



MAITAHĪ AND BAYVIEW | PRIVATE PLAN CHANGE REQUEST

PRELIMINARY LANDSCAPE DESIGN DOCUMENT

Document Information

Project

Proposed Private Plan Change Request - Maitai and Bayview

Client

CCKV Maitai Development Co LP and Bayview Nelson Ltd

Address

Maitai Valley and Bayview, Nelson

Status

For the Proposed Private Plan Change Request

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Prepared by

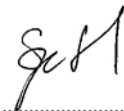
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Figure 1: (Cover Page) Birds eye view looking south-west along the Malvern Hills ridgeline towards Botanical Hill and Nelson's Town Centre.

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1.0 Introduction

1.1 Vision and Project Objectives

“To create an inspirational living environment on Nelson City’s back doorstep, for Nelson City”

1.2 Key Aspects of Urban Design



Places for people
For places to be well-used and well-loved, they must be safe, comfortable, varied and attractive. They also need to be distinctive and offer variety, choice and fun. Vibrant places offer opportunities for meeting people, playing in the street and watching the world go by.



Enrich the existing
New development should enrich the qualities of existing places. This means encouraging a distinctive response that arises from and complements its setting. This applies at every scale - the region, the city, the town, the neighborhood, and the street.



Make connections
Places need to be easy to get to and be integrated physically and visually with their surroundings. This requires attention to how to get around by foot, bicycle, public transport and the car - and in that order.



Work with the landscape
Places that strike a balance between the natural and man-made environment and utilise each site’s intrinsic resources - the climate, landform, landscape and ecology - to maximise energy conservation and amenity.



Mix activities and form
Stimulating, enjoyable and convenient places meet a variety of demands from the widest possible range of users, amenities and social groups. They also weave together different building forms, uses, tenures and densities.



Manage the investment
For projects to be developable and well cared for they must be economically viable, well managed and maintained. This means understanding the market considerations of developers, ensuring long term commitment from the community and the local authority, defining appropriate delivery mechanisms and seeing this as part of the design process.



Design for change
New development needs to be flexible enough to respond to future changes in use, lifestyle and demography. This means designing for energy and resource efficiency; creating flexibility in the use of property, public spaces and the service infrastructure and introducing new approaches to transportation, traffic management and parking.

Figure 2: (Opposite page) - birds eye view of Kaka Valley and Maitai River.

1.3 Purpose and Scope

Rough and Milne Landscape Architects (**r+m**) were engaged by CCKV Maitai Dev Co LP and Bayview Nelson Limited to assess and evaluate the landscape opportunities and constraints of Maitahi Valley and Bayview, in the context of development opportunities. The outcome of this process is a proposed zone plan and structure plan that forms the basis of the proposed plan change request (PPCR). The development of the structure plan has been an iterative, collaborative and creative process with Landmark Lile, Tonkin and Taylor, Te Aranga Environmental Consultancy, Amanda Young - Cultural Heritage Consultant, Morphum Environmental Ltd, Traffic Concepts Ltd, Duke & Cooke Ltd, Property Economics Ltd and **r+m**.

This design document sets out the analysis and design process which informed the zone plan and structure plan. The overarching goal of this process was to consider the many potential development options for the site and ensuring these align with the aspirations of CCKV Maitai Development Co LP and Bayview Nelson Ltd and Nelson City Council (NCC).

The following contextual and site analysis looks at the various ‘layers’ of the Nelson region and the site including its cultural history, natural ecology, landscape patterns, landscape character - both at regional and site-specific scales. This part of the design process was an important step to ensure that the zone plan and structure plan respond to the natural and built environment and reflects the local character and its sense of place.

This assessment and design process has been primarily focused on the 13 parcels of land within Maitahi Valley and Bayview accessed off Ralphine Way, Nelson (the site). However, also acknowledges that the site is part of the wider context.



Figure 3: View looking east towards Maitai Valley, Kaka Valley and Kaka Hill



Figure 4: View looking north-east over Kaka Valley and towards Malvern Hills and Kaka Hill

1.4 Design Approach

r+m along with Landmark Lile, Tonkin and Taylor, Te Aranga Environmental Consultancy, Amanda Young - Cultural Heritage Consultant, Morphum Environmental Ltd, Traffic Concepts Ltd, Duke & Cooke Ltd, and Property Economics Ltd have been involved in the analysis and preparation of a zone plan, structure plan and policy provisions for Kaka Valley and Bayview. This process is outline in the below diagram:

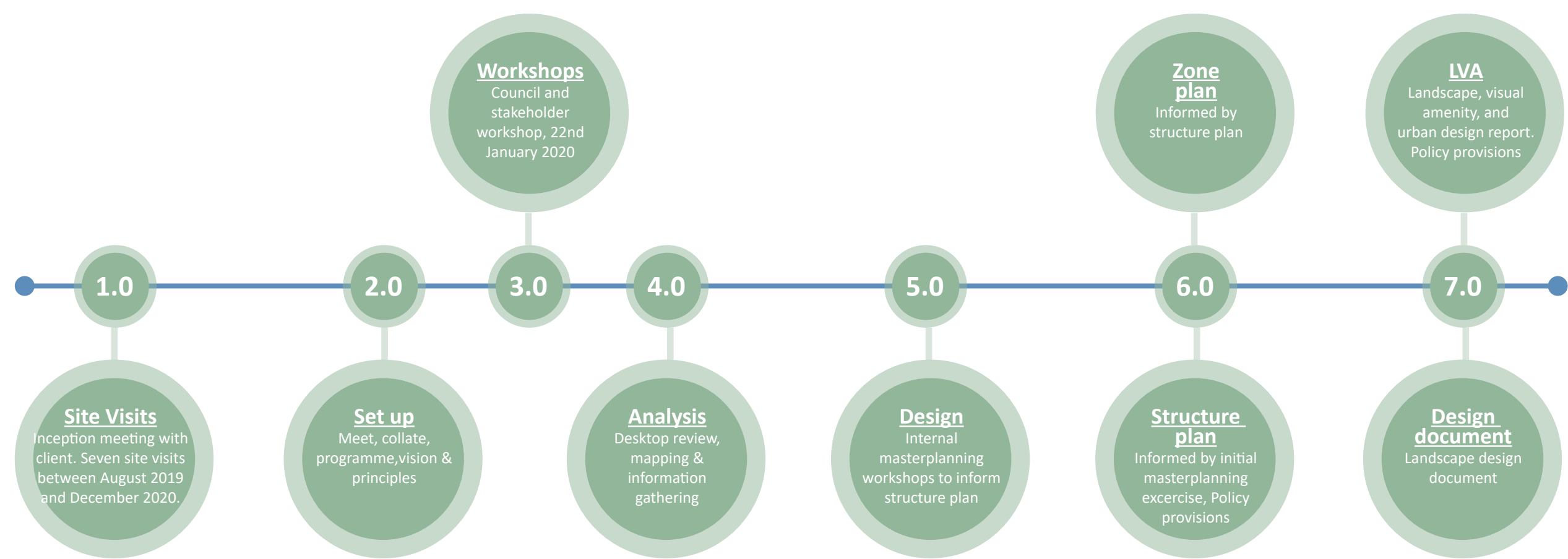
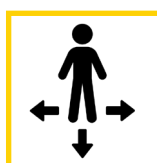


Figure 5: Design Process Diagram

1.5 NCC Design Objectives

Nelson City Council 'Appendix 14: residential subdivision design & information requirements' has been used as a benchmark for the structure of this design document. Appendix 14 outlines the importance of a rigorous analysis and detailed design process at the project outset in order to achieve quality urban design outcomes, better informed decision making and more certainty in a proposal.

The zone plan and structure plan incorporate the following objectives, summarised from Appendix 14 (AP14.3 Indicators of Quality Design):



Movement Network

- Connect to the wider context both physically and visually.
- Provide an interconnected network of streets allowing convenient access for all.
- Create a street structure that is clear and legible.
- Minimise earthworks on steep sites with roads that follow original land contours.



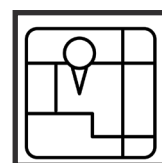
Open Space Network

- Maintain streams and watercourses and enhance their natural character.
- Utilise low-impact stormwater management devices wherever possible.
- Provide stormwater capacity to allow for upstream flows.
- Locate low impact stormwater management devices within public roads and reserves.



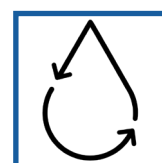
Landscape

- Maintain important landscape patterns.
- Use landscape features to enhance the amenity, character and recreational potential of the development.
- Retain areas of native vegetation, mature trees or significant ecological features.
- Provide visual and physical access to the main landscape elements and features.



Streetscape and Open Space Design

- Consider the visual amenity, safety and comfort of the users of public space.
- Achieve visual coherence in design.
- Integrate local parks.
- Include streets that gain identity and amenity from intensive street tree planting.
- Integrate multiple functions including recreation, access, biodiversity and stormwater control into streets and open spaces.



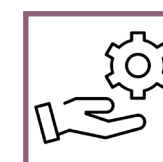
Stormwater Management

- Maintain streams and watercourses and enhance their natural character.
- Utilise low-impact stormwater management devices wherever possible.
- Provide stormwater capacity to allow for upstream flows.
- Locate low impact stormwater management devices within public roads and reserves.



Allotment Layout

- Provide for local facilities and services at, or accessible from, the centre of the development.
- Provide a range of lot sizes and types which will allow for diversity of living options.
- Cluster smaller lots.
- Ensure lots allow a sunny outdoor living space and useable yard
- Locate lots so that they overlook and front road and open spaces.
- Intensify development on sunny, north sloping lots.
- Complement existing and likely future uses on adjacent sites.



Reticulated Services

- Take an integrated approach to the provision and siting of services.
- Locate underground services where they are properly accessible for servicing and also allow for street tree planting.

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2.0 Context Analysis - Surrounding Environment

2.1 Wider Context

Nelson is a coastal town with residential development primarily being coastal, situated between Nelson Haven and the wider Tasman Bay to the north-west and the inland hills, that form the foothills of the Bryant Range to the south-east.

Along the coastline, residential development extends from Atawhai to the north-east through Nelson Town Centre, through to but not including Richmond (being within the Tasman District) to the south-west.

Residential development within Nelson has expanded inland to the south and west. Of relevance is the residential development within Nelson South, Nelson East and the Brook. These areas consist of residential development that extends along the relatively flat valley floors and along the lower and mid slopes of the surroundings hills. These areas provide for residential living within relatively close proximity of Nelson Town Centre.

The eastern part of Nelson, within the vicinity of the site, has resulted in residential development at the entrance into Maitai Valley. However, does not extend very far into the valley, consisting of residential properties along Hanby Park, south of the Maitai River and a handful of rural lifestyle properties along Ralphine Way.

Beyond this small amount of residential activity, Maitai Valley gives way to a significant number of recreational activities. These recreation activities include the Maitai Cricket Ground, Waahi Taakaro Reserve, Dennes Hole, a number of swimming holes along the Maitai River, Sharlands Creek Mountain Bike Club, Waahi Taakaro Golf Course, the Matai Valley Motor Camp, Two Arrows Archery Club, the Maitai Caves Walkway as well as a number of walking trails on the hills to the south, the Maitai Dam and the Dun Mountain Bike Trail.

The recreational activities located along the length of the Maitai Valley are afforded a high degree of amenity due to the relatively undeveloped nature of the surrounding vegetated hillsides. As such, the recreational activities and the landscape they are situated within is highly valued by the community.

In summary, residential development within Nelson has expanded outwards from the town centre along the coast and along the valley floors and slopes of the surrounding hills. The majority of the points of interest, activities and community facilities listed above are within close proximity of the site. As such, the site is well located as to assist in providing for the needs of a growing community, as indicated in the Future Development Strategy so long as it is appropriately located and designed, to be sympathetic to the landscape’s values.

Figure 6: (Opposite page) - birds eye view from above Botanical Hill, looking south-west towards Nelson Town Centre and Rabbit Island.



Figure 7: Regional Context Plan



Figure 8: Wider Context Plan



2.2 Local Context

The site is within close proximity to Nelson’s Town Centre. The majority of the site is within Kaka Valley, which is located at the western end and forms part of the wider Maitai Valley.

Botanical Hill and Malvern Hills form part of the broader Atawhai Hill Range that extend in a general north-east to south-west direction along Nelson Haven. Kaka Hill, being significantly taller than these two hills is visually prominent behind these hills. As such, it also forms part of these hills that form the immediate backdrop to Nelson, Nelson Town Centre and Nelson Haven.

Kaka Valley is enclosed by Botanical, Malvern, Kaka and Sharland Hills, with Botanical and Malvern Hills separating the valley from Nelson Haven, to its east. The remainder of the site is on the upper slopes of Bayview, being the western facing slopes of Malvern Hills. These west facing slopes face out over Nelson Haven and Tasman Bay and are located north-east of Nelson Town Centre.

Key points of interest and activities within Nelson and its surrounds, that are within an approximate 3km radius of the site include the following and are illustrated on Figure 9:

- Nelson Town Centre
- Port of Nelson
- Numerous recreational facilities including Trafalgar Park, Trafalgar Centre, Rutherford Park, Queen’s Gardens, and Miyazu Gardens.
- Eleven schools / education facilities within a 3km radius of the site.
- Four supermarkets being New World Nelson, Countdown Nelson, Countdown Trafalgar Park and Fresh Choice Nelson, all of which are within a 3km radius of the site.
- Several churches within a 3km radius of the site.
- Numerous other retail and recreational locations that provide amenity and activities within close proximity of the site.

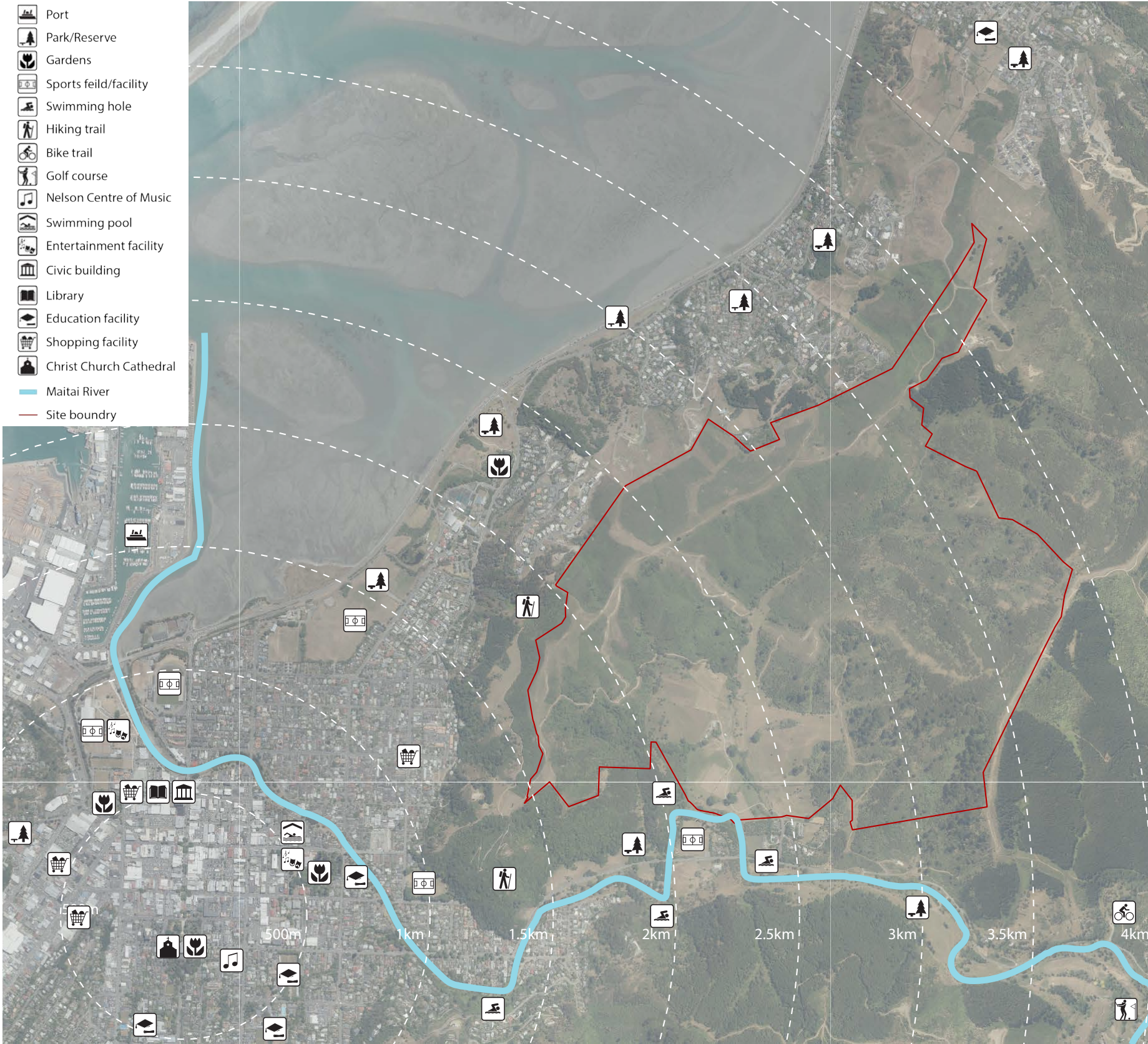


Figure 9: Local Context Map



3.0 Site Analysis

3.1 The Site

The Site –The site is 286.78ha in area comprised of 13 allotments, as illustrated on **Figure 11**, and as listed below:

- 164567 Lot 2 DP 340064 – 37.6096ha
- 164567 Pt Lot 3 DP 552620 – 1.1926ha
- 164567 Pt Sec 26 SQ 23 – 38.0405ha
- 164567 Pt Sec 27 SQ 23 – 27.5186ha
- 164567 Pt Sec 29 SQ 23 – 23.9993
- 164567 Pt Sec 58 Suburban North DIST – 5.0279ha
- 164567 Pt Sec 59 Suburban North DIST – 24.0916ha
- 164567 Pt Sec 60 Suburban North DIST – 22.8245ha
- 164567 Pt Sec 62 Suburban North DIST – 32.6417ha
- 164567 Pt Sec 63 Suburban North DIST – 4.6282ha
- 164567 Pt Sec 64 Suburban North DIST – 3.2633ha
- NL11A/1012 Pt Sec 8 SQ 23 – 22.2192ha
- NL11A/1012 Pt Sec11 Brook Street and Maitai DIST – 43.7176ha



Figure 10: (Opposite page) - Birds eye view from above Botanical Hill, looking south-east towards the Maitai Valley.

Figure 11: The Site which is comprised of 13 allotments, located within Kaka Valley and Bayview.

3.2 Site Photographs



Figure 12: Viewpoint location plan



Photo 1: Photo from northern part of site, looking west towards Nelson Haven and the Boulder Bank



Photo 2: Photo from northern part of site, looking north towards Atawhai and Marybank



Photo 3: View looking south along Malvern Hills ridgeline





Photo 4: View looking south-west along the Malvern Hills ridgeline to Port Nelson



Photo 5: Photo from Malvern Hills ridgeline, looking north-east towards Atawhai



Photo 6: Photo from Malvern Hills ridgeline, looking west towards Nelson Haven and the Boulder Bank



Photo 7: Photo from Malvern Hills ridgeline, looking south-east towards Kaka Valley and Kaka Hill



Photo 8: Photo from Malvern Hills ridgeline, looking south-west towards the Port of Nelson



Photo 9: Photo from Malvern Hills ridgeline, looking south-east towards Kaka Valley



Photo 10: View looking north along Malvern Hills ridgeline towards Kaka Hill to the left



Photo 11: Photo from Malvern Hills ridgeline, looking south-west. Port of Nelson to the left, Rabbit Island beyond



Photo 12: View looking north-east towards Kaka Hill



Photo 14: Photo from Kaka Valley, looking north-east towards Kaka Hill



Photo 13: Photo from Malvern Hills ridgeline, looking south-west



Photo 15: View looking south-west towards Kaka Valley



Photo 16: Photo from Kaka Valley looking north towards Malvern Hills ridgeline



Photo 17: Photo from Kaka Valley, looking east towards Kaka Hill



Photo 18: Photo from Botanical Hill looking east towards Kaka Hill

3.3 Current Zone

The below definitions are from the Nelson Regional Management Plan (NRMP) and summarised for the purpose of this document.

Rural

The Rural Zone can be defined as the area largely used for productive purposes, mainly for forestry and farming, excluding major conservation areas (mainly owned by the Council and the Department of Conservation DOC). The zone includes a Small Holdings Area. The Small Holdings Area comprises mainly valley floors, along with the lower and mid slopes of a number of valleys.

