SECOND GENERATION DISTRICT PLAN

Variation 2 – Additional Housing Capacity

Section 32 Report

Appendices

February 2021

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Variation 2 – Additional Housing Capacity

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Appendix 8

DCC Memorandum from DCC Biodiversity Advisor

November 2020

DUNEDIN CITY COUNCIL | kaunihera ā-rohe o Ōtepoti

Memorandum

TO:	Nathan Stocker
FROM:	Richard Ewans, Biodiversity Advisor
DATE:	30 November 2020
SUBJECT:	2GP VARIATION 2 POTENTIAL REZONING SITES – BIODIVERSITY COMMENTS

Hi Nathan,

Please find my biodiversity comments on the potential Variation 2 rezoning sites as follows.

1. Between July and October 2020, I assessed the biodiversity values on a range of potential sites for rezoning as part of the 2GP Appeals and Variation 2 processes.
2. This was carried out to minimise potential losses of indigenous biodiversity associated with rezoning. While vegetation clearance rules currently provide a level of protection for many of these sites, a change to Residential zoning would result in the lifting of any vegetation clearance restrictions, and therefore potential losses of indigenous biodiversity.

Methodology and context

3. Initially, for all sites provided, I inspected aerial photography dated 2006, 2009 (urban areas only), 2013, and 2018-19; satellite imagery (Google Earth), and recent mapping of vegetation cover of the Dunedin City District completed by Wildland Consultants Ltd[1].
4. Sites where there were no observable or mapped indigenous biodiversity values were recorded as such.
5. Once Stage 1 of the process had identified areas being considered, remaining Variation 2 sites where there were observable or mapped indigenous biodiversity values were identified for field inspection (8 sites). For some sites, multiple properties were involved. Of these:
    i. I carried out field inspections in October and November 2020 for 4 sites (23, 98, 152 and 215), with the permission of, and sometimes accompanied by, the landowners.
    ii. Site 172 was inspected by Elizabeth Schonwald (DCC Graduate Planner, City Development).
    iii. One site (155) was found to have relevant information available from previous work and field inspection was not carried out.
    iv. One site (52) was inspected by both myself and an ecological consultant.
    v. One site (51) is awaiting reporting from an ecological survey by external consultants with permission of the landowners.

[1] Wildland Consultants Ltd (2020). Mapping of indigenous and exotic vegetation cover across Dunedin City District. Contract Report No. 4934 prepared for Dunedin City Council.

6. Where biodiversity values have been identified for protection, areas were mapped using DCCs GIS software (Geocortex or ArcMap 10.6.1). Site report summaries, including a suggested approach to protection for areas of indigenous biodiversity, are provided below. Maps and photographs are provided in Appendix 1. Unless otherwise stated, all maps were created using 2018-19 aerial photography as the base image, with north at the top of the image.
7. A table of all sites assessed is provided in Appendix 2, and Appendix 3 lists the scientific names of all plant species referred to in the report by common name.

Current General Residential Zones

8. Variation 2 sites being considered and already zoned General Residential 1 or 2 and identified for medium density status (Sites 73, 82, 83, 87, 88, 91, 97, 174, 185, 216, 217, 218 and 219) were not targeted for field inspection. Vegetation, including indigenous vegetation, can be removed without resource consent in Residential zones unless in an Urban Biodiversity Mapped Area (UBMA) or if it is a scheduled tree, and my advice was that a change in density does not justify increased restrictions on vegetation clearance.
9. It is noted that some areas outside UBMAs in General Residential 1 & 2 Zones retain small patches of indigenous vegetation, established exotic trees, and high-quality gardens[2] which provide habitat for indigenous biodiversity. Intensification poses a direct risk to these values, which in many cases will also align with amenity and other values[3], by potentially exacerbating tree and habitat loss. For example, a recent study reported a loss of over 12,000 trees in a 10-year period in one area of inner-city Auckland, a third of which were due to developments, improvements and extensions[4].
10. Planning changes that increase potential losses of 'urban forest' may be in conflict with the Draft National Policy Statement for Indigenous Biodiversity (currently due to be gazetted in April 2021), which sets minimum targets for indigenous vegetation cover in urban areas. Such changes are also likely to run contrary to both a growing body of literature on urban design and ecology, and the stated targets of many Australasian cities (e.g. Hamilton, Christchurch, Brisbane, Melbourne, etc) which are aiming to increase vegetative cover due to the significant benefits it confers (e.g. [5] & [6]).
11. At this stage it is difficult to quantify what the resulting impact might be of densification; shifting the focus to more greenfield sites may have a similar overall impact on established exotic trees and small patches of indigenous vegetation and high quality gardens, albeit in a different ecological setting. However, it is recommended that further work is carried out to look at options for avoiding and minimising the impact of intensification on biodiversity habitat (and other) values in Dunedin.

