	600	4	Overall in good condition.	T180
T86	Pohutukawa	<i>Metrosideros excelsa</i>	6	1000	5	A limb on the NE canopy edge has torn out affecting the shapeliness. Wound wood development surrounds the tear. Healthy foliage.	T181
T87	Silver Birch	<i>Betula pendula</i>	6	600	4	Central leader of the tree has previously been removed – a cavity now runs down the trunk from the wound. Overall in poor condition	T182
T88	Crepe Myrtle	<i>Lagerstroemia indica</i>	4	600	4	Overall in good condition.	T183
T89	Pohutukawa	<i>Metrosideros excelsa</i>	7	Cum. 1000	5	A lamp post is adjacent to the canopy. Tree has three trunks.	T184
T90	Crepe Myrtle	<i>Lagerstroemia indica</i>	4	600	4	Overall in good condition.	T185
T91	Silver Birch	<i>Betula pendula</i>	6	700	4	Overall in good condition.	T186
T92	Pohutukawa	<i>Metrosideros excelsa</i>	6	900	5	Overall in good condition.	T187
T93	Silver Birch	<i>Betula pendula</i>	6	700	4	Overall in good condition. The roots are affecting the footpath.	T188
T94	Pohutukawa	<i>Metrosideros excelsa</i>	6	900	5	Overall in good condition.	T189
T95	Silver birch	<i>Betula pendula</i>	8	600	3	Tree in fair condition.	
T96	Chinese Windmill Palm	<i>Trachycarpus fortunei</i>	7	500	1	Tall palm with areas of the furry bark dislodging. Potentially some structural problems with the trunk.	T194
G97	Cabbage Tree	<i>Cordyline australis</i>	2 to 4	-	-	Several cabbage trees and exotic palms in garden beds.	
G98	?Bamboo	? <i>Phyllostachys sp.</i>	-	-	-	Not accessed as on private property and surrounded by buildings. Tops viewed from roadside. Other tree species probably present.	
G99	Leptospermum	<i>Leptospermum sp.</i>	-	-	-	Leptospermum (hybrid/garden variety) hedge.	
T100	Puka		2	-	-	Small puka 2m	
G101	Pohutukawa	<i>Metrosideros excelsa</i>	-	-	-	Not accessed as behind buildings on private property. Tree tops viewed from roadside. Group also includes a puka and one or more unidentified exotic trees	
	Nikau	<i>Rhopalostylis sapida</i>					
	Cabbage tree x 2	<i>Cordyline australis</i>					
T102	Evergreen Magnolia	<i>Magnolia grandiflora</i>	7	1500	8	Tree within private property. Healthy canopy.	T195
G103	?Foxtail Palm x 2	? <i>Wodyetia bifurcata</i>	5	1500	3	Viewed from road. Palms are located on top of a retaining wall within private property.	G196
T104	?	?	12	-	-	Viewed at distance from roadside. Appears to be an exotic tree, possibly a honey locust	
G105	Tree privet	<i>Ligustrum lucidum</i>	To 4	-	-	Infestation of weed trees. Not accessed but viewed from Ngahura St.	G215
	Brush wattle	<i>Paraserianthes</i>					
G106	Japanese spindle tree	<i>Euonymus japonicus</i>	4	-	-	Small grove of an invasive tree species mixed with other weeds around the bases	G216

Tree #	Common name	Botanical name	Estimated height (m)	Estimated girth (mm)	Estimated spread (m)	Arboricultural comments	Tree # from previous assessment
G107	Silver birch x 3	<i>Betula pendula</i>	To 4	to 400mm	To 5m	Two smaller specimens in poor condition, the larger specimen is in good overall condition.	G218
T108	?	?	14	-	-	Not accessed. Viewed at distance from roadside. Appears to be an exotic conifer or similar.	
G109	Evergreen Magnolia	<i>Magnolia grandiflora</i>	12	1100	6	Tree with shrubs at the base including camellias, rhododendrons and other small garden plants.	
G110	Pittosporum	<i>Pittosporum sp.</i>	-	-	-	Extensive garden bed with wide range of garden plants and weeds. Coprosma garden varieties also present as shrubs.	