Residential

Nelson’s residential areas are characterised by low rise dwelling houses on individual lots. Past architectural styles, settlement periods and geographic factors have determined residential character and form, with the varying topography of the city resulting in a range of individual neighbourhoods.

Open Space Recreation

This Zone contains areas of open space which are of high value to the community primarily for open space and active recreation activities. The areas are generally scattered throughout the urban area of the city, although they may occur in rural areas as well. Most of the land in this Zone is Council owned reserve, but not all is vested as reserve land. The Zone also includes some areas of Crown land and privately-owned land.

Rural Higher Density Small Holdings

Higher Density Small Holdings areas have been provided to the rear of the Residential Zone at Ngawhatu, Marsden and Enner Glynn Valleys, adjoining the Rural farmland on the southern boundary of the land at Ngawhatu and near the entry to Marsden Valley. This zone recognises the limited productive potential of these areas due to their topography and small size. The zone allows for clustering of housing to mitigate visual amenity effects, and/or enables a transition from Residential to Rural Zone.

Our Design Response

Kaka Valley is currently zoned ‘Rural’ and ‘Rural – Higher Density Small Holdings Area’. As a permitted activity the Kaka Valley ‘Rural – Higher Density Small Holdings Area’ can be subdivided into approximately 40 properties exceeding 1.5ha in area.

Bayview is currently zoned ‘Residential’ and ‘Rural’. As a permitted activity Bayview can be subdivided into approximately 10 properties exceeding 15ha in area, nine of which could have building platforms along the Malvern Hills.

Additional to the permitted baseline, Kaka Valley is considered an area within Nelson that can absorb a higher density of development.

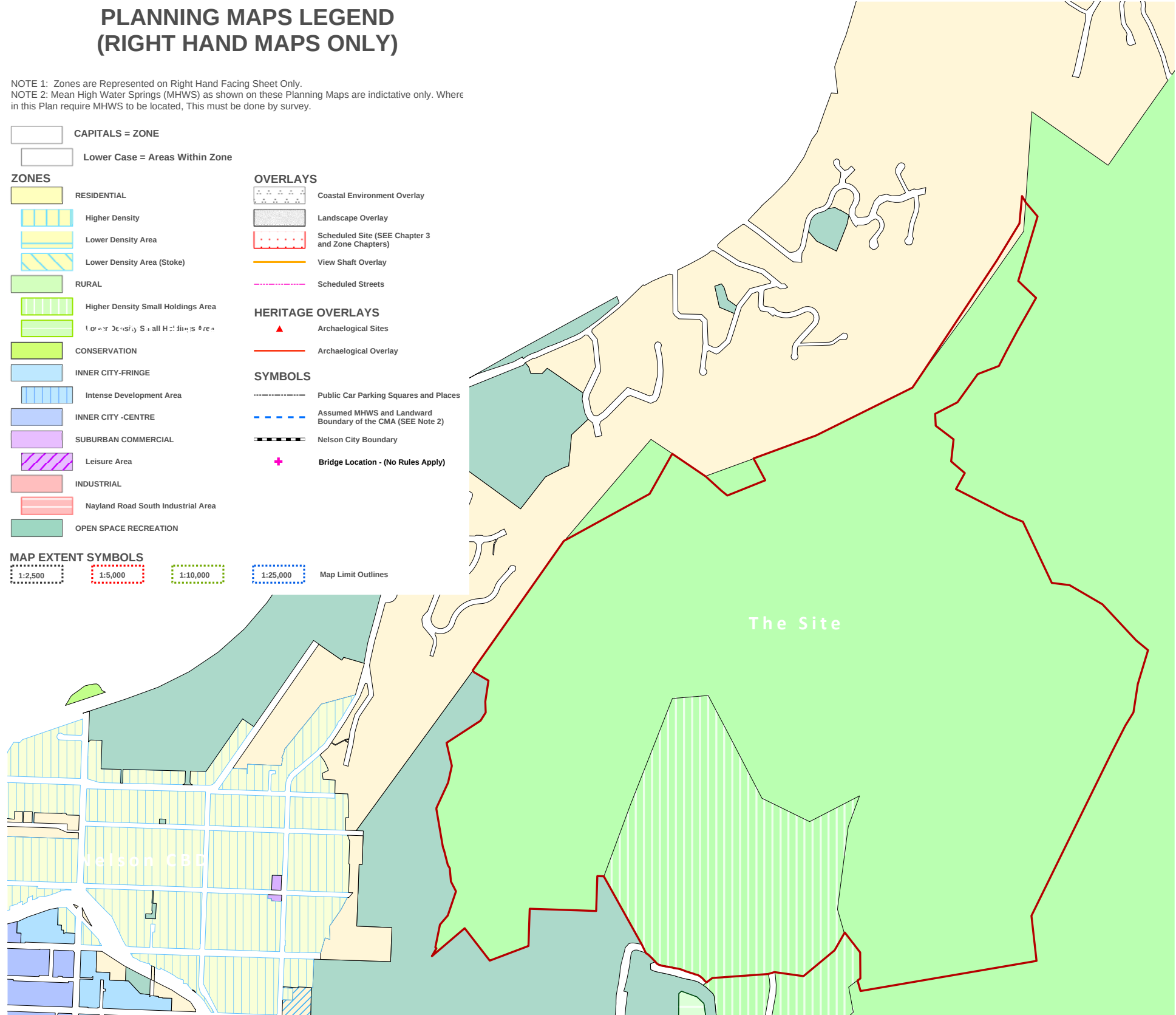


Figure 13: Existing zoning as per NRMP Planning Maps 7, 8, 11, and 52 .



3.4 Indicative Controlled Development Plan

Kaka Valley is currently zoned rural and rural – higher density small holdings area. As a controlled activity the Kaka Valley rural – higher density small holdings area can be subdivided into approximately 40 properties. So long as they achieve a 1ha average, with a 5,000m² minimum size and comply with the Design Standards in NRMPs Appendix 14.

Malvern Hills and the Bayview area is currently zoned Rural. As a controlled activity this area can be subdivided into approximately 10 - 12 properties exceeding 15ha in area. The existing zoning and an example of an indicative controlled development plan that may occur within the site is illustrated on **Figure 14**.



Figure 14: Indicative Controlled Development Plan



3.5 Regional Climate

Nelson City and Tasman District are generally the first areas to be influenced by weather systems moving onto the South Island from the north. The region is sheltered a great deal from weather systems arriving from the south¹.

The Nelson / Tasman Region is situated in the latitudes of prevailing westerly winds. Sea breezes develop along coastal parts of Nelson and Tasman throughout the year, most common in summer and least common in winter. Mean wind speeds are highest at exposed coastal locations such as Farewell Spit and are lowest at inland and sheltered locations. Refer to Figure 8. Wind speeds are typically highest around mid-spring (October) to mid-summer (January)¹.

February and March are usually the driest months of the year whereas the wettest months of the year are in winter or spring¹. Refer to Figure 16.

Rainfall is affected by topography and exposure to the main rain-bearing airflows from the west. Rain is highest in the Tasman mountains which have both high elevation and western exposure. Nelson and the Waimea Plains are the driest areas of the region.

The region has experienced numerous extreme weather events, with significant damage and disruption caused by heavy rain and flooding. According to NIWA, the most recent severe flooding event occurred in April 2013, which resulted in torrential rain across the region, particularly in Richmond and Stoke. Landslides caused a number of road closures and an estimated 90 homes were flooded¹.

Temperatures are mild compared with the rest of the country, due to the regions close proximity to the sea. The region typically observes afternoon temperatures of 20°C and 23°C in summer and temperatures of -1°C and 5°C overnight in winter. Daily minimum temperatures in winter become lower as distance from the coast and elevation increases¹.

¹ Macara, G.R. 2016. *The climate and weather of Nelson and Tasman*. NIWA Science and Technology Series 71, 40 pp.

² Regional Projections: Zone 4, NIWA, niwa.co.nz/node/113201.

³ Lester, P., Haywood, J., Archer, M., & Shortall, C. (2017). The long-term population dynamics of common wasps in their native and invaded range. *Journal of Animal Ecology*, 86(2), 337–347. <https://doi.org/10.1111/1365-2656.12622>

Frosts are quite common in the cooler months; however, they occur less frequently than most other South Island locations¹. According to NIWA, frost free land in Spring and Autumn is expected to triple by 2080².

Nelson and Tasman are frequently one of the top four sunniest locations in New Zealand. Nelson City itself receives an average of 2,400 sunshine hours annually, among the highest recorded in New Zealand. Dry spells of more than two weeks are quite common, particularly in eastern and inland locations¹ and on average occur every 4 months in Nelson¹.

Drought severity is projected to increase in most areas, apart from the West Coast. Fire severity and fire season duration is also likely to rise significantly with climate change as a result in increased temperatures, wind speed and lower rainfall and humidity². Warming temperatures have also seen an increase in invasive wasps near Nelson when springs are warm and dry³.

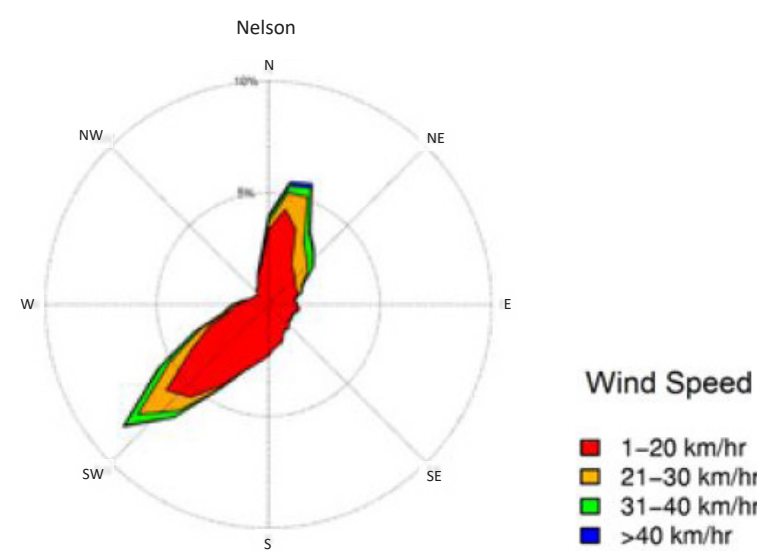


Figure 15: (from NIWA) Mean annual wind frequencies (%) of surface wind directions from hourly observations

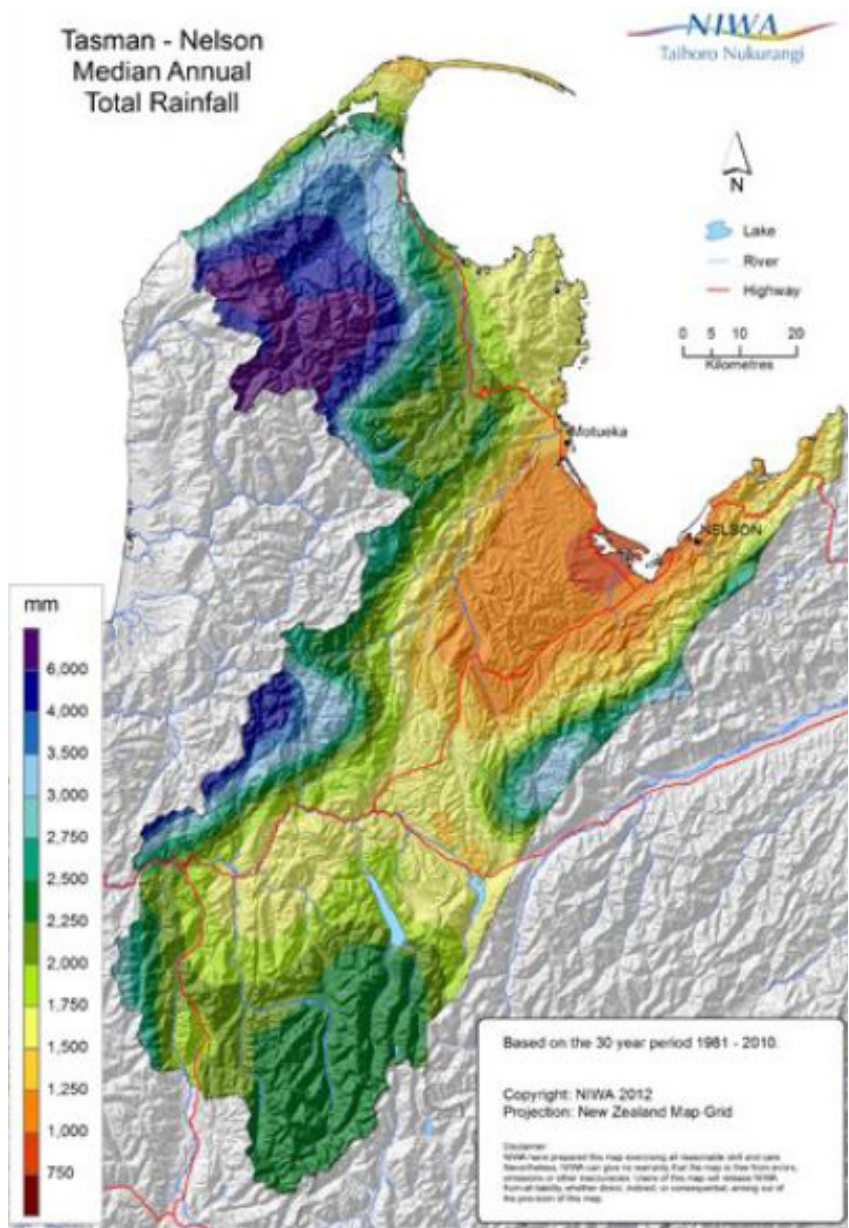


Figure 16: (from NIWA) nelson and Tasman median annual total rainfall. 1981-2010

3.6 Connectivity & Infrastructure

The site can be accessed from the end of Ralphine Way off Maitai Valley Road. Maitai Valley Road is popular with recreationalists as it provides access to the Maitai Cricket Grounds, Waahi Ta Akaroa Reserve, Maitai River, Waahi Taakaro Golf Course, the Maitai Dam and the Dun Mountain Bike Trail.

There is an existing farm track along the Malvern Hills ridgeline and several other farm tracks providing internal connections within the site. The farm track along the ridgeline was previously used by the public as a walking track from Botanical Hill to Atawhai. However this is now closed to the public. Botanical Hill offers numerous tracks for walking and biking, including the centre of New Zealand walkway. The Sir Stanley Whitehead trail wraps around the western Botanical Hill and connects the centre of New Zealand walkway to Sir Stanley Whitehead Park.

The site is also adjacent to the Maitai esplanade which weaves its way alongside Maitai Valley Road and the river. The esplanade is a high amenity and high recreational asset for walkers and cyclists, providing artwork, restoration planting, swimming holes and picnic spots along the way.

Our Design Response

- Potential to create a road connection from Ralphine Way to Pearce Way and Bay View Road.
- Potential for a connected network of walkways, cycleways and bike paths through the site which link into the wider network of walking and cycling trails.



Figure 17: Southern end of the Sir Stanley Whitehead Walkway

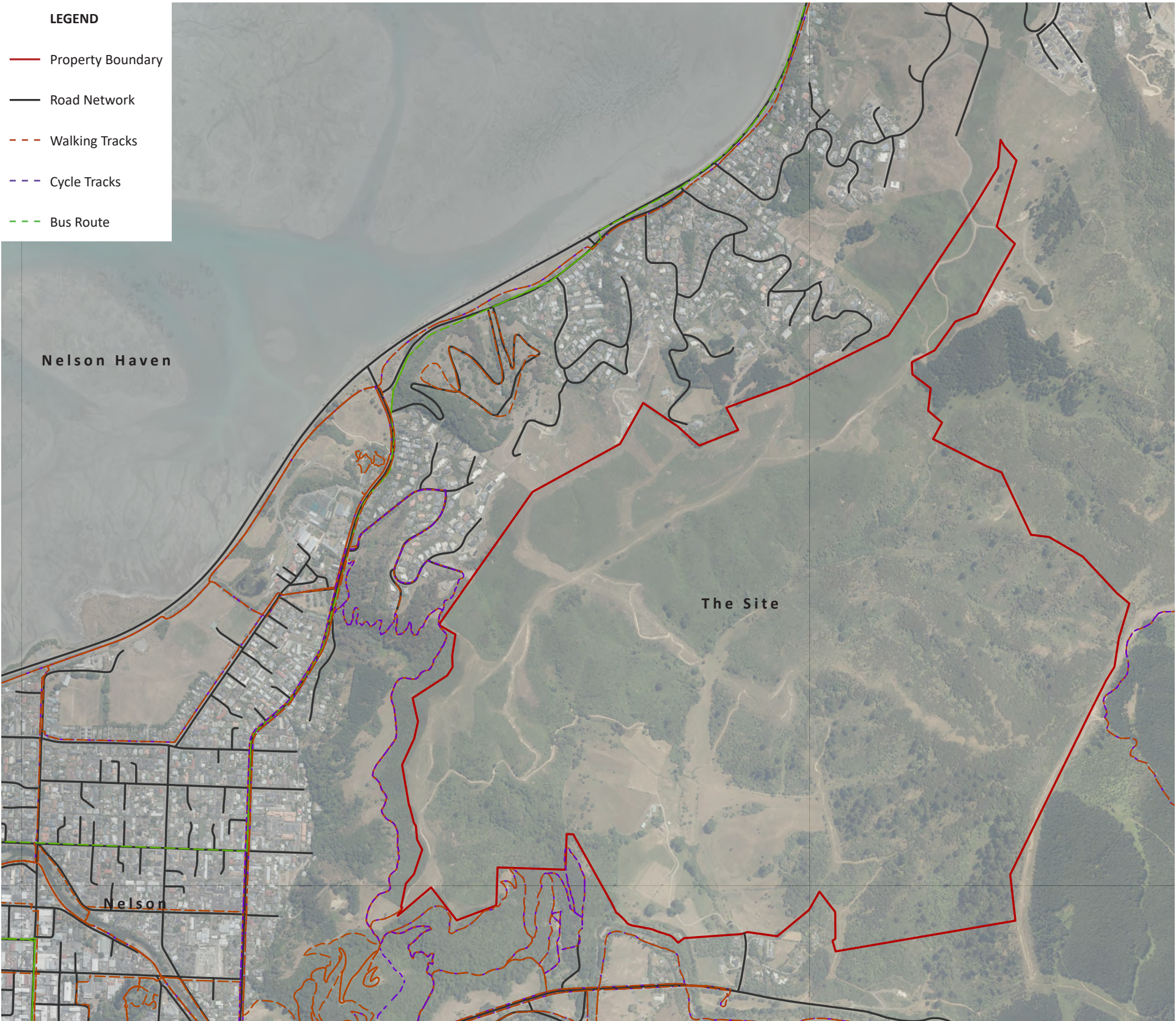


Figure 18: Connectivity and infrastructure Map

3.7 Culture and History

The below information is summarised from the Archaeological Assessment: Bayview and Maitahi Blocks, by Amanda Young.

The Maitai Valley was a well-used route for both Māori and early European settlers and was a particularly important route to access the pakohe (argillite) and serpentine resources of the Nelson Mineral Belt. The Maitai Valley was also a rich food and resource gathering area for Māori, particularly for inanga (whitebait), harakeke (flax) and tuna (eels). There would have been small cultivations and kainga or camps along the riverbanks⁴.

Seven Iwi have statutory acknowledgement areas over Maitahi/Maitai and its tributaries – Ngati Koata, Ngati Kuia, Ngati Rarua, Ngati Tama ki Te Tau Ihu, Ngati Toa Rangatira, Rangitane o Wairau and Te Atiawa o Te Waka-a-Maui⁴.

There is no documented evidence of pa, kainga or camps in the area except for the Nga.ti Kuia pa MS58 which is outside the site on the other side of the Maitai River. It is possible that the site could contain physical evidence of Māori occupation, such as cultivations on the river flats. However, Māori soil is unlikely to be recognisable due to farming and draining, the nature of the existing soil and the changing nature of the Maitai River⁴.

Kaka Hill may once have been a lookout point for raiding war parties as one of the main high points in the lower Maitai Valley. The Malvern Hills ridgeline may have also been used as a lookout or for occupation. No archaeological evidence was found as part of the archaeological assessment along the ridgeline, which has been heavily modified by machinery and scrub clearance. Evidence of surface features. i.e. terraces or pits, are unlikely to have survived these disturbances⁴.

The site was also part of the Richardson Maitai Run for much of its post-1842 history. The old chimney (apparent on the eastern old river terrace above Kaka Stream), shearing shed, yards and associated structures were identified as having high archaeological, architectural, historical, technological, rarity and community value relating to the Maitai Run. The chimney may be the site of the original ca.1842 cob cottage on the property, Edendale⁴.