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[2] Freeman C & Buck O (2003). Development of an ecological mapping methodology for urban areas in New Zealand. Landscape and Urban Planning 63: 161-173.
[3] Trees and urban forest provide a substantial range of environmental and societal benefits, see Auckland Council (2019). Auckland's Urban Ngahere (Forest) Strategy.
[4] https://ourauckland.aucklandcouncil.govt.nz/articles/news/2018/10/study-measures-urban-tree-loss/. Accessed 20/11/2020.
[5] Rastandeh A & Jarchow M (2020). Urbanization and biodiversity loss in the post-Covid-19 era: complex challenges and possible solutions. *Cities & Health* Special Issue: Covid -19: 1-4.
[6] Wallace KJ & Clarkson BD (2019). Urban forest restoration ecology: a review from Hamilton, New Zealand. Journal of the Royal Society of New Zealand 49(3): 347-369.

Variation 2 sites

Table 2 – Summary of 2GP Variation 2 sites identified for field inspection.

Site number	Location	Biodiversity protection recommendation	Note
23	Polwarth Rd & Wakari Rd	No action required	No biodiversity values identified from field inspection
51	233 Signal Hill Rd	ASBV, pending report from consultant ecologist	See Paragraphs 12-14
52	235 Signal Hill Rd	ASBV	See Paragraphs 15-23
98	32/45 Honeystone Street	Structure plan and/or covenant on land title	See Paragraphs 24-28
152	Area surrounding Highcliff Road	Resolved	Constructed freshwater wetland area removed from rezoning area after field inspection
155	19 Main South Rd. Concord	Structure plan and/or covenant on land title	See Paragraphs 29-30
172	336 and 336A Portobello Road	No action required	No biodiversity values identified from field inspection
215	87 Selwyn Street	Structure plan and/or covenant on land title	See Paragraphs 31-36

Site 51 – 233 Signal Hill Road

Summary of biodiversity values

12. Native kanuka-broadleaved forest area identified previously by Council as a potential ASBV[7]. Almost the entire native forest area is already protected by private land covenant restricting vegetation clearance but ecological survey was recommended to assess the values present against ASBV criteria.

Recommended approach to protection

13. The covenanted area meets 2GP ASBV criteria (Policy 2.2.3.2) for Protected areas (2.2.3.2.a).
14. Therefore, it is recommended to schedule the covenanted area as an ASBV and redraw the boundary of any residential zoning around the ASBV (see Appendix 1, Image 1).

Site 52 – 235 Signal Hill Road

Summary of biodiversity values

[7] Site Normanby South in Allen (2003). Reconnaissance survey of potential areas of significant conservation value in Dunedin City. Contract report No. 710 prepared for Dunedin City Council by Wildland Consultants Ltd.