G111	Pohutukawa	<i>Metrosideros excelsa</i>	8	800	8	Overall in good condition.	
G112	Pittosporum	<i>Pittosporum sp.</i>	To 8	-	-	Pittosporum planting which also includes a loquat tree spreading over the boundary fence.	
G113	Flax	<i>Phormium texax</i>	-	-	-	Extensive flax hedging.	
G114	Cabbage tree	<i>Cordyline australis</i>	-	-	-	Extensive garden beds with some trees/shrubs including cabbage tree, puka, pittosporum, coprosma and hebe.	
G115	Cabbage tree	<i>Cordyline australis</i>	-	-	-	Extensive garden beds with some trees/shrubs including cabbage tree, puka, pittosporum, coprosma and hebe.	
G116	Brush wattle	<i>Paraserianthes lophantha</i>	-	-	-	Not accessed as on private land. Tops viewed at distance from roadside. Appears to be a patch of exotic trees/shrubs including brush wattle, bamboo and pine.	
G117	Bottlebrush	<i>Callistemon rigidus</i>	-	-	-	Garden beds with some shrubs including bottlebrush and yucca.	
T118	Pohutukawa	<i>Metrosideros excelsa</i>	10	-	-	Tree viewed from road reserve. Appears healthy. GPS waypoints manually plotted.	T197
T119	Pohutukawa	<i>Metrosideros excelsa</i>	8	-	5	Viewed from railway over bridge. Tree has been cut back from the railway line and adjacent building. Base of tree is close to the building foundations.	T199
G120	Titoki	<i>Alectryon excelsus</i>	5	-	-	Garden bed with single tree and a low korokio hedge.	
G121	Cabbage Tree x 3	<i>Cordyline australis</i>	2	-	-	Garden bed has few plants considering its large area. Coprosma is a ground cover form.	G198
	Grass x 2	<i>Carex? sp.</i>					
	Coprosma x 1	<i>Coprosma sp.</i>					
	Pseudopanax x 1	<i>Pseudopanax sp.</i>					
G122	Titoki	<i>Alectryon excelsus</i>	6	-	-	Single small tree with hedge including hebe, griseinia, and various exotic shrubs to 2m.	
G123	Pittosporum	<i>Pittosporum sp.</i>	To 4	-	-	Dense native planting which also includes flax and coprosma species.	
	Lacebark	<i>Hoheria sp.</i>					
	Totara	<i>Podocarpus totara</i>					
	Cabbage Tree	<i>Cordyline australis</i>					
T124	Karaka	<i>Corynocarpus laevigatus</i>	8			Not accessed. Viewed at distance from rail corridor. Some surrounding low garden plants and/or weeds also present.	
T125	Evergreen Magnolia	<i>Magnolia grandiflora</i>	8	750	10	Good condition. Some surrounding hedge plants and small palms in pots.	
G126	Oak	<i>Quercus robur</i>	18	3000	20	Large tree surrounded by shrubs and weeds incl gorse, brush wattle, pampas, German ivy, cabbage tree and coprosma.	
G127	Totara		7	1200	7	Small tree in good condition in a garden bed with several small exotic conifers.	
T128	Coral tree	<i>Erythrina crista-galli</i>	20	3100	16	Large tree on traffic island beside roundabout.	
G129	Bottlebrush	<i>Callistemon sp.</i>	To 10	-	-	Row of weeping form of bottlebrush only the first 2-3 trees are within the designation.	
G130	Black locust	<i>Robinia pseudoacacia</i>	To 6	-	-	Mixed native and exotic hedge of shrubs including kowhai, titoki, camellia, flax and garden conifers.	
	Pittosporum	<i>Pittosporum sp.</i>					
G131	Black locust x 3	<i>Robinia pseudoacacia</i>	To 6	-	-	Cabbage tree is growing in pavement and has been topped at 1.5m.	
	Cabbage Tree x 1	<i>Cordyline australis</i>					
G132	Titoki x 2	<i>Alectryon excelsus</i>	To 6	-	-	Garden bed with several small/medium trees. Flaxes and bedding / hedging plants also present.	