Figure 20: Historic shearing shed

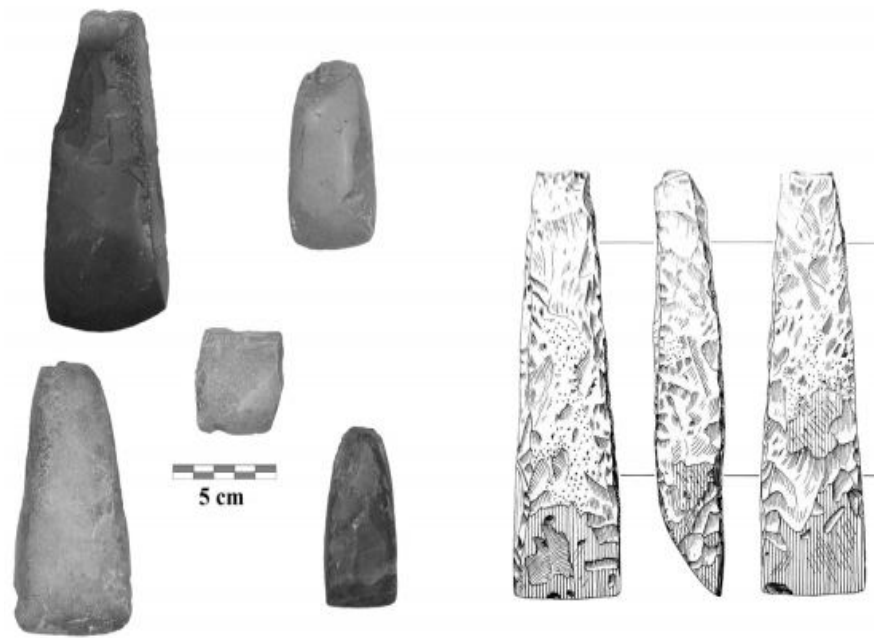


Figure 19: Examples of pakohe adzes - tools carved by Māori



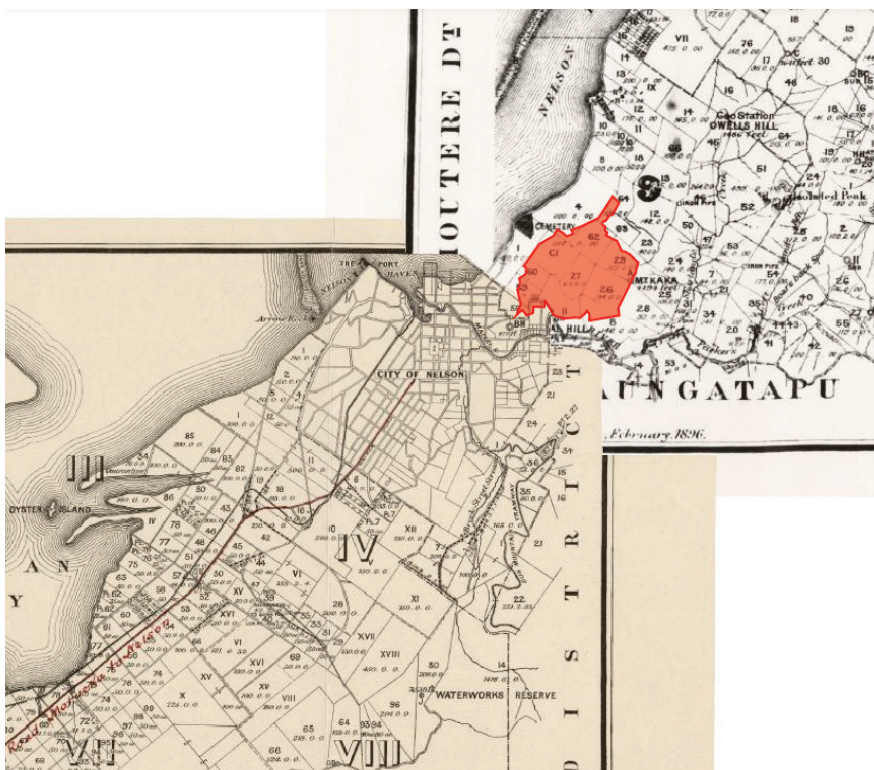
Figure 21: Historic chimney

⁴ Young, A. (2020). Historical and Archaeological Assessment for CCKV Maitai Dev Co LP and Bayview Nelson Limited. 17 December 2020

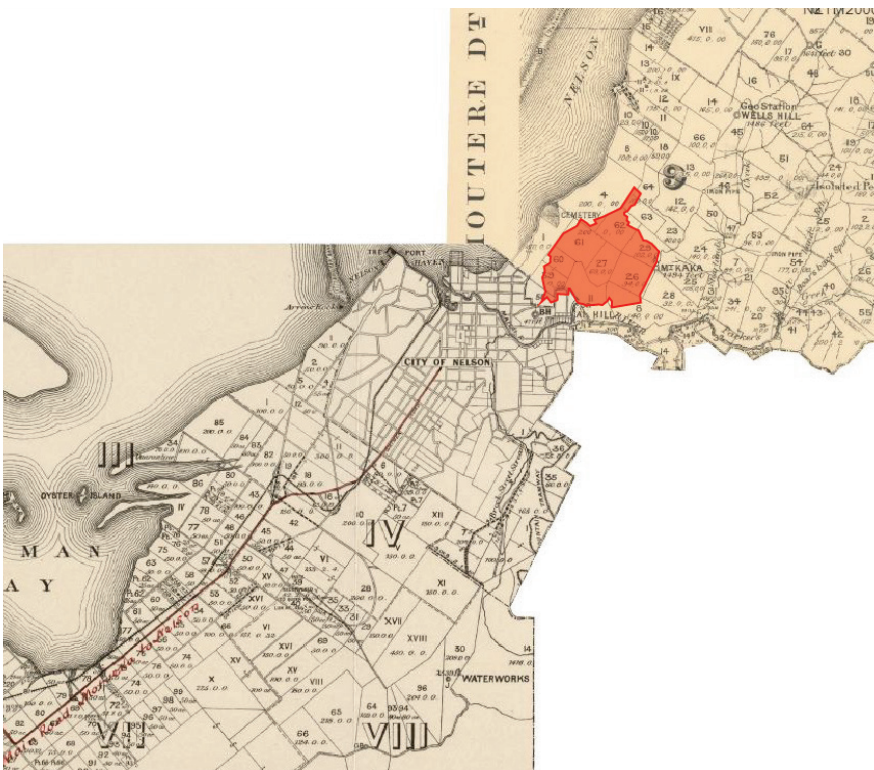
Figures:

¹⁹ Examples of Pakohe Adzes (Drawn Adzes on the Right from Challis 1978). www.the-prow.org.nz/assets/files/Pakohe-Johnstone.pdf.

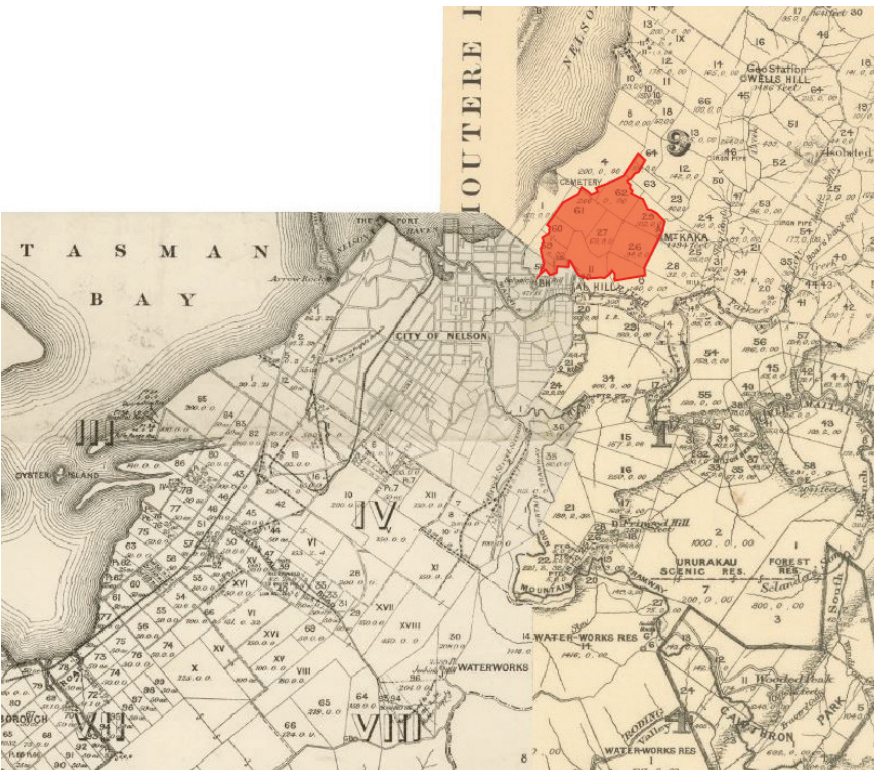
^{20 & 21} Young, A. (2020). Historical and Archaeological Assessment for CCKV Maitai Dev Co LP and Bayview Nelson Limited. 17 December 2020



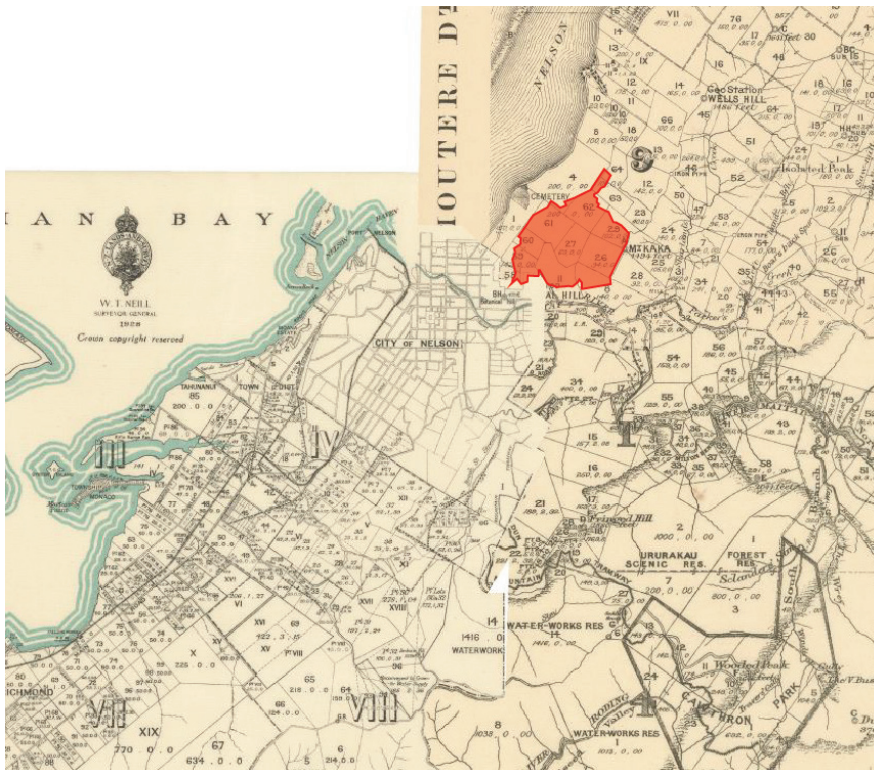
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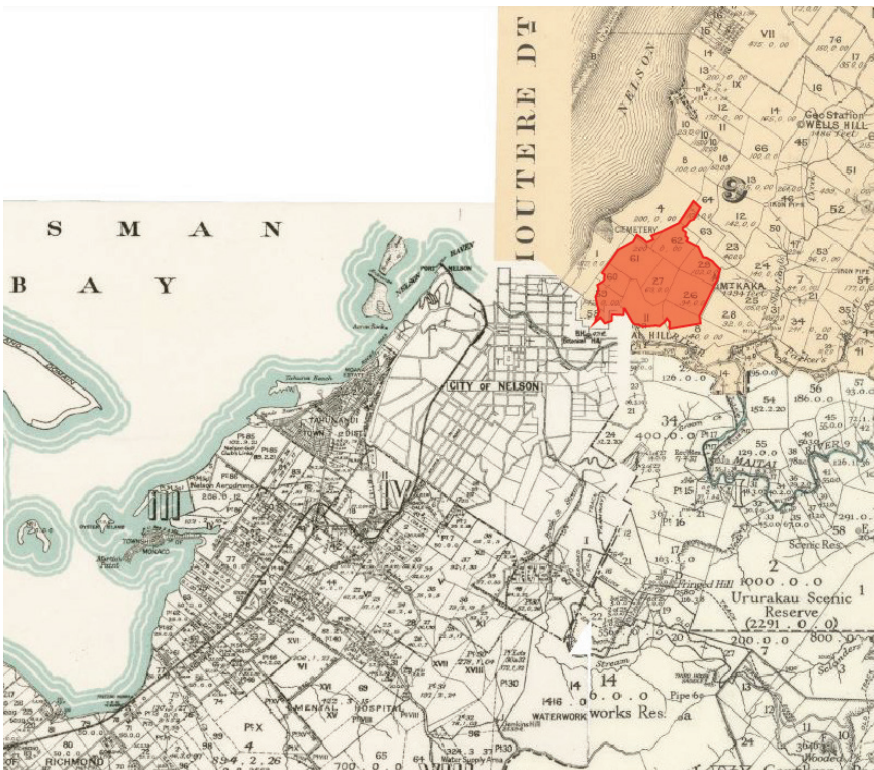
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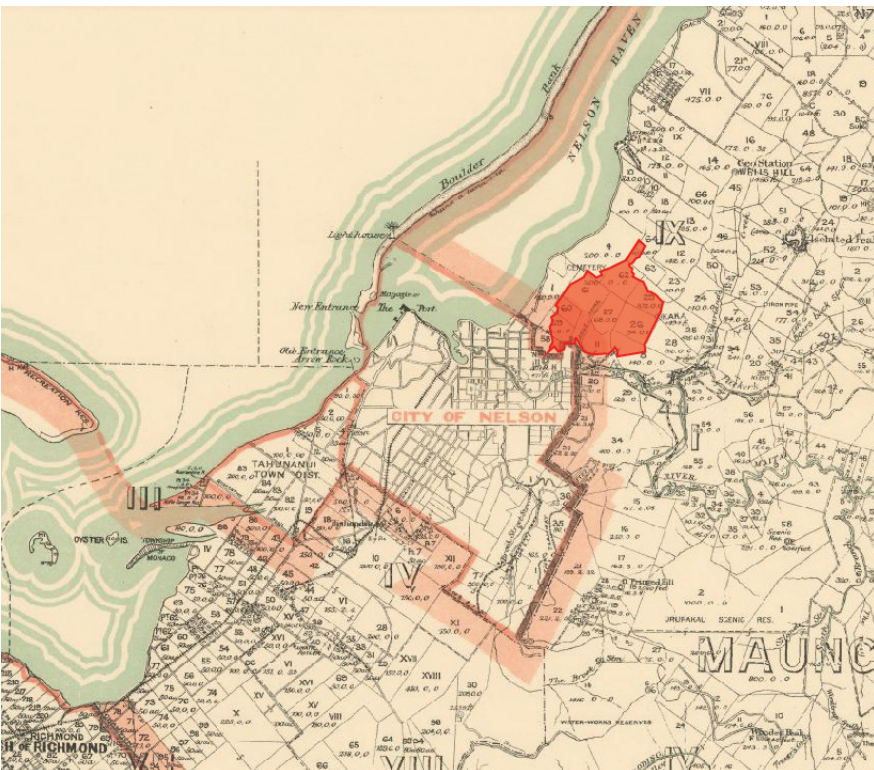
1919