15. The area being considered for rezoning (Site 52) is located on the northern (lower slopes) of the property (below orange line on Image 3 in Appendix 1). Indigenous vegetation on part of the site is protected by covenant.
16. I reconnoitred the site on 24 October 2020 with the permission of, and accompanied by, the landowner, and inspected some of the regenerating kanuka-broadleaved forest within the site outside the covenanted area. A consultant ecologist carried out an ecological assessment of the whole property on 3 November 2020.
17. The site partly covers an area of regenerating kanuka-broadleaved forest mapped as Area 6 in Image 5, Appendix 1 ([matai-totara]-kanuka forest) in the ecological assessment[8]. Approximately half of this area is already protected via covenant, with 0.45ha outside the covenant (see Appendix 1, Image 2 & 3).
18. The 0.45ha area outside the covenant is dominated by regenerating kanuka (see Appendix 1, Image 4) with mahoe commonly present, and other broadleaved species such as lemonwood/tarata, kohuhu and broadleaf/kapuka occasionally present. Several invasive weed species were also occasionally present, particularly Khasia berry, hawthorn, Darwin's barberry and blackberry. It appears that the more important ecological values described for this vegetation community in the ecological assessment are mostly contained in the covenanted area and above the site.
19. The ecological assessment concludes that the indigenous vegetation on the wider property (i.e. both within and outside Site 52) is ecologically significant (see Appendix 1, Image 5). The remnants of dry forest on the mid to upper slopes (outside Site 52) dominated by South Island kowhai, narrow-leaved lacebark, lowland ribbonwood, matai and totara are of particular importance as this forest type is strongly reduced from its original extent, with this example potentially the best local example remaining.
20. The ecological assessment identified 10 species on the 2GP Protected Indigenous Species lists (Appendix 10A). *Coprosma virescens* and *Ileostylis micranthus* are listed in Appendix 10A.1 Threatened plant species list; and narrow-leaved lacebark, poataniwha, ngaio, lowland ribbonwood, totara, matai, kowhai, and turepo are listed in Appendix 10A.3 Important native tree list.
21. The ecological assessment did not provide specific locations for each occurrence of a Protected Indigenous Species, however based on the vegetation community descriptions and mapping, it is likely there are occurrences of Protected Indigenous Species within Site 52 within the covenant.
22. The dry forest remnants and areas supporting 2GP Protected Indigenous Species are of considerably higher ecological value than the areas of less diverse regenerating kanuka-broadleaved forest on the lower slopes.

Recommended approach to protection

23. The areas identified as ecologically significant should be scheduled as an ASBV. 2GP rules relating to ASBVs do not apply in Residential Zones so it is necessary to redraw the boundary of rezoning of any residential areas around the ASBV. Ideally, the covenant would also be extended on the site to protect the 0.45ha area (Appendix 1, Image 2).

Site 98 – 32/45 Honeystone Street

[8] Ecological significance assessment for 235 Signal Hill Road, Dunedin. Contract report 2059cg prepared for Dunedin City Council by Kelvin Lloyd, Wildland Consultants Ltd, November 2020.

Summary of biodiversity values

24. I inspected the site on 45 Honeystone Street on 10 November 2020 with the permission of the landowner.
25. The site supports a 0.2ha area of regenerating kanuka-broadleaved forest along creek with a remnant mature rimu, adjoining a QEII covenant on neighbouring property, and previously identified by DCC as a part of a potential ASCV[9] (see Appendix 1, Image 6 & 7). Other species present include:
    - native trees and shrubs such as tree fuchsia, mahoe, pepper tree/horopito, wineberry, round-leaved coprosma and mountain holly;
    - native ferns such as prickly shield fern and creek fern, and the native climbers pohuehue and bush lawyer; and
    - the invasive exotic woody weeds hawthorn, elderberry and Darwin's barberry on the bush margin.
26. Vegetation along the creek (a tributary of the Leith) adjoining 195 Wakari Road is mixed regenerating exotic and indigenous forest with a heavy infestation of invasive weeds such as hawthorn, elderberry and sycamore. Although not ecologically significant, some of this vegetation should be retained as a riparian buffer (minimum of 5m either side) to the waterway which appears to be in good condition (see Image 8). Ideally, the weeds would be progressively removed over time and natural regeneration of indigenous species would take place. This process would be enhanced by riparian plantings.