	Cabbage Tree x 4	<i>Cordyline australis</i>					

## **Annexure B: Tree Maps (April 2013)**



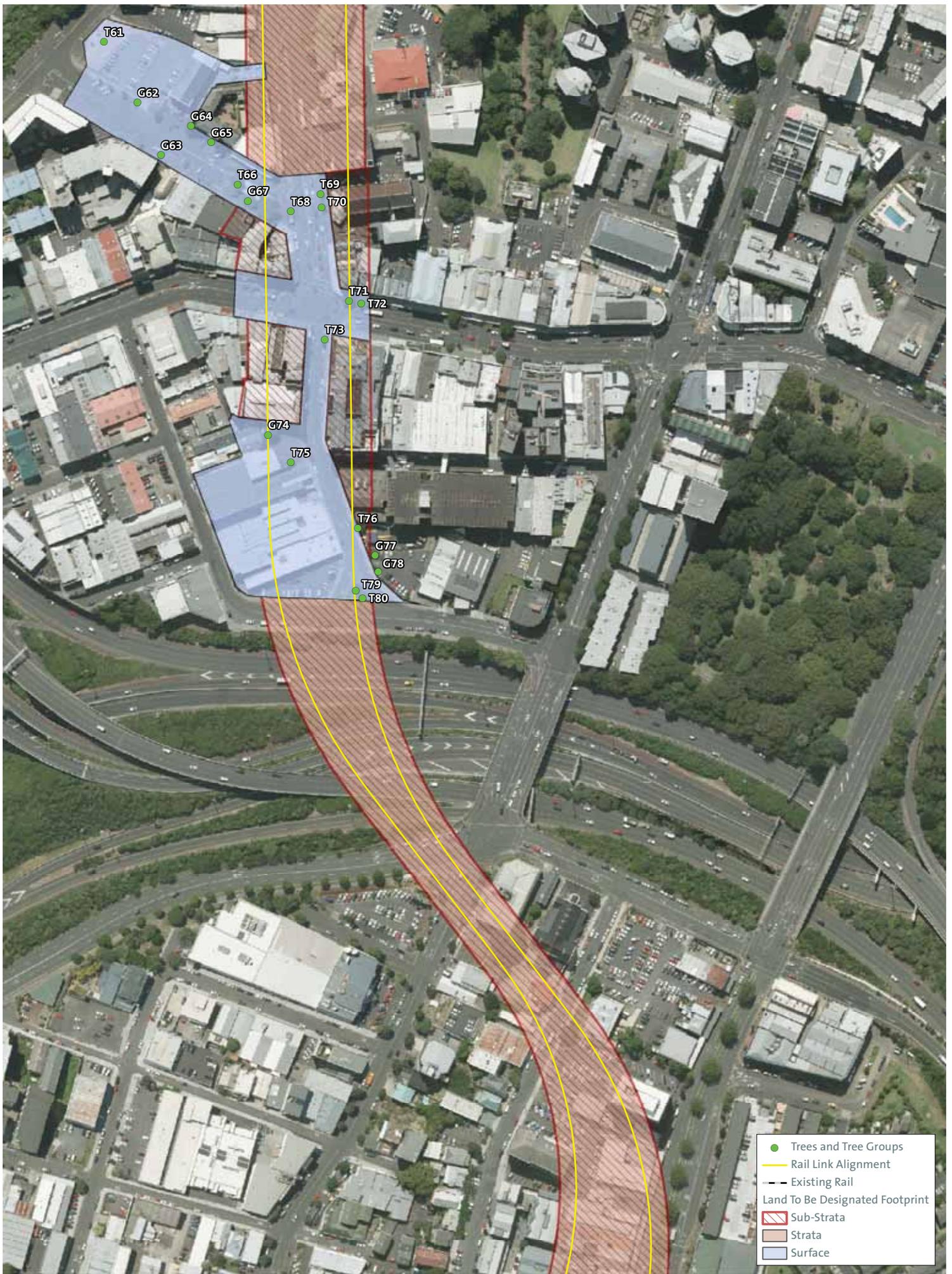
- Map Frames
- Trees and Tree Groups
- Rail Link Alignment
- Existing Rail
- Land To Be Designated Footprint
- Sub-Strata
- Strata
- Surface



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