1929



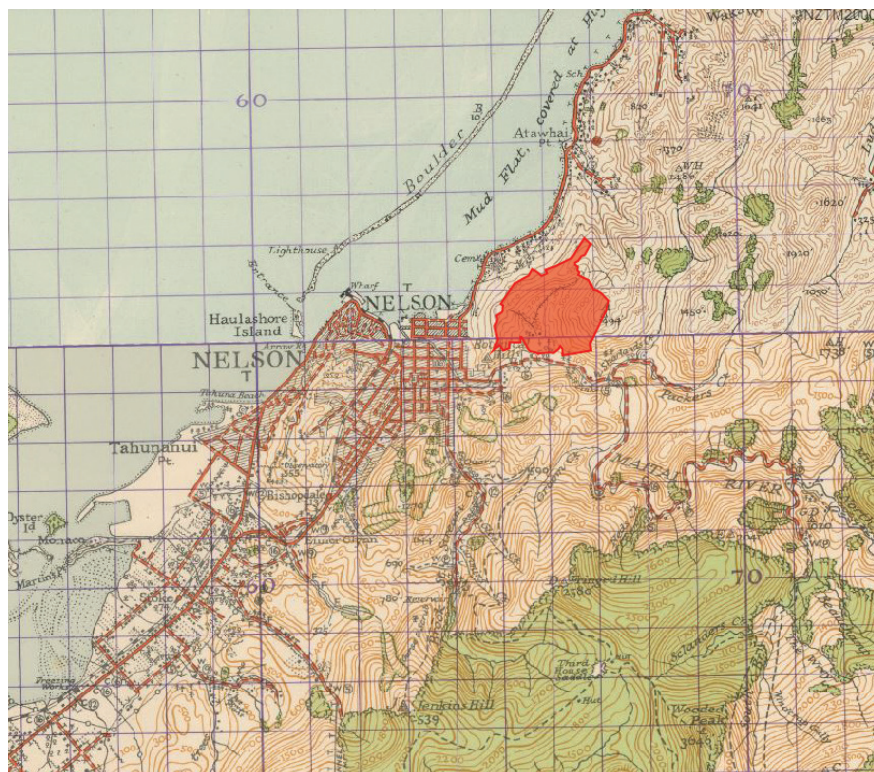
1939



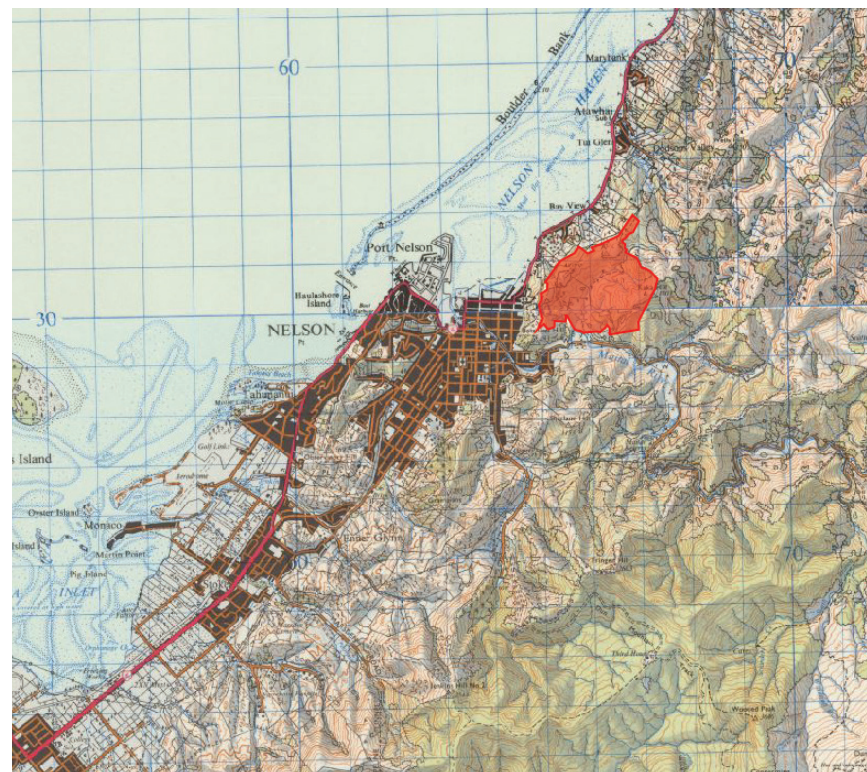
1949

Figure 22: Historical growth of Nelson

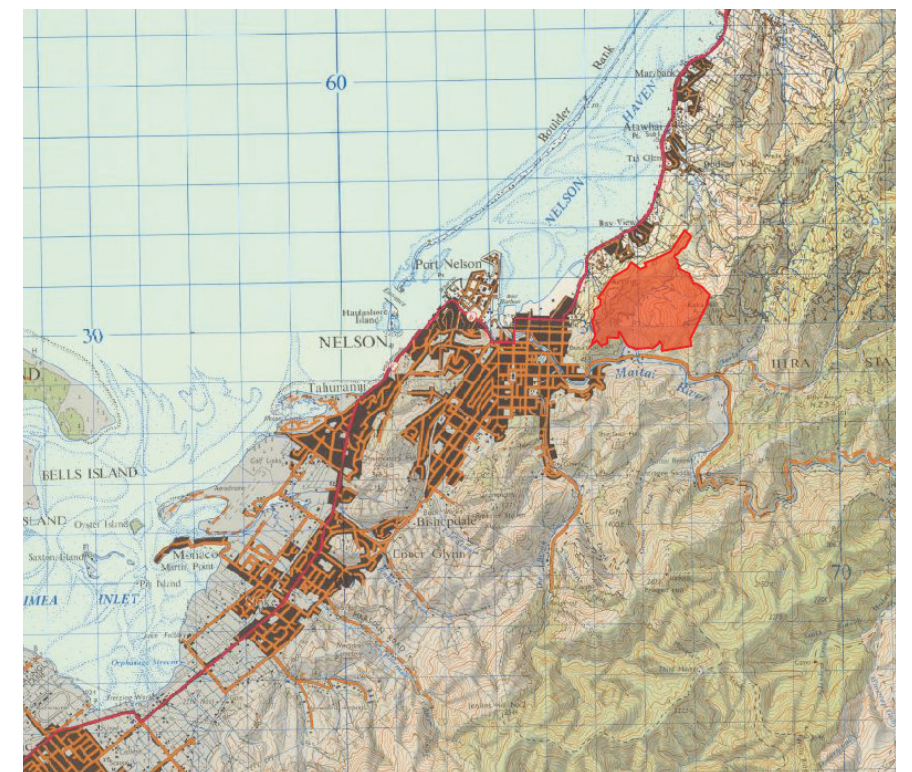




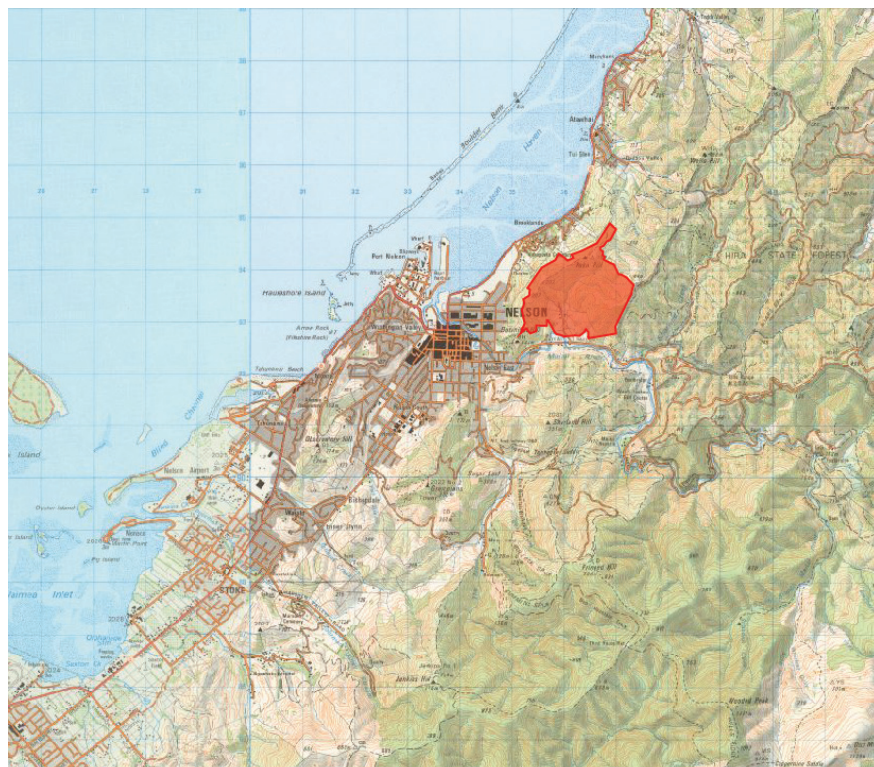
1959



1969



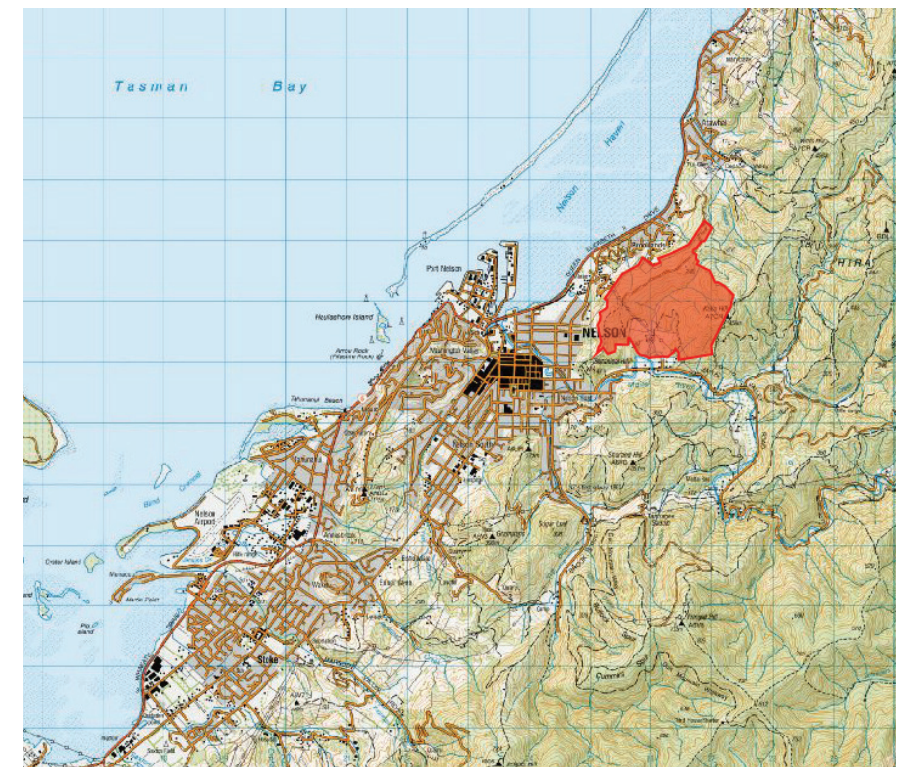
1979



1989



1999



2009



3.8 Vegetation and Landcover

Before the arrival of people, the original vegetation would have been mostly podocarps and broad-leafed trees of the Lowland Hill Country with more coastal adapted species on the seaward facing slopes. The areas adjacent to the Maitai River would have been a mixture of swamp/wetland species with trees and shrubs that could survive inundation⁵.

The Maitai Valley would have seen widespread communities of harakeke with stands of kahikatea and raupo in swampy areas, and podocarp forests of rimu, kahikatea, tōtara, matai and miro would have extended from near the river mouth upstream⁶. The fertile flats of central Nelson City would have been covered in forests of titoki, māpou, tawa, tōtara, māhoe and kawakawa.

The site is presently undeveloped and much of the site is recently cleared of scrub, returned to pasture, apart from Kaka Hills upper slopes, and Botanical Hill and Malvern Hills steeper slopes.

The upper reaches of Kaka Hill is a site of ecological significance, as outlined in the NRMP. The upper side-slop and spur shoulder area is dominated by Kanuka, as a mature forest and a moderate amount of low native scrub cover. Below this are interwoven areas of kanuka-broadleaved forest. The spur crest and ridgeline is contains a swards of unidentified exotic grassland/shrubland and scatterings of a rare matagouri. This area is of significance due to the area of Kanuka being impressive for its size and its potential to develop into an extensive area of native forest. Also, because it forms a larger tract of native forest which is a significant corridor for native birds and wildlife.⁷

Additionally, there are however areas of regenerating native bush and scrub and notable vegetation remnants, including two stands of kanuka along the Malvern Hills and a kahikatea on the Kaka Valley hillside. Refer to adjacent photos and the Opportunities Map for information on their locations.

Also, according to the Tonkin + Taylor Opportunities and Constraints Assessment, vegetation cover of the site includes areas of remnant native vegetation, native scrub, gorse, pasture and amenity trees. Much of the scrubland on the hillsides consists of Kānuka, gorse, barberry, hawthorn, māhoe with the wetland habitat of the Maitahi Valley and Maitai tributaries mostly dominated by rautahi, purei, buttercup and exotic rushes⁸.



Figure 23: Crack willow and gorse-barberry scrub

Our Design Response

There are opportunities to enhance the indigenous vegetation communities and biodiversity of Maitahi Valley and Bayview through protection and restoration, of native plant communities.

- Avoid development in areas of high ecological value.
- Use eco-sourced natives for revegetation, street planting, etc.
- Mitigation planting to offset loss of indigenous plant species.
- Provide wetland habitation.
- Reduction of pest plants such as gorse, hawthorn, barberry, crack willow, broom, thistle, bindweed, sycamore.
- Increase the ecological quality of vegetation across the site.
- Encourage Sites for whenua planting.
- Partner with council groups such as Nelson Nature to protect and enhance the native plant communities and riparian habitats within the development.

⁵ Young, A. (2020). *Historical and Archaeological Assessment for CCKV Maitai Dev Co LP and Bayview Nelson Limited*. 17 December 2020

⁶ J <http://www.nelson.govt.nz/assets/Environment/Downloads/living-heritage-nelson-native-plants>. Pelf

⁷ Tonkin + Taylor *Opportunities and Constraints Assessment*

⁸ Nelson City Council, Michael North. *Ecological Significance Assessment Report*. 5 June 2009.



Figure 24: Remnant stand of kanuka to be retained on Malvern Hills



Figure 25: Remnant stands of Kanuka and Kahikatea to be retained along Malvern Hills

3.9 Fauna

The site is an important habitat for many species of native fauna. The Tonkin and Taylor Opportunities and Constraints Assessment for Maitai Valley observed 10 indigenous bird species on-site and a further 12 species which have been recorded near by and may use the habitats⁹.

There have been occasional reports of Whio, or Blue Duck in the Maitai tributaries. They live in clean, fast flowing streams usually in the forested upper river catchments. The South Island Robin *Petroica australis* is also often seen foraging on the ground in the upper forested ecosystems of the Maitai, living mostly in forest and scrub. The Robin’s habitat has been highly modified by forest clearance and the introduction of mammalian predators, causing population decline¹⁰.

Kanuka is a key habitat of indigenous geckos, and skinks and they may live amongst the leaf litter and debris of the scrub on site. The Leaf Veined Slug (*Reflectopallium pseadophyllum*), a native slug could also be present on site in wooded areas or shrub, inside rotting logs and cavities. The species is nocturnal, living in damp areas, and feeding on fungi and algae¹⁰.

The giant land snail *Powelliphanta hochstetterei* has been seen in the north branch of the Maitai, near saddle hill and may inhabit the scrub on the site. *Powelliphanta* are carnivorous molluscs that feed on invertebrates, most commonly earthworms. Most species are under serious threat or in danger of extinction¹⁰.

Indigenous bats may use the larger trees on the property for daytime roosting and/or feed over the wetlands and streams on the property⁹.

Our Design Response

- Avoid development in areas of high ecological value.
- Mitigate and offset the loss of indigenous habitat.
- Earthworks and construction works will need to be planned and undertaken to avoid and minimise the impact on indigenous fauna.
- Increase the quality of the habitat on the property for indigenous fauna.
- Ensure ongoing pest management, indigenous regeneration.
- Reduction of pest plants.
- Provide adequate habitat for native fish species. Continue to exclude non native predatory fish from the catchment.
- Create natural swales and marshy floodplains as habitat for native fauna.

Photographs in Figures 26 - 30 were not captured from within the site.



Figure 26: Powelliphanta Snail



Figure 27: South Island Robin



Figure 28: Leaf Veined Slug



Figure 29: Short Fin Eel



Figure 30: Whio, Blue Duck

⁹ Tonkin + Taylor Ecological Opportunities and Constraints Assessment. Dated February 2021

¹⁰ Project Maitai / Mahitahi, Nelson New Zealand. (n.d.). Retrieved August 13, 2020, from <https://nelsoncity.maps.arcgis.com/apps/MapSeries/index.html?appid=13f610bb9c50414dba970df12085934f>
[Figures](#)

²⁶ Department of Conservation. A Powelliphanta Snail. www.abeltasmanbirdsong.co.nz/2020_January_ATBT_Newsletter.pdf.

²⁷ Griffin, Philip. “South Island Robin.” South Island Robin, [Http://Nzbirdsonline.org.nz/Species/South-Island-Robin](http://Nzbirdsonline.org.nz/Species/South-Island-Robin), Aug. 2011

²⁸ Phil Bendle “A Juvenile” [https://www.citscihub.nz/Phil_Bendle_Collection:Slug_\(Leaf_veined\)_Reflectopallium_pseadophyllum](https://www.citscihub.nz/Phil_Bendle_Collection:Slug_(Leaf_veined)_Reflectopallium_pseadophyllum)

²⁹ “Short fin eel (*Anguilla australis*) captured within the upper reaches of Kaka Hill Valley trib” Tonkin + Taylor Opportunities and Constraints Assessment

³⁰ “Whio (Blue Duck, *Hymenolaimus malacorhynchos*) at Staglands in Akatarawa, New Zealand” Blue Duck, Wikipedia, https://en.wikipedia.org/wiki/Blue_duck

3.10 Hydrology

A section of the 18km long ancestral Maitai River runs through the bottom of the site. The river is an important asset for Nelson City in that it is the city’s main source of drinking water, acts as a storm water and flood channel and is a key recreational asset¹¹.

The northern bank of the section of river within the site has been subject to significant erosion since the 1940’s. The Tonkin + Taylor Infrastructure report noted that the river appears to have retreated approximately 40m to the north from 1950 to 2017 in this location. River works and planting on the southern side of the riverbank, has significantly contributed to the retreat of the river. Stop banks have also been constructed around the southern side of the river to reduce natural flood paths¹².

Nelson City Council’s existing flood model shows a flood risk at the lowest part of the site, up to approximately RL 17.5m. The model considers flooding due to outbreak of flows from the Maitai River. However, does not represent overland flowpaths for catchment runoff from the Kaka Valley. The floodplain also represents the most desirable area for development due to the flat nature of the topography and ease of access off Ralphine Way.

The Kaka Hill Tributary, runs through the site and flows into Dennes Hole in the Maitai River. The upper and middle extents of the tributary flow in a confined valley, while the lower portion of the tributary flows onto a flat fan area, which forms part of the Maitai River floodplain. The lower portion of the Kaka Hill Tributary appears to have been modified in the past by farming and runs dry during summer.

There are numerous city-wide initiatives to raise community awareness and restore the health of the Maitai River and its tributaries so that people can safely swim and collect food from the river.

Our Design Response

- Celebrate the Kaka Hill Tributary as public open space and a key movement and biodiversity corridor.
- Provide measures to prevent further erosion of the section of Maitai River within the site.
- Possible realignment and naturalisation of the lower Kaka Hill Tributary.
- Ensure that water runoff from the development is clean / treated before it enters the Maitai River.
- The flood plain areas could be filled to allow development of a large portion of the flood plain.

¹¹ Martin, J., & Kennedy, A. (n.d.). *ICONIC URBAN WATERWAY AND STORM-WATER CHANNEL: REVIVING THE MAITAI RIVER*. Retrieved August 12, 2020, from <http://local-governmentmag.co.nz/wp-content/uploads/2016/05/Project-Maitai-Stormwater-conference-paper.pdf>

¹² Tonkin + Taylor *Geology and Geotechnical Hazards Report*. Dated January 2021

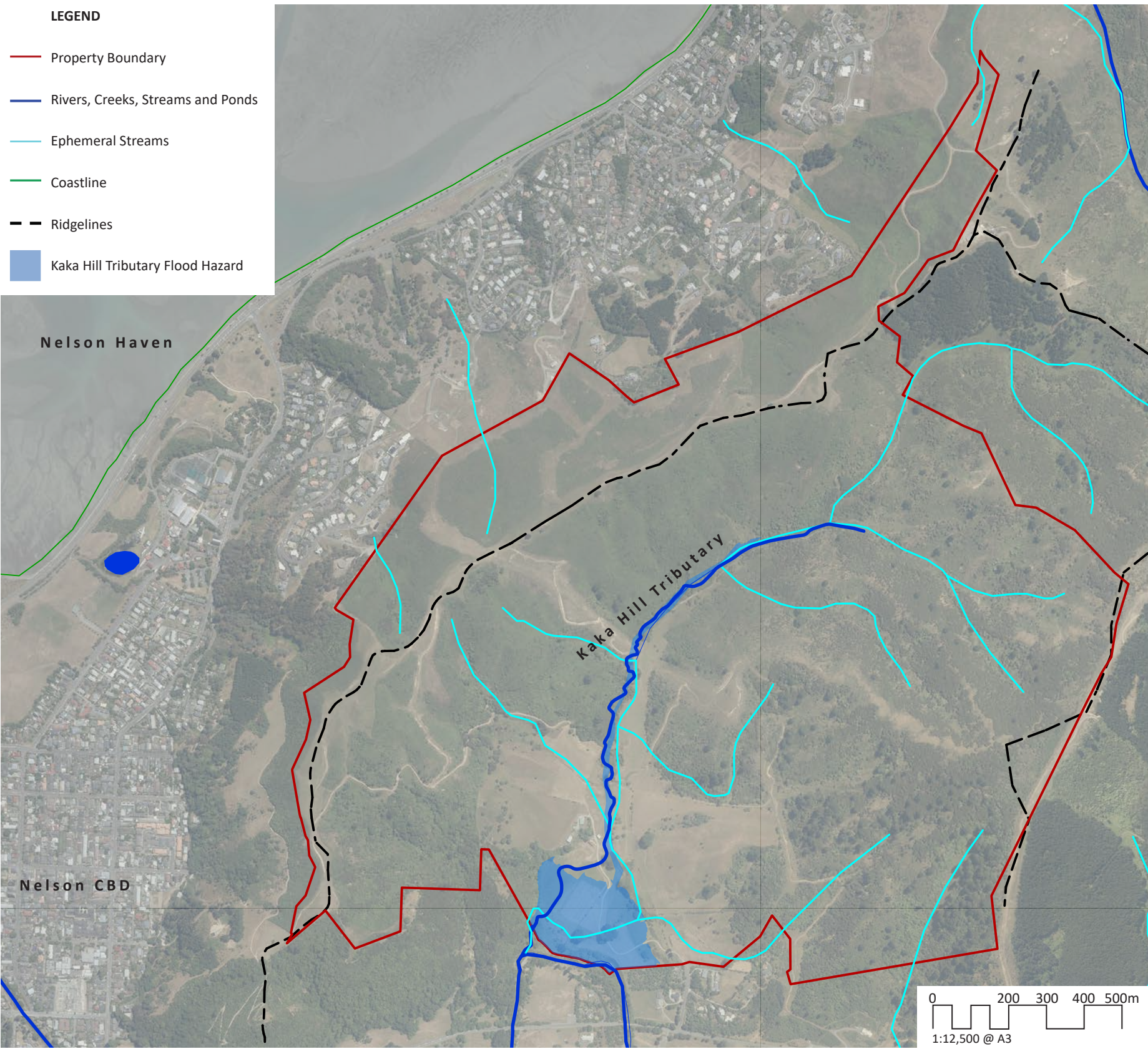


Figure 31: Hydrology Map

3.11 Topography

The site is characterised by 3 distinguishing landforms; the Kaka Valley floor associated with the Maitai River, the conical landform of Botanical Hill which connects into low rolling ridges and spurs extending to the north of Nelson City, and Kaka Hill.

Botanical Hill and Malvern Hills form part of the broader Atawhai Hill Range that extend in a general north to south direction along Nelson Haven. Kaka Hill, being significantly taller than these two hills is visually prominent. As such, it also forms part of these hills that form the immediate green backdrop to Nelson, Nelson Town Centre and Nelson Haven¹³.

Botanical Hill is recognised as an area of Visual Amenity Landscape with very high levels of visibility from Nelson town centre and forms part of a prominent part of Nelson’s skyline to the north of the City.

The Malvern Hills extend along the first leading ridgeline to the north of Walters Bluff, parallel with Nelson Haven and culminates along the lower lying areas which extend to the north of Bay View Road. The Malvern Hills are not visible from the Nelson town centre however, is considered highly visible from the coast, including Nelson Haven.

Our Design Response

- Avoid prominent structures and buildings which dominate the skyline.
- Minimise earthworks / tracking which could detract from the rolling ridgetop character of the skyline.
- Ensure proposed changes in landform adjoining the river corridor remain sympathetic to the existing landform and reflect the existing alluvial terrace patterns legible within the site.
- Locate higher density development within flatter areas of the site, set back beyond the margins of the river.
- Ensure lower density development is situated within the more visually prominent areas.