Recommended approach to protection

27. Structure plan and/or covenant on land title for 0.2ha area and riparian vegetation.
28. The 0.2ha area is likely to meet 2GP ASBV criteria in combination with the adjacent native forest remnant within the QEII covenant. The covenanted area on the adjacent property meets 2GP ASBV criteria (Policy 2.2.3.2) for Protected areas (2.2.3.2.a). If the adjacent landowner was supportive of ASBV status, then the 0.2ha area on 45 Honeystone Street could be included at a later date.

Site 155 – 19 Main South Rd. Concord

Summary of biodiversity values

29. Native riparian revegetation plantings along the creek (a tributary of Kaikorai Stream) were partially funded by a DCC Biodiversity Fund grant from the September 2019 round. The area is not ecologically significant.

Recommended approach to protection

30. Structure plan and/or covenant on land title (see Appendix 1, Image 9).

Site 215 – 87 Selwyn Street

Summary of biodiversity values

31. I inspected the site on 6 November 2020 with the permission of, and accompanied by, the landowner.

[9] Site Rudd Road in Allen (2003). Reconnaissance survey of potential areas of significant conservation value in Dunedin City. Contract report No. 710 prepared for Dunedin City Council by Wildland Consultants Ltd.

32. Two areas of low diversity young regenerating kanuka (0.14ha and 0.2ha) are present on the northern part of the property, with an area of older more diverse broadleaved-kanuka forest (0.22ha) present on the southern corner boundary (see Appendix 1, Image 10-12).
33. All the patches are on steep slopes, and two are located in small gully systems with waterways present.
34. The more diverse broadleaved-kanuka forest also supports tree fuchsia, mahoe, lemonwood and round-leaved coprosma. The invasive weed hawthorn is also present, particularly on the margins.

Recommended approach to protection

35. The patches do not meet ASBV criteria for ecological significance. However, the patches do contribute to the local network of habitat for native birds, which were conspicuous on the day of inspection.
36. Therefore, a structure plan and/or covenant on land title is the recommended approach.

Kind regards,

Richard Ewans
Biodiversity Advisor

Appendix 1. Maps and photographs of 2GP Variation 2 sites with identified biodiversity values.

Image 1 – Map of Site 51 area already protected via covenant to potentially schedule as an ASBV.

Image 2 – Map of Site 52 area outside covenant within rezoning scope, orange lines mark boundary of Site 52.

Image 3 - Map of Site 52 area outside covenant within rezoning scope location on property, orange lines mark boundary of site, pink dashed line (faint) marks the covenanted area.

Image 4 – Photograph of typical interior of 0.45ha area outside covenant within rezoning scope near track at Site 52.

Image 5 – Map of vegetation types (yellow boundaries) on 235 Signal Hill Road from ecological assessment report showing important dry forest areas meeting ASBV criteria marked with red boundaries (note the map has been cropped from the original).