¹³ Young, A. (2020). Historical and Archaeological Assessment for CCKV Maitai Dev Co LP and Bayview Nelson Limited. 17 December 2020

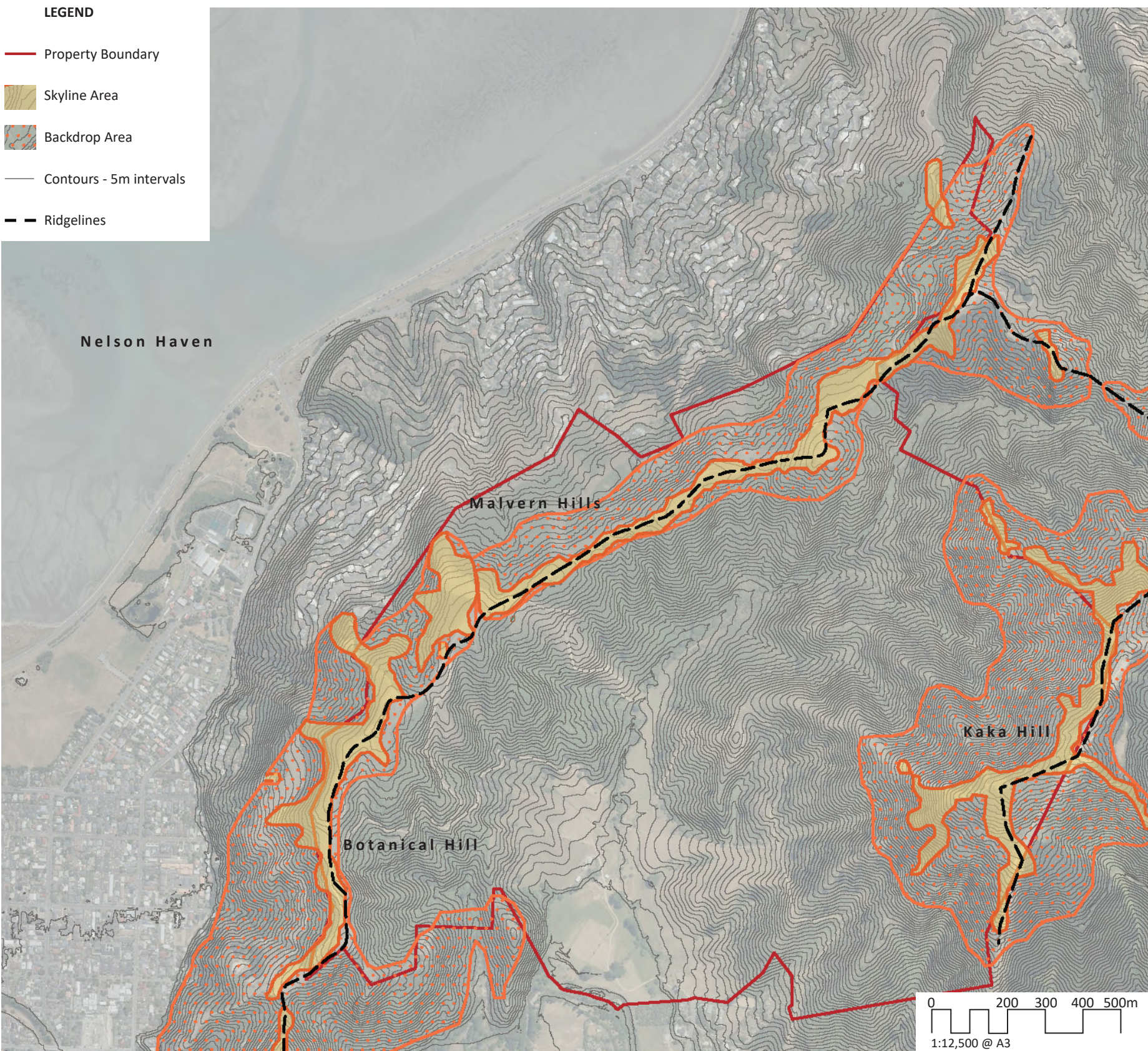


Figure 32: Topography map



3.12 Soils and Slope Stability

The Nelson Mineral Belt is unique in New Zealand due to its diverse mineral content. The mineral belt consists of heavy ultramafic rocks such as serpentine, which once formed the ocean floor and were thrust up as the continent of Gondwana¹⁴. The high mineral content of the soil gives the Dun Mountain its sparse and stunted cover of vegetation and characteristic reddish-brown rock-strewn landscape.

Due to its diverse mineral content, the Dun Mountain, at the heart of the Mineral Belt, is geologically and historically interesting. Early Māori gathered argillite (pakohe) from the river and mineral belt to make sharp tools for filleting fish, preparing vegetables, woodcarving and flax work. Early European settlers mined several tons of chromite from Wooded Peak in the Dun Mountain and attempted to mine copper from Dun Mountain.

The Tonkin and Taylor report has identified that gully controlled translational debris flows dominate slope instability in Kaka Valley, however these areas are limited to steeper slopes that exceed of 30 degrees. Also, the majority of the deep seated landslides and slope instability features are associated with very old ancient, prehistoric slope instability that may be tens to hundreds of thousands of years old. Tonkin and Taylor have not identified large areas that show a significant susceptibility to soil erosion, and the dominant rock types do not weather to sandy or silty soils that are typically easily erodible by rainfall. However, the steeper slopes, in excess of 30 degrees may be susceptible to erosion if stripped of topsoil¹⁵.

The underlying site geology is complex but predominantly Brook Street Volcanics and Maitai Group sandstone, siltstone and limestone, and more recent alluvial along the river¹⁶. According to New Zealand Soil Classification maps¹⁷ the site consists of mostly New Zealand Brown Soils, classified as soil series:

¹⁴ Project Maitai / Mahitahi, Nelson New Zealand. (n.d.). Retrieved August 13, 2020, from <https://nelsoncity.maps.arcgis.com/apps/MapSeries/index.html?appid=13f610bb-9c50414dba970df12085934f>

¹⁵ Tonkin + Taylor Geology and Geotechnical Hazards Report. Dated January 2021

¹⁶ Young, A. (2020). Historical and Archaeological Assessment for CCKV Maitai Dev Co LP and Bayview Nelson Limited. 17 December 2020.

¹⁷ S-Map Online. (n.d.). Retrieved August 12, 2020, from <https://smap.landcareresearch.co.nz/app/>

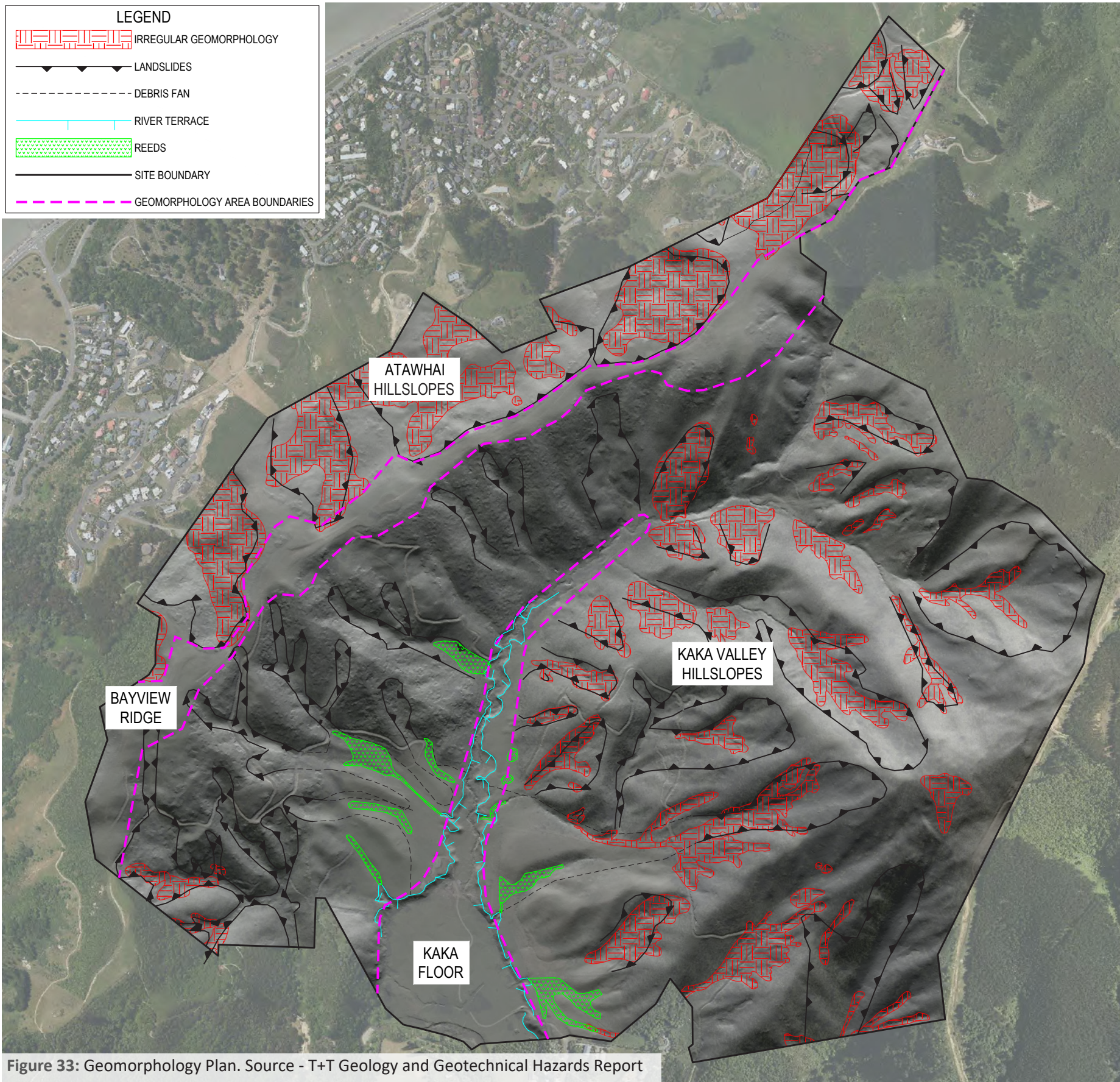


Figure 33: Geomorphology Plan. Source - T+T Geology and Geotechnical Hazards Report

Sunnybank

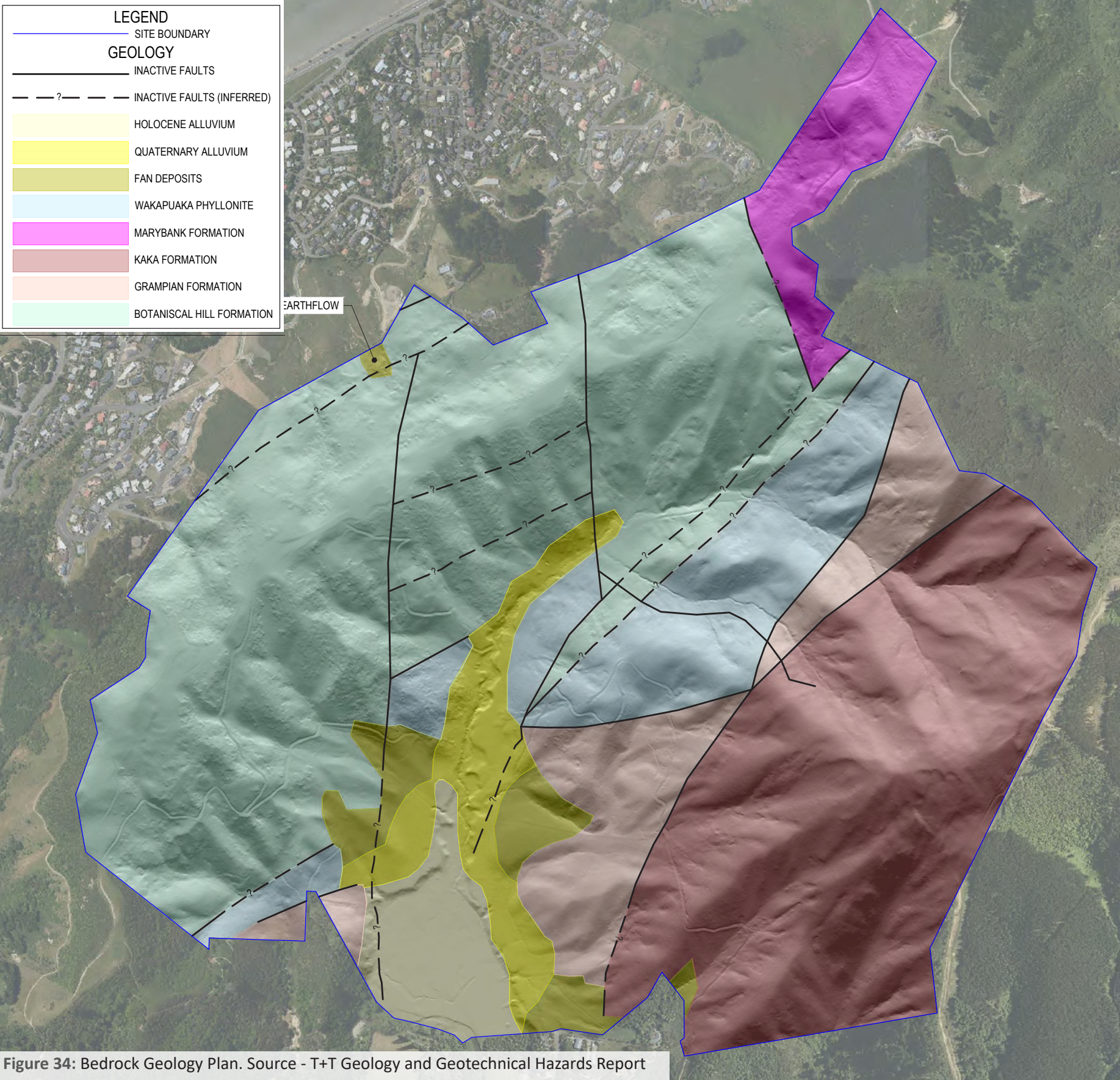
Silt loam hill soils; well drained; dark brown clay loam subsoils with moderate to high fertility but with low phosphorus; land uses include pastoral farming and cropping.

Atawhai

Silt loam steepland soils; well drained with some moderately well drained; low to moderate fertility; land use is mainly pastoral farming, with large areas of scrub.

Our Design Response

- Further geotechnical invagation work is recommended to occur within the slope stability risk areas. Further investigation shall provide a more robust understanding of which slopes future development shall avoid, and which slopes require mitigation work to accommodate future development.
- A landscape design response shall form part of the mitigation work, as they may include retaining walls and cut faces. Vegetation and the other landscape treatments may assist in visually integrating these mitiagtion works into their surrounds.



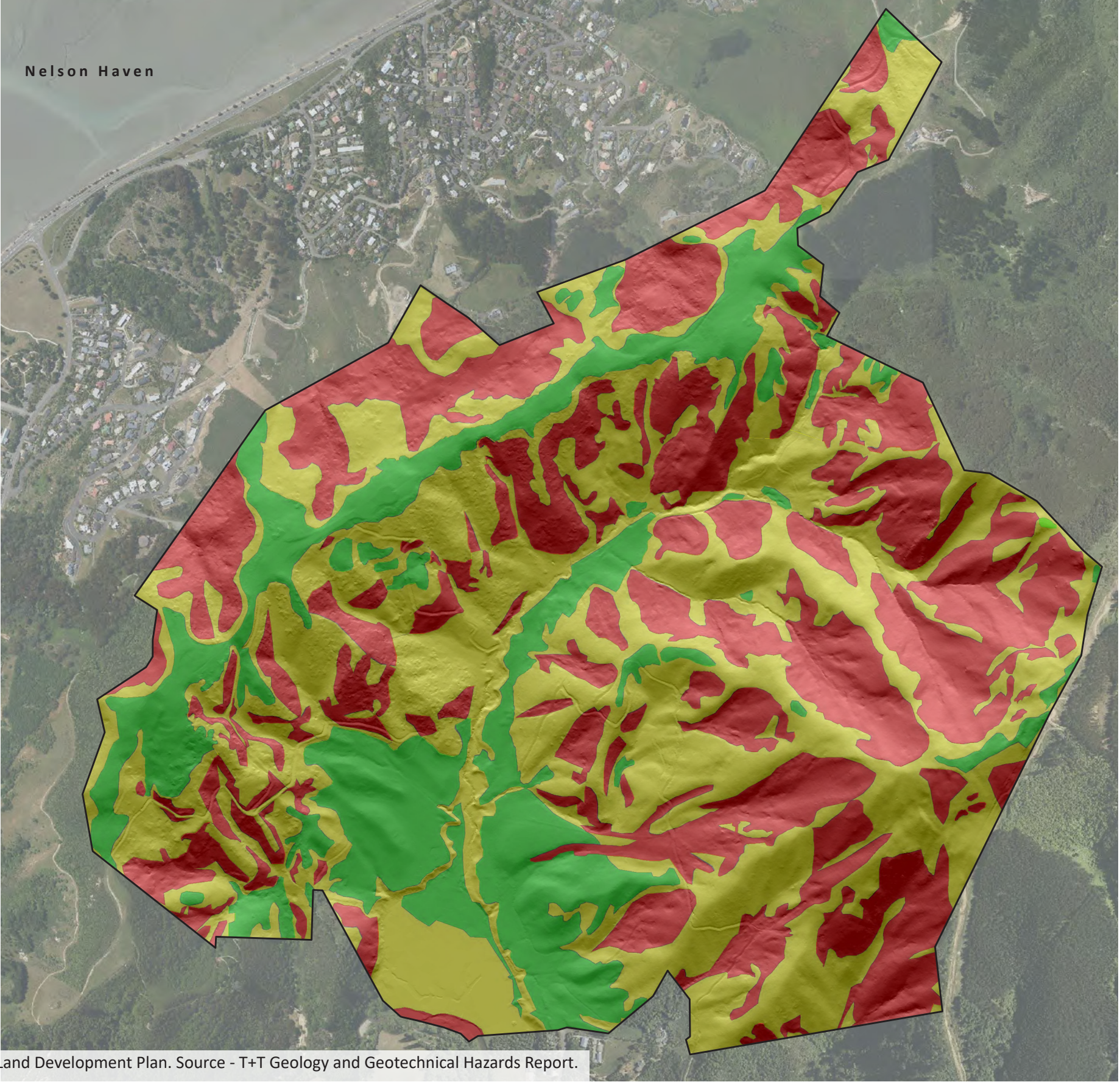
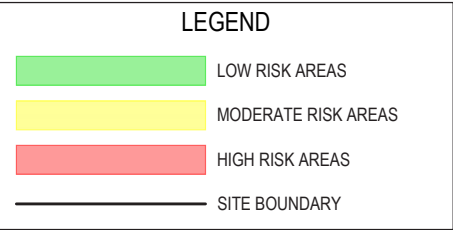
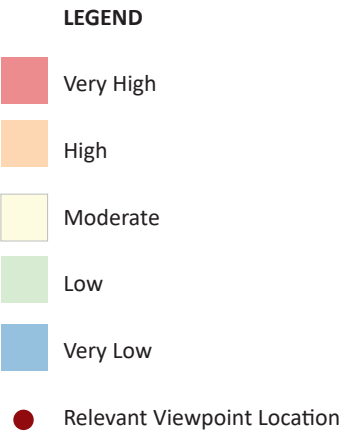


Figure 35: Geotechnical Risk Rating for Land Development Plan. Source - T+T Geology and Geotechnical Hazards Report.

3.13 Visibility Analysis: Viewpoint - Maitai Valley Road



Note: Visibility analysis is a calculation to determine a set of unobstructed sight lines from a given viewpoint with an observation height from the existing ground to a study area based on a given elevation data.

The highlighted are the ground surface areas visible from a given viewpoint.

Visibility analysis calculation is based on ‘bare earth’ terrain model and does not account existing buildings, existing trees, atmospheric elements, natural earth curvature, sea surface and other elements that may affect visibility at any point between the given viewpoints and the study area boundary. Ground elevation data is sourced from Land Information New Zealand (LINZ) 1m Digital Elevation Model Nelson and Tasman 2008-2015

Observation Heights: 1.75m from the ground



Figure 36: ZTV map - Maitai Valley Road



Visibility Analysis: Viewpoint - Botanical Hill/Centre of NZ

LEGEND

Very High

High

Moderate

Low

Very Low

Relevant Viewpoint Location

Note: Visibility analysis is a calculation to determine a set of unobstructed sight lines from a given viewpoint with an observation height from the existing ground to a study area based on a given elevation data.

The highlighted are the ground surface areas visible from a given viewpoint.

Visibility analysis calculation is based on ‘bare earth’ terrain model and does not account existing buildings, existing trees, atmospheric elements, natural earth curvature, sea surface and other elements that may affect visibility at any point between the given viewpoints and the study area boundary. Ground elevation data is sourced from Land Information New Zealand (LINZ) 1m Digital Elevation Model Nelson and Tasman 2008-2015

Observation Heights: 1.75m from the ground

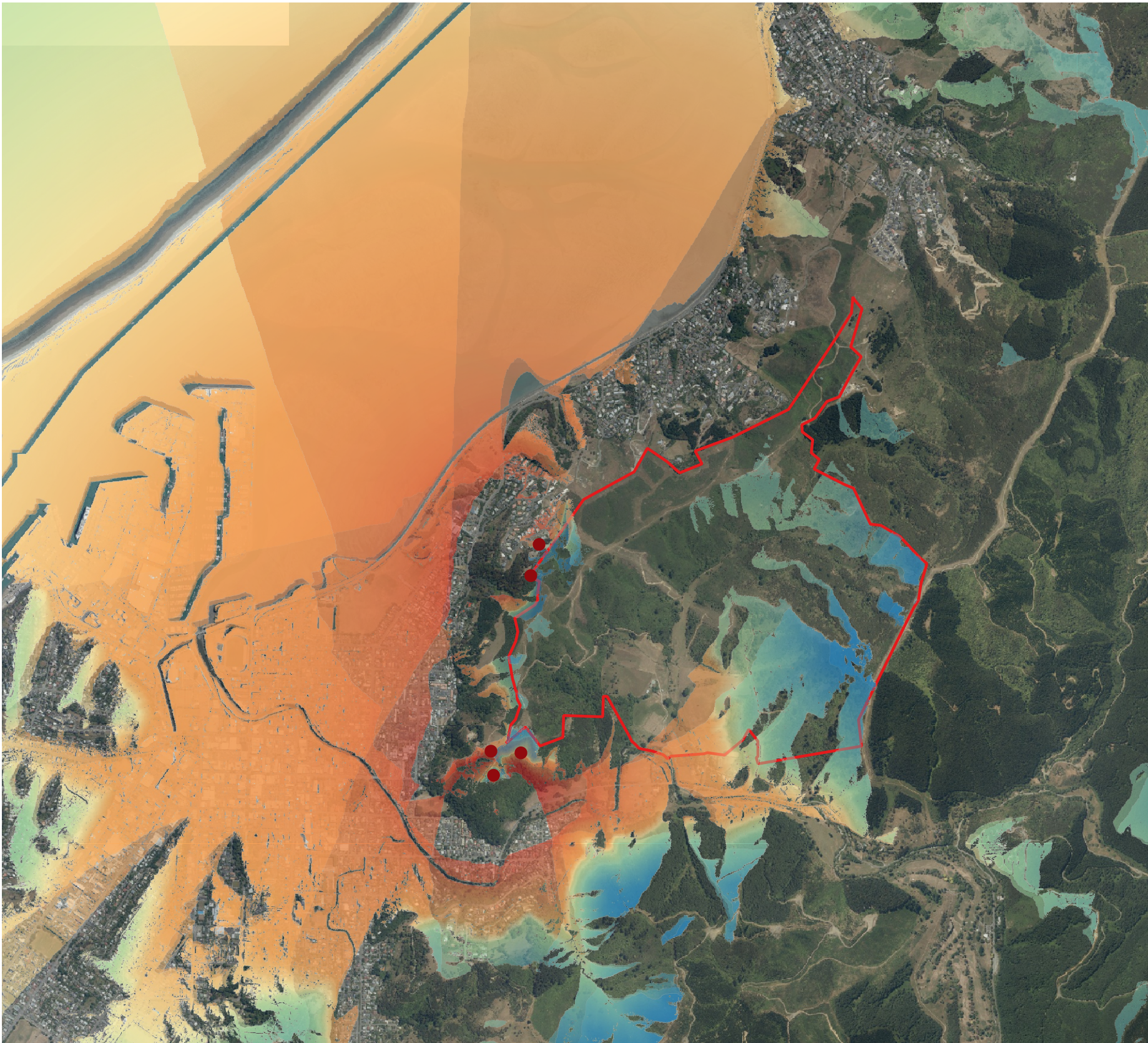


Figure 37: ZTV map - Botanical Hill/Centre of New Zealand

Visibility Analysis: Viewpoint - Nelson Town Centre

LEGEND

Very High

High

Moderate

Low

Very Low

Relevant Viewpoint Location

Note: Visibility analysis is a calculation to determine a set of unobstructed sight lines from a given viewpoint with an observation height from the existing ground to a study area based on a given elevation data.

The highlighted are the ground surface areas visible from a given viewpoint.

Visibility analysis calculation is based on ‘bare earth’ terrain model and does not account existing buildings, existing trees, atmospheric elements, natural earth curvature, sea surface and other elements that may affect visibility at any point between the given viewpoints and the study area boundary. Ground elevation data is sourced from Land Information New Zealand (LINZ) 1m Digital Elevation Model Nelson and Tasman 2008-2015

Observation Heights: 1.75m from the ground

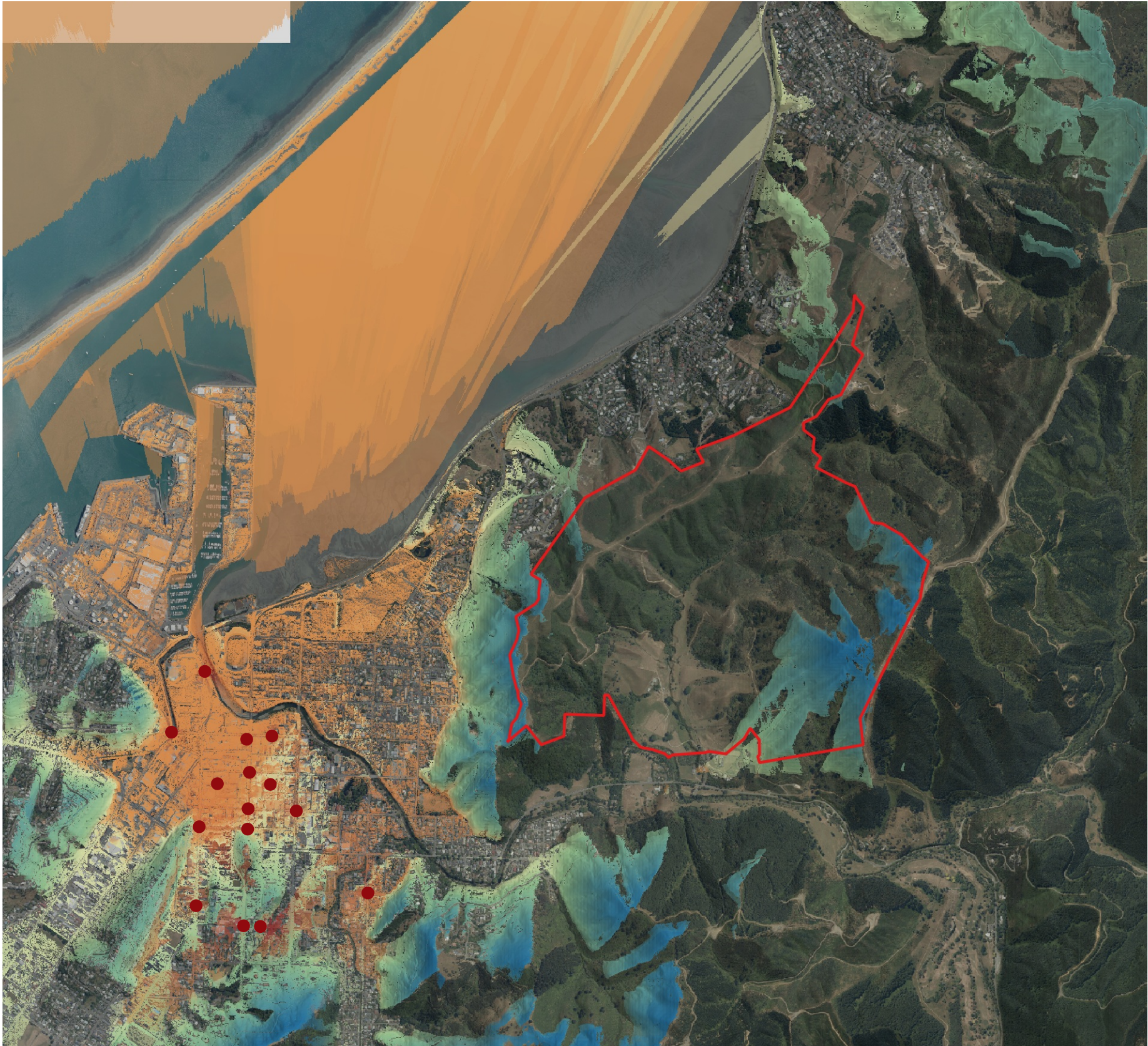


Figure 38: ZTV map - Nelson Town Centre



Visibility Analysis: Viewpoint - Port of Nelson / Akersten St

LEGEND

Very High

High

Moderate

Low

Very Low

Relevant Viewpoint Location

Note: Visibility analysis is a calculation to determine a set of unobstructed sight lines from a given viewpoint with an observation height from the existing ground to a study area based on a given elevation data.

The highlighted are the ground surface areas visible from a given viewpoint.

Visibility analysis calculation is based on ‘bare earth’ terrain model and does not account existing buildings, existing trees, atmospheric elements, natural earth curvature, sea surface and other elements that may affect visibility at any point between the given viewpoints and the study area boundary. Ground elevation data is sourced from Land Information New Zealand (LINZ) 1m Digital Elevation Model Nelson and Tasman 2008-2015

Observation Heights: 1.75m from the ground



Figure 39: ZTV map - Port of Nelson

Visibility Analysis: Viewpoint - SH6 south-west of Neale Park

LEGEND

Very High

High

Moderate

Low

Very Low

Relevant Viewpoint Location

Note: Visibility analysis is a calculation to determine a set of unobstructed sight lines from a given viewpoint with an observation height from the existing ground to a study area based on a given elevation data.

The highlighted are the ground surface areas visible from a given viewpoint.

Visibility analysis calculation is based on ‘bare earth’ terrain model and does not account existing buildings, existing trees, atmospheric elements, natural earth curvature, sea surface and other elements that may affect visibility at any point between the given viewpoints and the study area boundary. Ground elevation data is sourced from Land Information New Zealand (LINZ) 1m Digital Elevation Model Nelson and Tasman 2008-2015

Observation Heights: 1.75m from the ground



Figure 40: ZTV map - SH6 south-west of Neale Park



Visibility Analysis: Viewpoint - SH6 north of Neale Park

LEGEND

Very High

High

Moderate

Low

Very Low

Relevant Viewpoint Location

Note: Visibility analysis is a calculation to determine a set of unobstructed sight lines from a given viewpoint with an observation height from the existing ground to a study area based on a given elevation data.

The highlighted are the ground surface areas visible from a given viewpoint.

Visibility analysis calculation is based on ‘bare earth’ terrain model and does not account existing buildings, existing trees, atmospheric elements, natural earth curvature, sea surface and other elements that may affect visibility at any point between the given viewpoints and the study area boundary. Ground elevation data is sourced from Land Information New Zealand (LINZ) 1m Digital Elevation Model Nelson and Tasman 2008-2015

Observation Heights: 1.75m from the ground



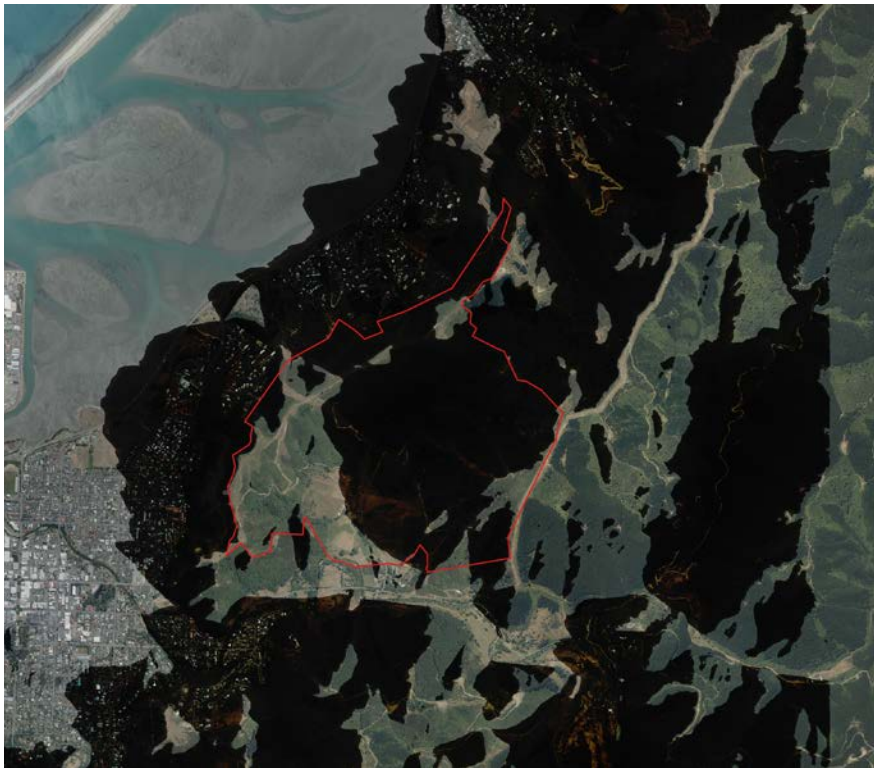
Figure 41: ZTV map - SH6 north of Neale Park.

3.14 Sun Shading Diagrams: Summer - Morning

On the longest day of the year (summer solstice) 22 December, 2019 the sun rose at 5:50am in Nelson.



6:00am



7:00am



8:00am



9:00am



10:00am

Figure 42: Sun Shading Diagrams: Summer - Morning



Sun Shading Diagrams: Summer - Late Afternoon

On the longest day of the year (summer solstice) 22 December, 2019 the sun set at 8:59pm in Nelson.



6:00pm



7:00pm



8:00pm

Figure 43: Sun Shading Diagrams: Summer - Late Afternoon



Winter Sun Shading Diagrams: Morning

On the shortest day of the year (winter solstice) 22 June, 2019 the sun rose at 7:52am in Nelson.



8:00am



9:00am

On the shortest day of the year (Winter solstice) 22 June, 2019 the sun rose at 7:52am in Nelson.



10:00am



11:00am



12:00pm

Figure 44: Sun Shading Diagrams: Winter - Morning



Winter Sun Shading Diagrams: Late Afternoon

On the shortest day of the year (winter solstice) 22 June, 2019 the sun set at 5:09pm in Nelson.



1:00pm



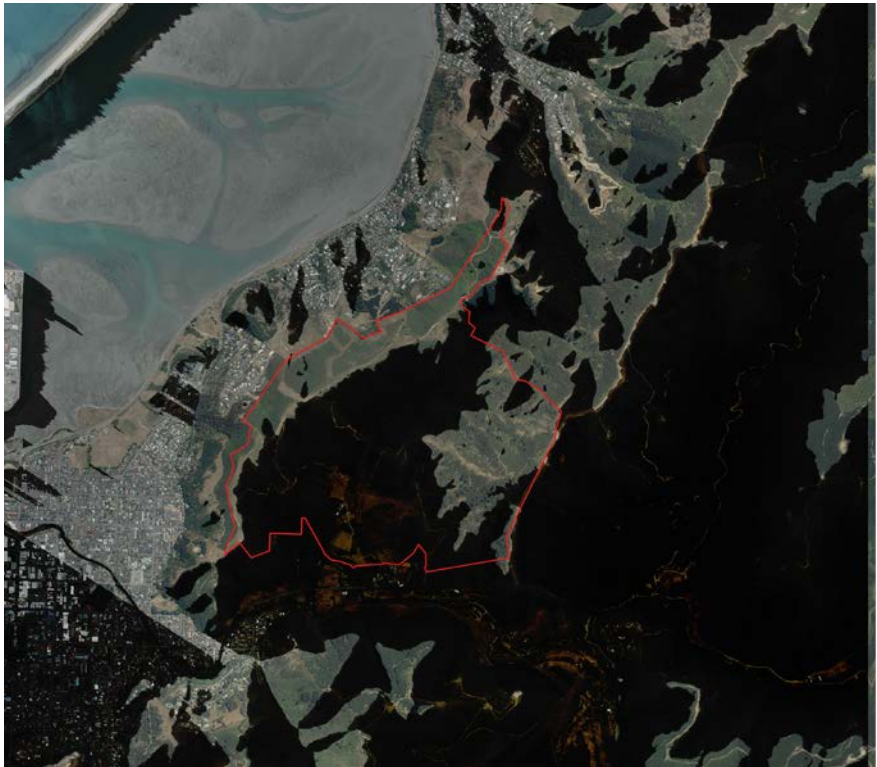
2:00pm



3:00pm



4:00pm



5:00pm

Figure 45: Sun Shading Diagrams: Winter - Late Afternoon



3.15 Constraints

- Minimise development along the prominent Malvern Hills and Botanical Hill ridgelines, particularly within the skyline area.
- A landscape design response shall form part of the high and medium slope risk areas. Landscape mitigation work may include vegetation and the other landscape treatments as to assist in visually integrating the retaining walls and cut faces into their surrounds.
- Where development occurs in flood risk areas design to mitigate effects from flooding.
- Minimise the removal of existing native vegetation. Retain and protect prominent stands of vegetation.

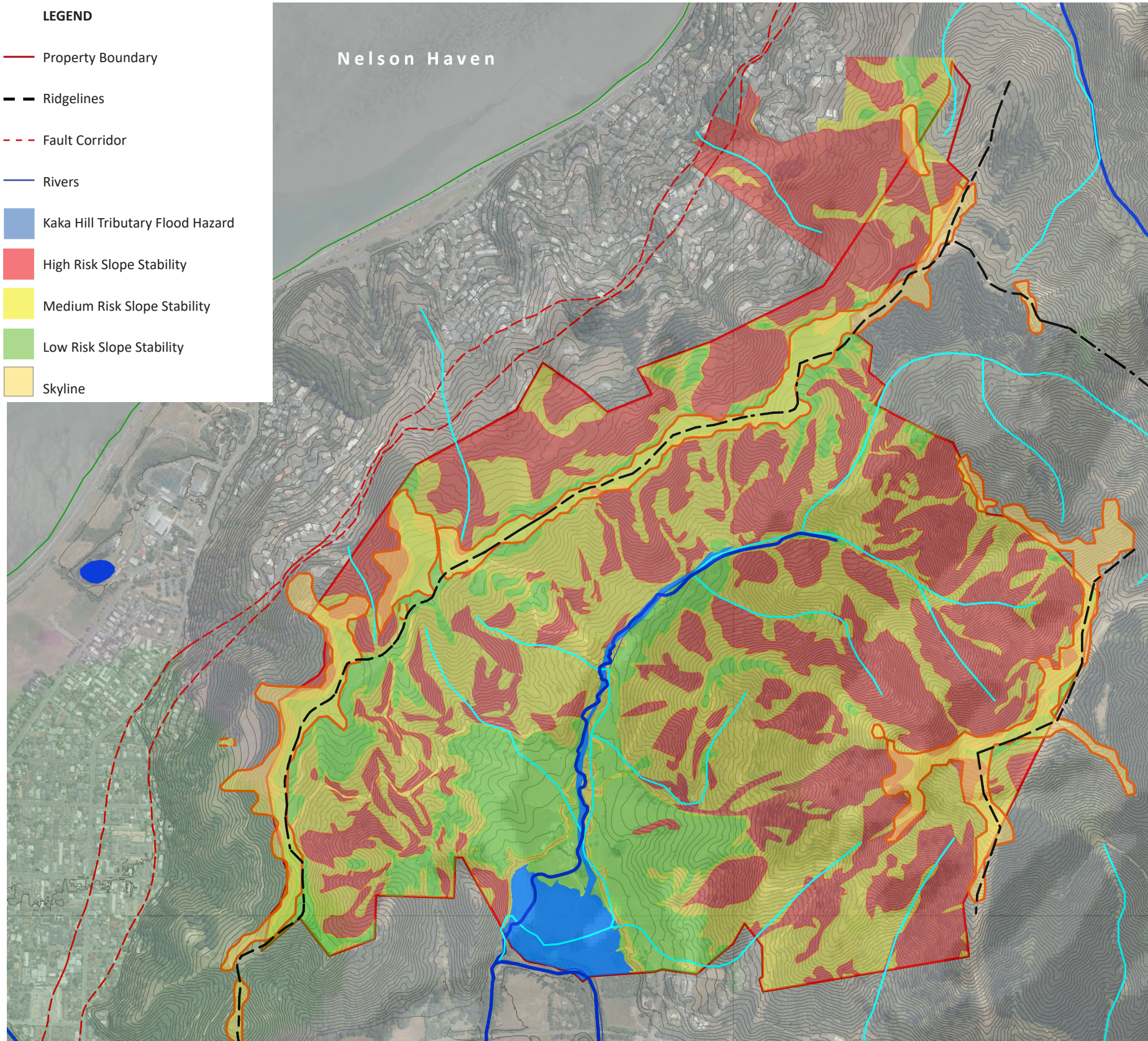


Figure 46: Constraints map



3.16 Constraints

- Utilise the existing landform for development.
- Create a distinct landscape character for the site.
- Allow the landscape to flow through the development with green/ biodiversity corridor links.
- Utilise flatter areas of the site for more intensive development.
- Rezone to enable residential development with a range of densities to offer a range of lifestyle choices.
- Utilise the existing infrastructure off Ralphine way.
- Create a network of walking and cycling trails through the development which connect to the wider context of Maitai Valley and Nelson City.
- Create a network of public open space which have a good relationship to the Kaka Stream.
- Create a town centre / hub for the settlement.
- Undertake ecological restoration of Kaka Stream.
- Ensure that water runoff from the development is clean / treated before it enters the Maitai River.
- Retain existing stands of native vegetation. Particularly the two notable stands of Kanuka and the Kahikatea tree (labelled opposite).