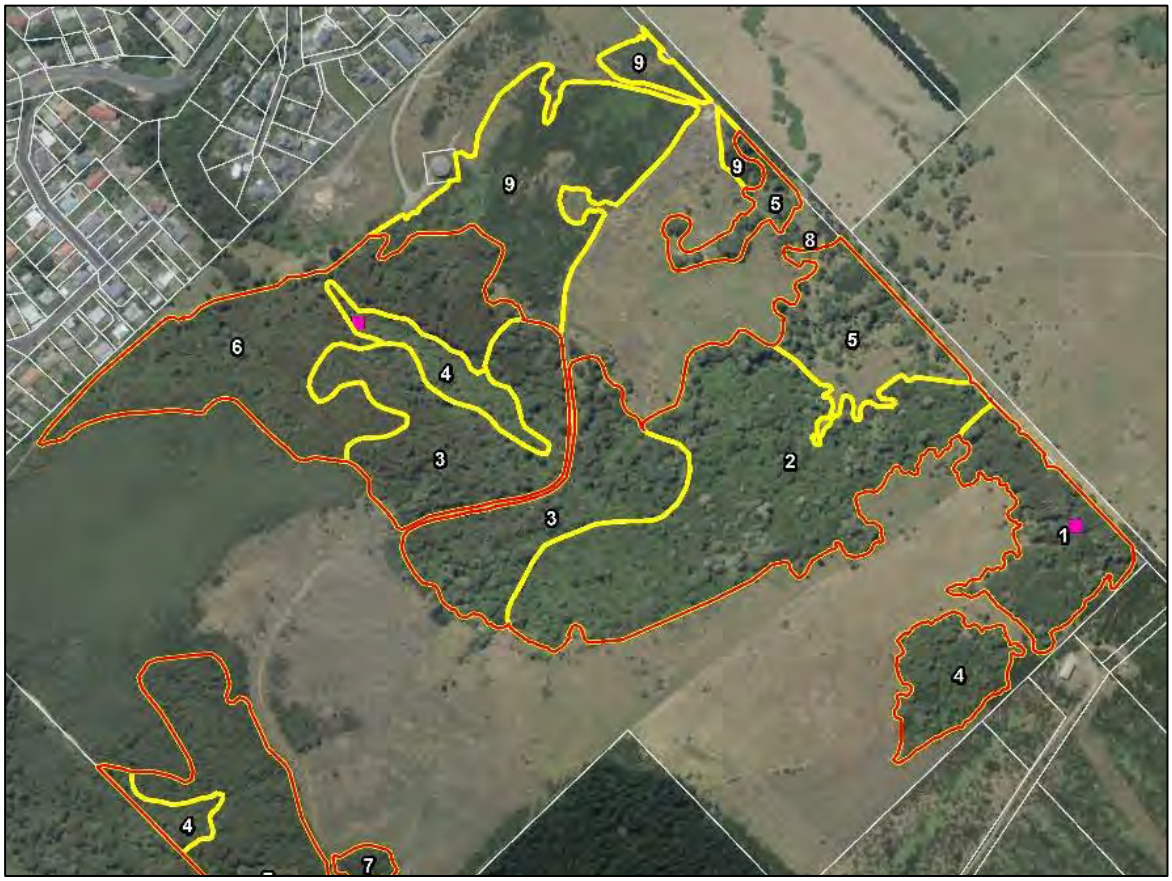

Image 6 – Map of Site 98 area for protection. Native forest in adjacent QEII covenant can be seen to the left of the area for protection.

Image 7 - Map of Site 98 area for protection (purple shading) location on site.

Image 8 – Map of Site 98 with indicative boundary of riparian vegetation to be kept along creek (green).

Image 9 – Map of Site 155 with indicative boundary of riparian vegetation to be kept along creek (green).

Image 10 – Map of Site 215 kanuka patches to be protected.

Image 11 - Map of Site 215 broadleaved-kanuka patch to be protected on 2009 aerial photography.

Image 12 - Map of Site 215 areas to be protected location on site (pink shading).

Appendix 2. Variation 2 sites inspected for biodiversity values.

Site number	Location	Method	Background	Biodiversity recommendation	Explanatory note	Biodiversity values
5	Waldronville Golf Course	Desktop imagery	Variation 2	No action required	Not being considered	None identified
14	Freeman Cl, Lambert St, Abbotsford	Desktop imagery	Variation 2	No action required	Not being considered	None identified
23	Polwarth Rd & Wakari Rd	Desktop imagery; field inspection	Variation 2	No action required	No biodiversity values identified	311 Wakari Road checked 10/11/20 - Native bush areas not in scope for development and landowner wants to keep. 195 Wakari Road checked 10/11 - Area of regenerating bush dominated by weeds such as hawthorn and sycamore and in steep gully unlikely to be developed, some native forest regeneration but heavily modified by invasive weeds
27	353 Main South Road, Fairfield	Desktop imagery	Variation 2	No action required	No biodiversity values identified	None identified
51	233 Signal Hill Rd	Desktop imagery; field inspection (consultant ecologist)	Variation 2	ASBV	(see report) - pending field inspection by consultant ecologist	Native forest area identified previously by Council as a potential ASBV (Site Normanby South in Wildlands report potential ASCV 2003). Almost entire native forest area is already in private land covenant restricting clearance but recommend ecological survey to assess significance against ASBV criteria