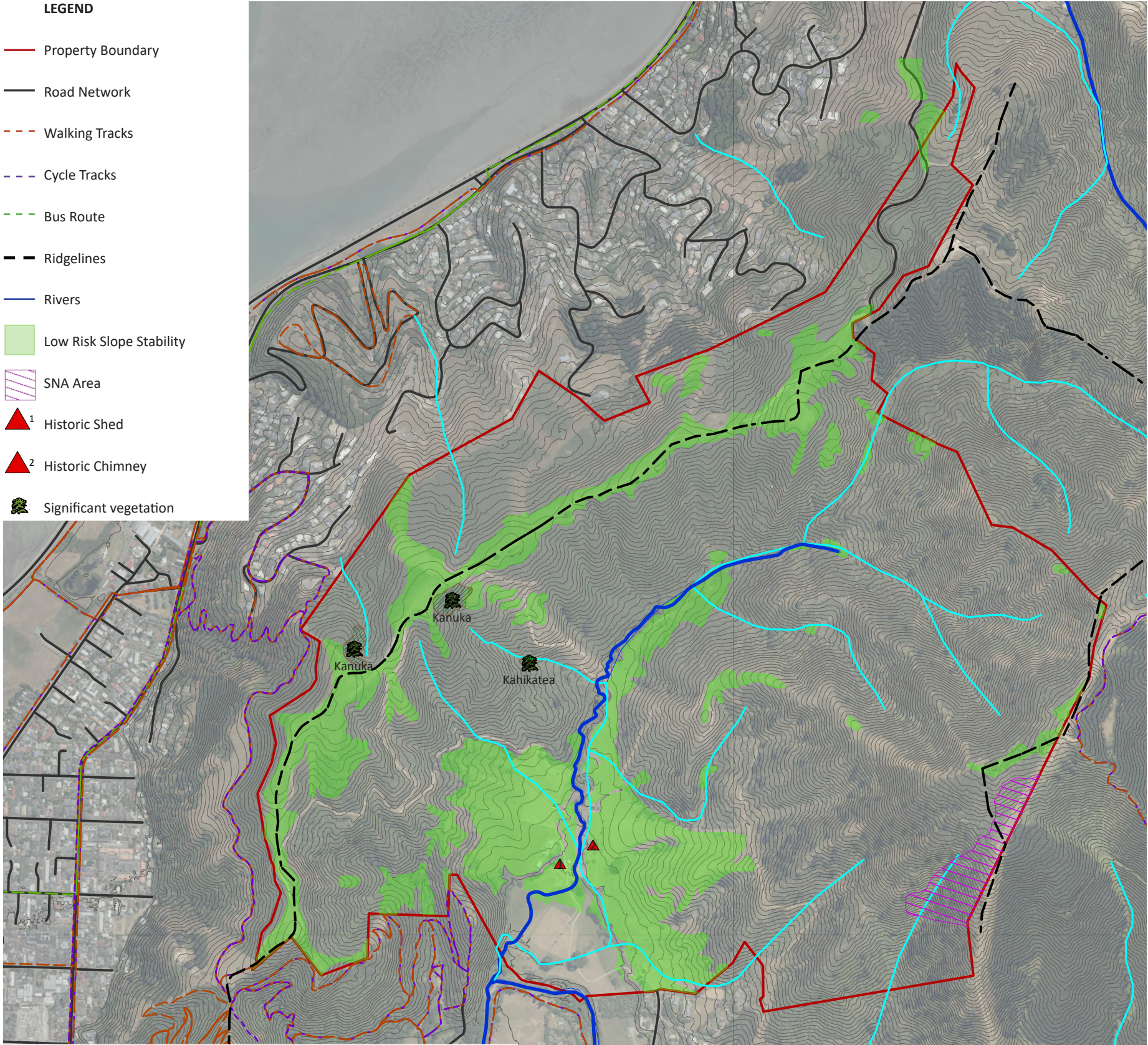


Figure 47: Opportunities Map





4.0 The Proposal

4.1 Zone and Structure Plans

The vision of the PPCR is to develop a new neighborhood which will provide housing at a range of densities supported by high amenity open spaces and a suburban commercial area. This will allow Nelson to grow in a manner consistent with current urban development forms.

The PPCR seeks to rezone the site to consist of Residential, Open Space, Suburban Commercial, Lower Density Small Holdings Area and Rural Zones. These zones will be subject to a Structure Plan, as well as specific objectives, policies, rules and assessment matters for these areas, which shall be read in addition to the NRMP’s existing objectives, policies, rules and assessment matters for these zones.

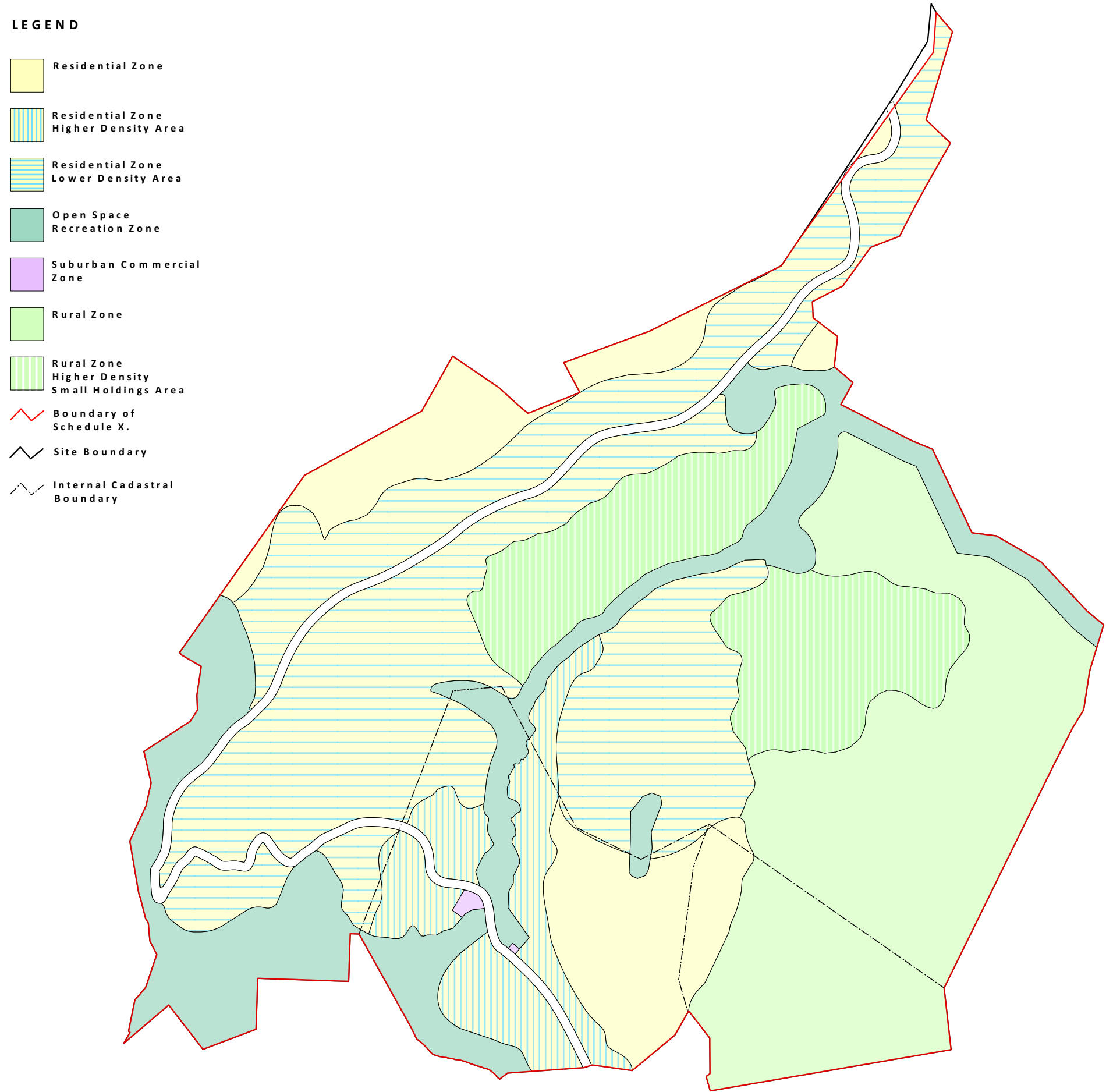


Figure 48: (Opposite page) - View from Botanical Hill looking east towards Kaka Hill and Kaka Valley

Figure 49: Proposed Zone Plan

LEGEND

- Residential Zone
- Residential Zone
Higher Density Area
- Residential Zone
Lower Density Area
- Open Space
Recreation Zone
- Suburban Commercial
Zone
- Rural Zone
- Higher Density
Small Holdings Area
- Neighbourhood
Reserve
- Indicative Road
- Indicative Walkway /
Cycleway Link
- Indicative Lookout
Locations
- Wetland
- Existing River
- Proposed River
- Site Boundary
- Internal Cadastral
Boundaries

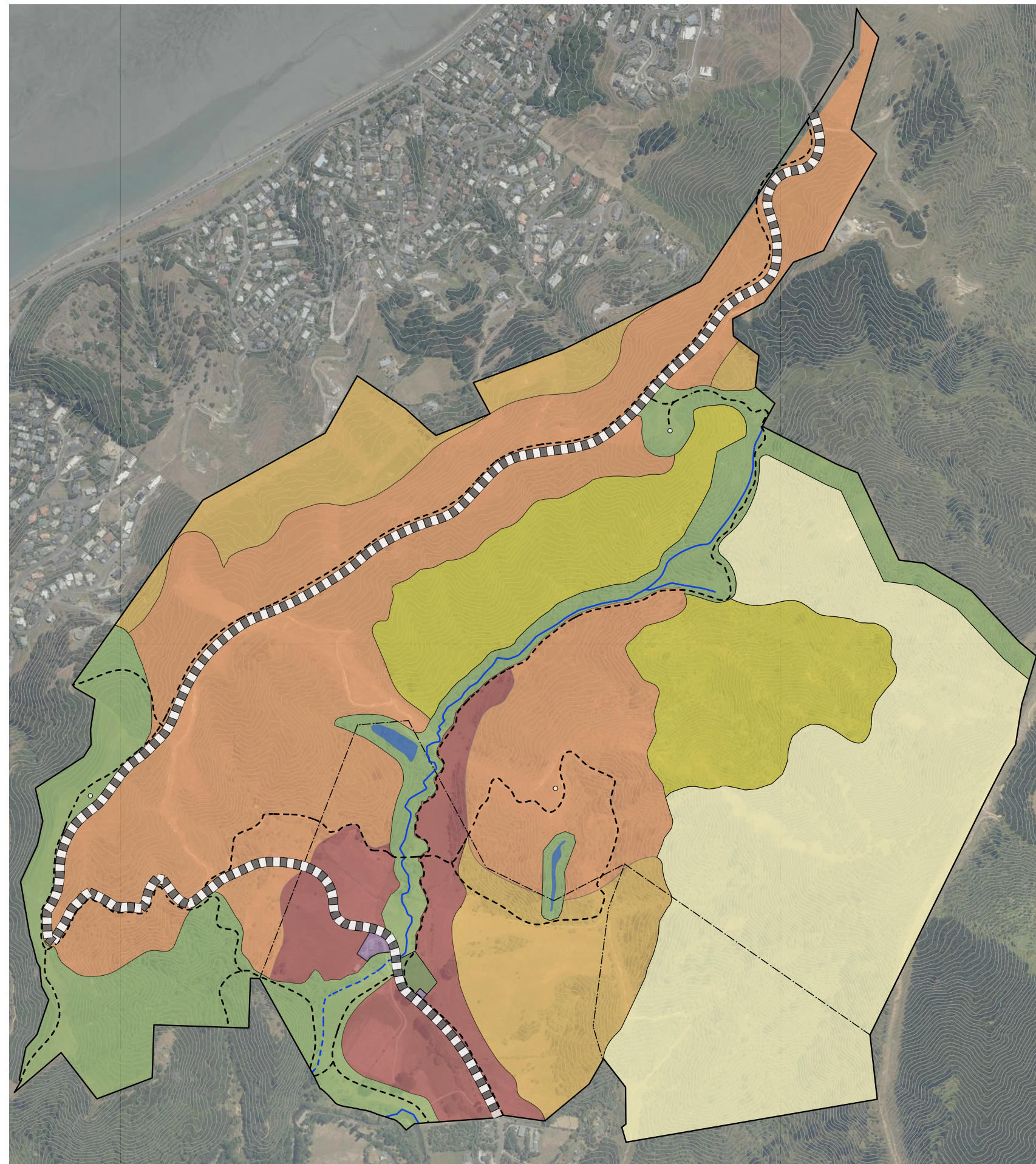


Figure 50: Proposed Structure Plan, overlaid on an aerial photograph and contours spaced at 5m intervals



- LEGEND**
-  Open Space Recreation Zone
 -  Skyline Area
 -  Backdrop Area
 -  Malvern Hills and Botanical Hill Ridgeline
 -  SNA Area
 -  Kanuka Vegetation and Kahikatea Tree to be Protected
 -  Wetland
 -  Existing River
 -  Proposed River
 -  Site Boundary
 -  Internal Cadastral Boundaries

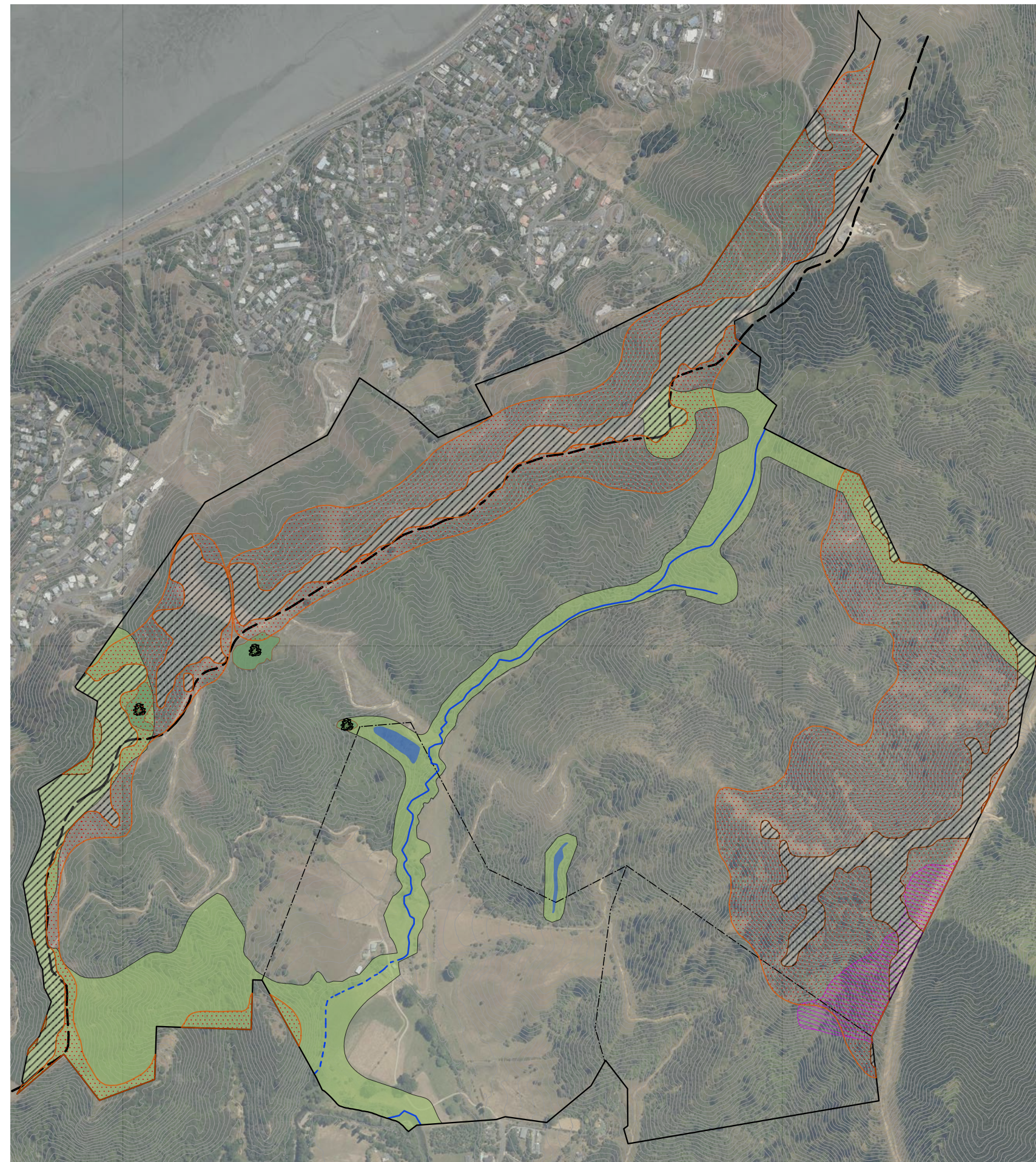


Figure 51: Proposed Structure Plan - Landscape Overlays, overlaid on an aerial photograph and contours spaced at 5m intervals

LEGEND

- Residential Zone
- Residential Zone
Higher Density Area
- Residential Zone
Lower Density Area
- Open Space
Recreation Zone
- Suburban Commercial
Zone
- Rural Zone
- Higher Density
Small Holdings Area
- Neighbourhood
Reserve
- Indicative Road
- Indicative Walkway /
Cycleway Link
- Indicative Lookout
Locations
- Wetland
- Existing River
- Proposed River
- Site Boundary
- Internal Cadastral
Boundaries