52	235 Signal Hill Rd	Desktop imagery; field inspection (DCC and consultant ecologist)	Variation 2	ASBV	(see report)	Native forest area identified previously by Council as a potential ASBV (Site 914 in Wildlands report potential ASCV 2003). In covenant and above site boundary important dry forest remnants, 10 2GP protected species present. Lower strip along track of less value, lower diversity kanuka regeneration
59/77	43 Watts Road and 309 North road	Desktop imagery	Appeal / Variation 2	No action required	Not being considered	2 scheduled trees, large area mapped as exotic forest and treeland so potential habitat values for native birds
73	133-137 Kaikorai Valley Road	Desktop imagery	Variation 2	No action required	GR1/medium density	None identified
79	30 Mercer Street	Desktop imagery	Variation 2	No action required	No biodiversity values identified	None identified
82	Green Island	Desktop imagery	Variation 2	No action required	GR1/medium density	None identified
83	Andersons Bay	Desktop imagery	Variation 2	No action required	GR1/medium density	Some large trees likely to have habitat value for native birds
84	Abbotsford	Desktop imagery	Variation 2	No action required	Not being considered	None identified
87	Mornington	Desktop imagery	Variation 2	No action required	GR1/medium density	Multiple scheduled trees that are non-local native trees and/or have habitat value for native birds
88	Belleknowes	Desktop imagery	Variation 2	No action required	GR1/medium density	Multiple scheduled trees; T024, T964 and T962 are native to the Dunedin area, numerous others are non-local native trees and/or have habitat value for native birds

91	Maori Hill	Desktop imagery	Variation 2	No action required	GR1/medium density	Multiple scheduled trees; T898, T902 and T285 are native to the Dunedin area, numerous others are non-local native trees and/or have habitat value for native birds. Several small patches of bush adjoining the Town Belt
97	Roslyn	Desktop imagery	Variation 2	No action required	GR1/medium density	Area below Highgate mapped as high-quality residential gardens for biodiversity by University of Otago Geography Department project (Freeman & Buck, 2003) = Residential 1 (Garden rich areas = 1/3 of lot size as garden; rich in tree and scrub vegetation elements). Multiple scheduled trees; T468, T472, T469, T249 and G026 are native to the Dunedin area, numerous others are non-local native trees and/or have habitat value for native birds
98	32/45 Honeystone Street	Desktop imagery; field inspection	Variation 2	Structure plan / covenant on land title	(see report)	0.2ha patch of regenerating kanuka-broadleaved forest along creek with remnant mature rimu, adjacent to QEII covenant on neighbouring property and previously identified by DCC as a part of a potential ASCV. Vegetation along creek adjoining 195 Wakari Road is mixed regenerating exotic and indigenous forest with a heavy infestation of invasive weeds such as hawthorn, elderberry and sycamore
104	33-49 Dalziel Road / 473 Taieri Road	Desktop imagery	Variation 2	No action required	Not being considered	None identified
108	16 Hare Road	Desktop imagery	Variation 2	No action required	No biodiversity values identified	None identified
140	127a Main Road Fairfield	Desktop imagery	Variation 2	No action required	Low biodiversity value	Scattered kanuka less than 0.1ha (within permitted baseline for vegetation clearance for Hill Slopes Rural)

152	Area surrounding Highcliff Road	Desktop imagery; field inspection	Variation 2	No action required	Resolved	Constructed freshwater wetland area removed from rezoning area after field inspection
155	19 Main South Rd. Concord	Desktop imagery	Variation 2	Structure plan / covenant on land title	(see report)	Native revegetation plantings along creek have been partially funded by DCC Biodiversity Fund grant
160	155 and 252 Scroggs Hill Road	Desktop imagery	Variation 2	No action required	No biodiversity values identified	None identified
166	33 Emerson Street, Concord	Desktop imagery	Variation 2	No action required	No biodiversity values identified	None identified
169	Emerson St	Desktop imagery	Variation 2	No action required	Not being considered	Native revegetation plantings in south-eastern corner identified for checking
172	336 and 336A Portobello Road	Desktop imagery; field inspection	Variation 2	No action required	No biodiversity values identified	Broadleaved forest area removed from rezoning and no native trees identified in field inspection
174	26-32 Lynn Street, Maori Hill	Desktop imagery	Variation 2	No action required	GR1/medium density	None identified
176	234/290 Malvern Street, Leith Valley	Desktop imagery	Variation 2	No action required	Not being considered	Native forest area already partly in UBMA15. Could extend UBMA15 to cover all of native forest types on site (broadleaved forest, podocarp/broadleaved forest, kanuka-dominated forest and scrub). All these areas have been identified by Council previously as potential ASBV
184	Highcliff Road	Desktop imagery	Variation 2	No action required	Not being considered	Possible area of native forest area identified for checking

185	Mosgiel MD extension 1	Desktop imagery	Variation 2	No action required	GR1/medium density	None identified
190	Mosgiel ICR	Desktop imagery	Variation 2	No action required	Not being considered	2 scheduled trees within polygons, T065 is native = cabbage tree
197	Brighton Rd, Allen Rd (Green Island)	Desktop imagery	Variation 2	No action required	No biodiversity values identified	None identified
199	201, 207, and 211 Gladstone Road South	Desktop imagery	Variation 2	No action required	No biodiversity values identified	None identified
210	105 St Leonards Drive	Desktop imagery	Variation 2	No action required	Not being considered	Kanuka-dominant forest and scrub along southern boundary identified for checking
214	41-49 Three Mile Hill Road	Desktop imagery	Variation 2	No action required	No biodiversity values identified	None identified
215	87 Selwyn Street	Desktop imagery; field inspection	Variation 2	Structure plan / covenant on land title	(see report)	3 patches of regenerating native forest, 2 of young low diversity kanuka regeneration (0.2ha & 0.15ha), 1 of older more diverse broadleaved-kanuka forest (0.22ha)
216	Wakari	Desktop imagery	Variation 2	No action required	GR1/medium density	Some groups of large trees likely to have habitat value for native birds
217	Concord	Desktop imagery	Variation 2	No action required	GR1/medium density	None identified
218	Burgess Street and surrounds (Green Island)	Desktop imagery	Variation 2	No action required	GR1/medium density	Group of trees in north-east corner likely to have habitat value for native birds
219	98 Blacks Road	Desktop imagery	Variation 2	No action required	GR1 & 2/medium density	None identified

Appendix 3. Scientific names of plant species referred to by common name.

* denotes exotic species

Common name	***Scientific name***
blackberry*	*Rubus fruticosus*
bush lawyer	*Rubus cissoides*
creek fern	*Cranfillia fluviatilis*
Darwin's barberry*	*Berberis darwinii*
elderberry*	*Sambucus nigra*
hawthorn*	*Crataegus monogyna*
kanuka	*Kunzea robusta*
Khasia berry*	*Cotoneaster simonsii*
kohuhu	*Pittosporum tenuifolium*
kowhai	*Sophora microphylla*
lemonwood	*Pittosporum eugenioides*
lowland ribbonwood	*Plagianthus regius*
mahoe	*Melicytus ramiflorus*
matai	*Prumnopitys taxifolia*
mountain holly	*Olearia ilicifolia*
narrow-leaved lacebark	*Hoheria angustifolia*
ngaio	*Myoporum laetum*
pepper tree/horopito	*Pseudowintera colorata*
poataniwha	*Melicope simplex*
pohuehue	*Muehlenbeckia australis*
prickly shield fern	*Polystichum vestitum*
rimu	*Dacrydium cupressinum*
round-leaved coprosma	*Coprosma rotundifolia*
sycamore*	*Acer pseudoplatanus*
totara	*Podocarpus totara*
turepo	*Streblus heterophyllus*
tree fuchsia	*Fuchsia excorticata*
wineberry	*Aristotelia serrata*