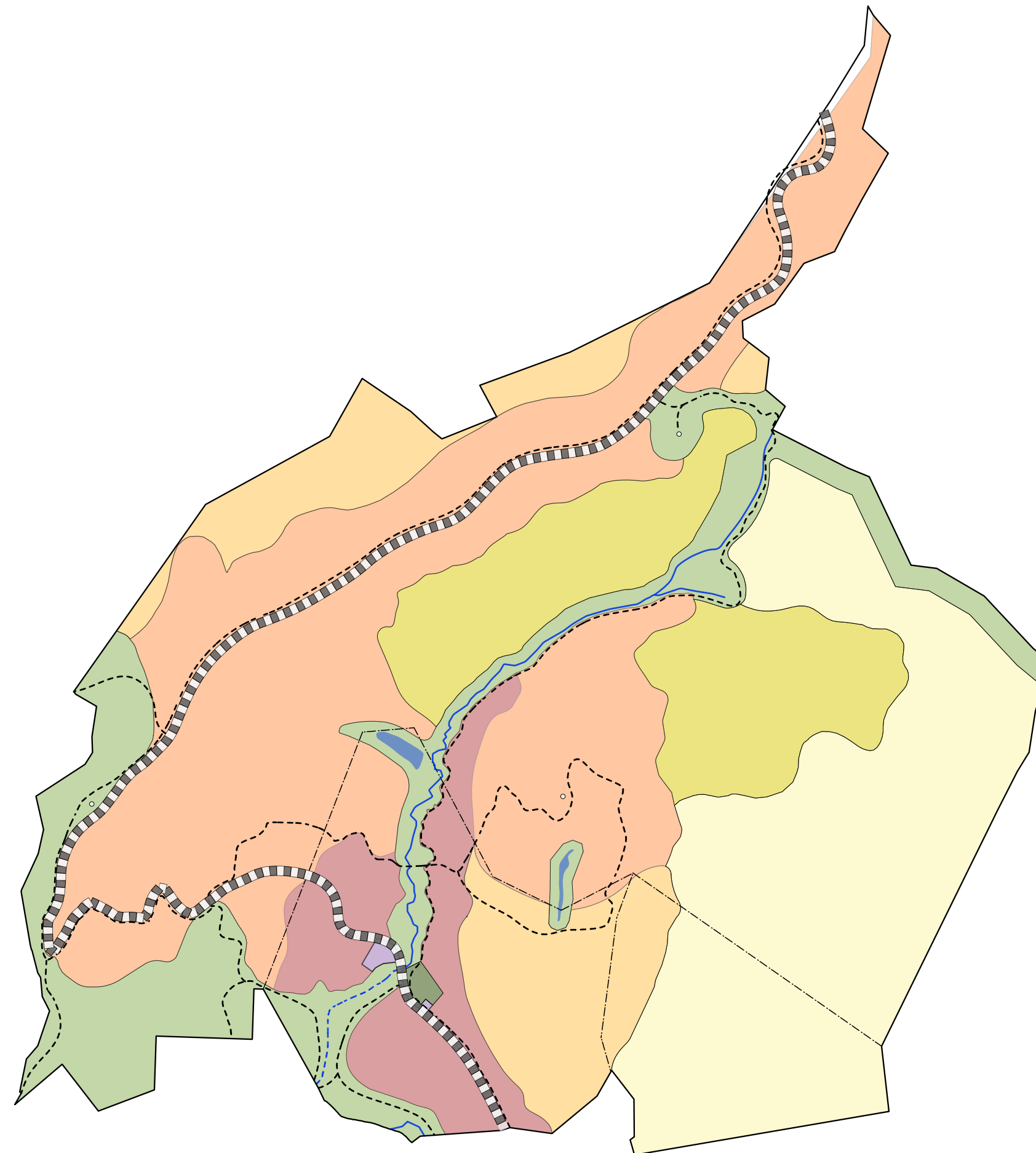


Figure 52: Proposed Structure Plan



LEGEND

- Open Space Recreation Zone
- Skyline Area
- Backdrop Area
- Malvern Hills and Botanical Hill Ridgeline
- SNA Area
- Kanuka Vegetation and Kahikatea Tree to be Protected
- Wetland
- Existing River
- Proposed River
- Site Boundary
- Internal Cadastral Boundaries

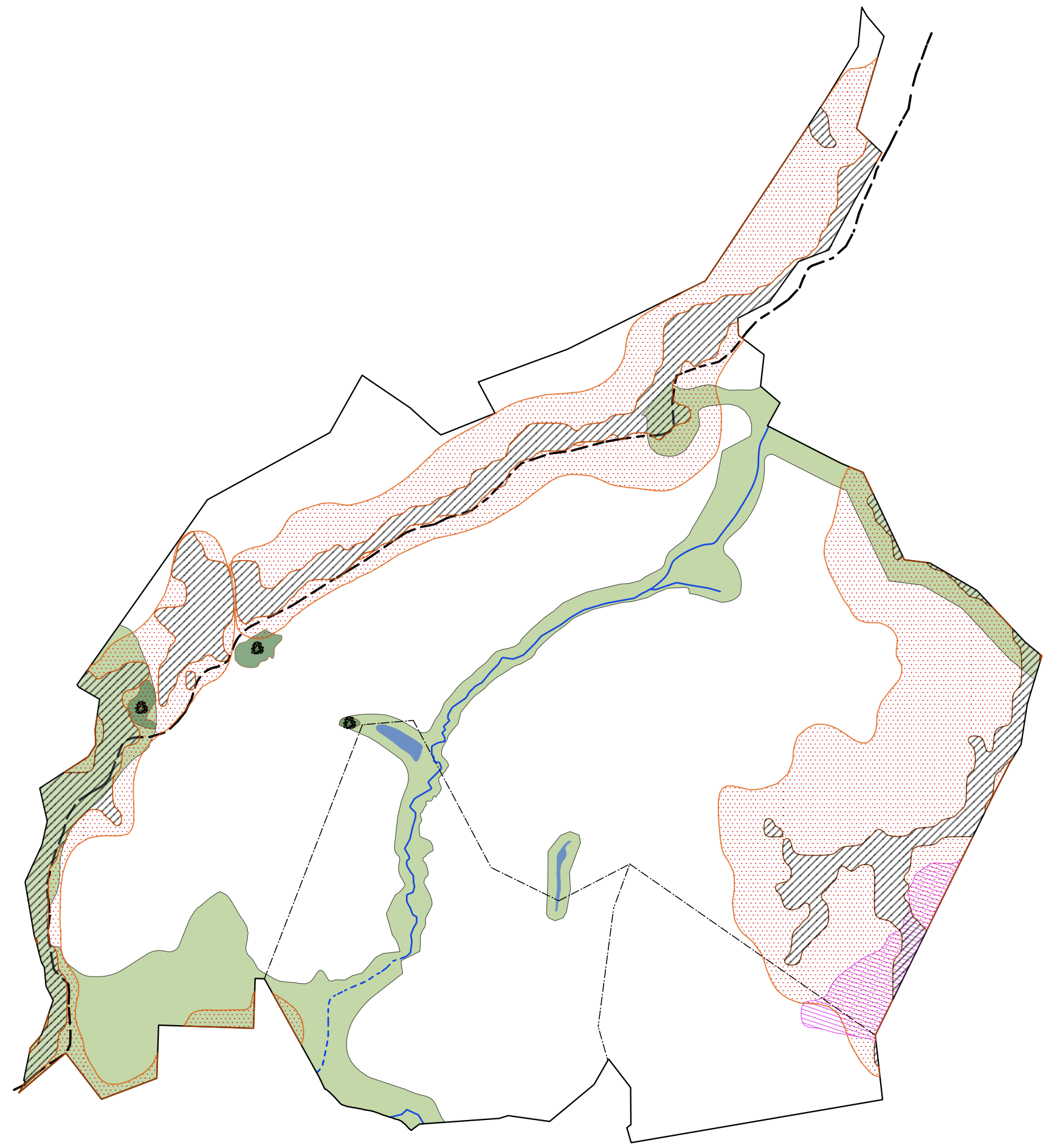


Figure 53: Proposed Structure Plan - Landscape Overlays

PLANNING MAPS LEGEND
(RIGHT HAND MAPS ONLY)

NOTE 1: Zones are Represented on Right Hand Facing Sheet Only.
NOTE 2: Mean High Water Springs (MHWS) as shown on these Planning Maps are indicative only. Where rules in this Plan require MHWS to be located, This must be done by survey.

CAPITALS = ZONE

Lower Case = Areas Within Zone

ZONES

RESIDENTIAL

Higher Density

Lower Density Area

Lower Density Area (Stoke)

RURAL

Higher Density Small Holdings Area

Lower Density Small Holdings Area

CONSERVATION

INNER CITY-FRinge

Intense Development Area

INNER CITY -CENTRE

SUBURBAN COMMERCIAL

Leisure Area

INDUSTRIAL

Nayland Road South Industrial Area

OPEN SPACE RECREATION

OVERLAYS

Coastal Environment Overlay

Landscape Overlay

Scheduled Site (SEE Chapter 3 and Zone Chapters)

View Shaft Overlay

Scheduled Streets

HERITAGE OVERLAYS

Archaeological Sites

Archaeological Overlay

SYMBOLS

Public Car Parking Squares and Places

Assumed MHWS and Landward Boundary of the CMA (SEE Note 2)

Nelson City Boundary

Bridge Location - (No Rules Apply)

MAP EXTENT SYMBOLS

1:2,500

1:5,000

1:10,000

1:25,000

Map Limit Outlines

Figure 54: Proposed Zone Plan

SHEET
52

Private Plan Change Request - Maitahi and Bayview, Nelson
Preliminary Landscape Design Document
1 April 2021

rough & milne landscape architects

4.2 Plant Schedule

Area 1 - Bayview Skyline and Backdrop Area

20% of future properties within the Bayview Skyline and Backdrop Areas shall be planted in native plants from the following lists.

This area is a coastal facing hill slope, consisting of silt loam, is well drained, has low to moderate fertility, with existing land use activities including pastoral farming, scrub (gorse and broom) and cropping.

This area is predominantly coastal hill country, and some lowland hill country.

It also has high sunshine hours; mild annual temperatures; frosts are slight to moderate; and an annual rainfall of 890-1000mm.

- Trees**
Cordyline australis – Cabbage tree
Dodonaea viscosa – akeake
Kunzea ericoides – Kānuka
Melicytus ramiflorus – Māhoe
Myoporum laetum - Naigo
Myrsine australis – Māpou - divaricata
Olearia paniculate - akiraho
Pittosporum tenuifolium - Kōhūhū
Pseudopanax crassifolius – Lancewood

- Shrubs, Ground Covers, Grasses, and Sedge**
Brachyglottis repanda – Rangiora
Coprosma repens - Taupata
Coprosma robusta – Karamū
Veronica stricta – Koromiko
Melicytus crassifolius – Coastal porcupine scurb
Ozothamnus leptophyllus – Tauhinu
Phormium cookianum – Wharariki
Cortaderia richardii – South Island Toetoe

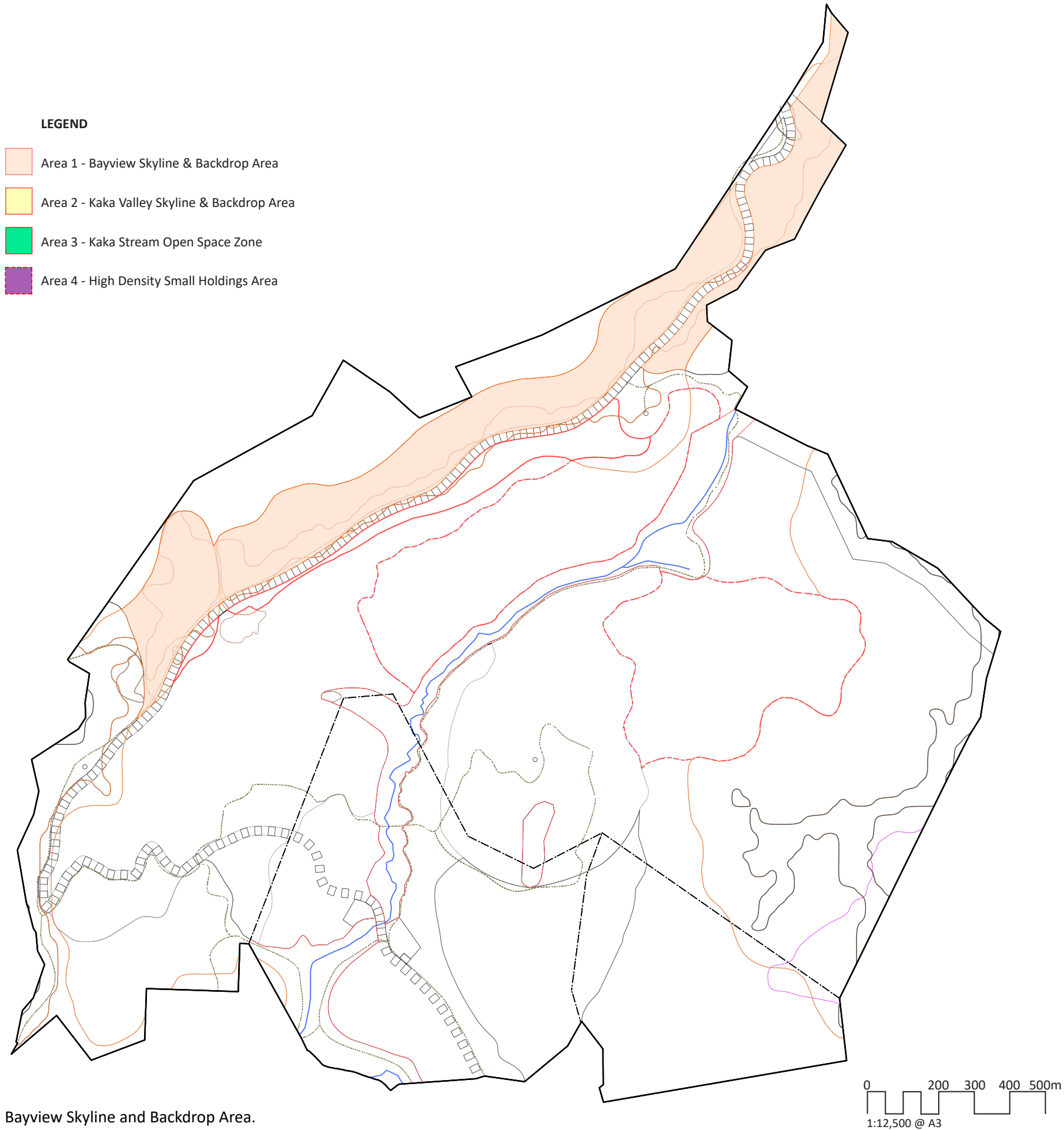


Figure 55: Bayview Skyline and Backdrop Area.

Area 2 - Kaka Valley Skyline and Backdrop Area

20% of future properties within the Kaka Valley Skyline and Backdrop Areas shall be planted in native plants from the following lists.

This area is a consists inland facing hill slopes, consisting of silt loam, is well drained, has low to moderate fertility, with existing land use activities including pastoral farming, scrub (gorse and broom) and cropping.

This area is predominantly coastal hill country, and some lowland hill country.

It also has high sunshine hours; mild annual temperatures; frosts are slight to moderate; and an annual rainfall of 890-1000mm.

Trees

- Alectryon excelsus* – Tītoki
- Aristotelia serrata* – Makomako
- Beilschmiedia tawa* – Tawa
- Cordyline australis* – Cabbage tree
- Dacrycrpus dacrydioides* – Kahikitea
- Dacrydium cupressinum* – Rimu
- Fuchsia excorticata* - kōtukutuku, tree fuchsia
- Fuscospora solandri* – Black Beech
- Fuscospora truncate* – Hard Beech
- Griselinia lucida* - Puka
- Hoheria angustifolia*
- Kunzea ericoides* – Kānuka
- Leptospermum scoparium* – manuka
- Macropiper excelsum* – Kawakawa
- Melicytus ramiflorus* – Māhoe
- Myoporum laetum* - Naigo
- Myrsine australis* - Māpou
- Pittosporum eugeniioides* - Tarata
- Pittosporum tenuifolium* - Kōhūhū
- Plagianthus regius* – Lowland ribbonwood
- Podocarpus totara* – tōtara
- Prumnopitys ferruginea* - Miro
- Prumnopitys taxifolia* – Matai
- Pseudopanax crassifolius* – Lancewood
- Sophora microphylla* – Kōwhai
- Weinmannia racemose* – Kāmhai

Shrubs, Ground Covers, Grasses, and Sedges

- Brachyglottis repanda* – Rangiora
- Coprosma repens* - Taupata
- Coprosma robusta* – Karamū
- Veronica stricta* – Koromiko
- Melicytus crassifolius* – Coastal porcupine scurb
- Ozothamnus leptophyllus* – Tauhinu
- Phormium cookianum* – Wharariki
- Cortaderia richardii* – South Island Toetoe

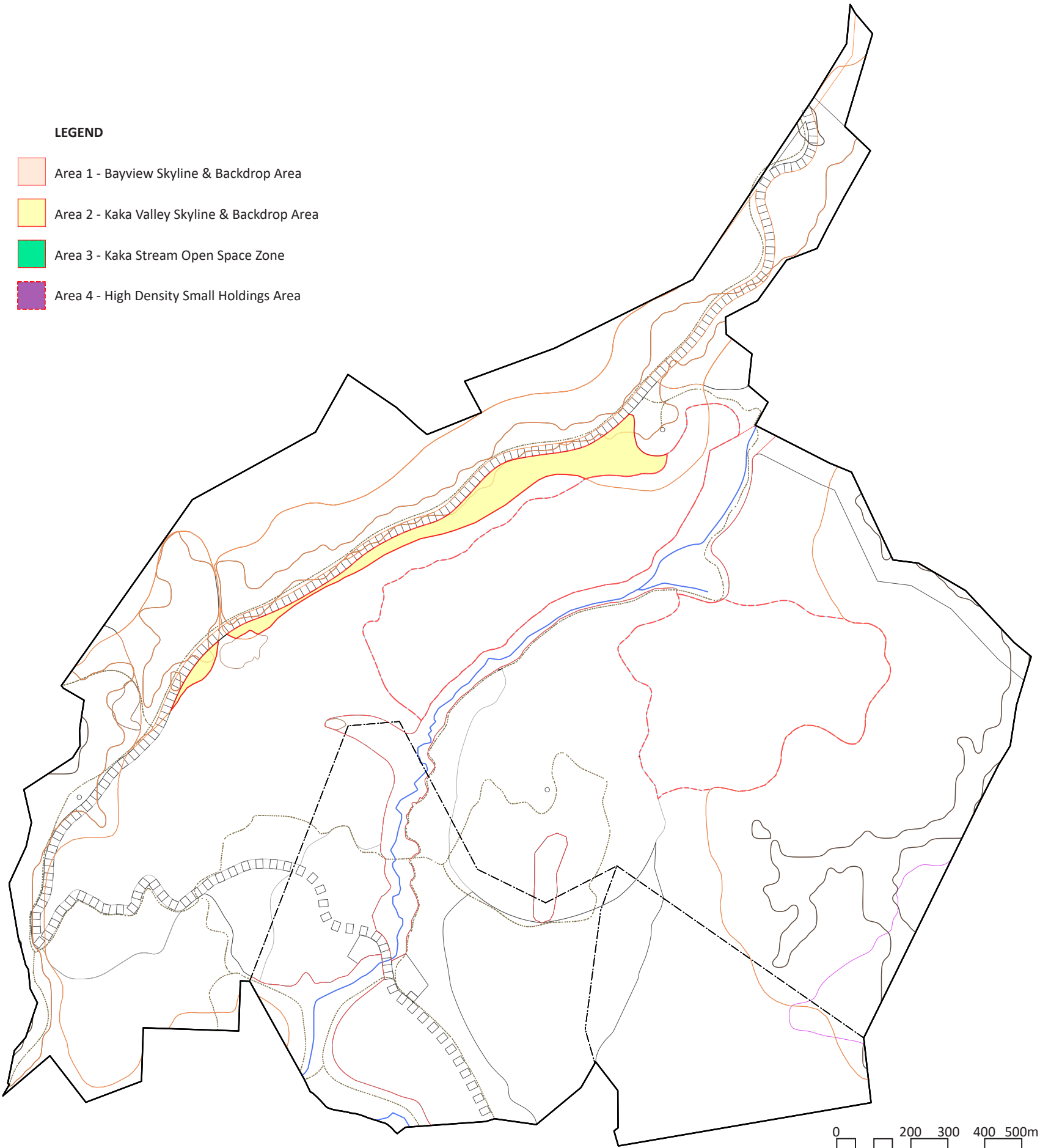


Figure 56: Kaka Valley Skyline and Backdrop Area



Area 3 - Kaka Stream Open Space Zone

Area includes some hill slopes, lowland flats, alluvial terraces, silt loam with gravelly subsoils; moderately well drained with some well drained areas; low to moderate fertility; mainly used for pastoral farming.

Areas of wetland, stream margins, gullies, lowland flats, and hill sides.

High sunshine hours; mild annual temperatures; frosts are slight to moderate;
and an annual rainfall of 890-1000mm.

Trees

- Alectryon excelsus* – Tītoki
- Aristotelia serrata* – Makomako
- Beilschmiedia tawa* – Tawa
- Cordyline australis* – Cabbage tree
- Dacrycrpus dacrydioides* – Kahikitea
- Dodonaea viscosa* – akeake
- Dacrydium cupressinum* – Rimu
- Fuchsia excorticata* - kōtukutuku, tree fuchsia
- Hoheria angustifolia* – Houhere
- Kunzea ericoides* – Kānuka
- Leptospermum scoparium* – manuka
- Pittosporum eugenoides* - Tarata
- Pittosporum tenuifolium* – Kōhūhū
- Plagianthus regius* – Lowland ribbonwood
- Podocarpus totara* – tōtara
- Prumnopitys ferruginea* - Miro
- Prumnopitys taxifolia* - Matai
- Pseudopanax crassifolius* – Lancewood
- Sophora microphylla* – Kōwhai
- Weinmannia racemose* – Kāmhai

Shrubs, Ground Covers, Grasses and Sedges

Plants for Stream and Wetland Margins

- Aposadmia sismilis* - Oioi
- Carex secta* – pukio
- Carex virigata* – Pūrei
- Cortaderia richardii* – South Island Toetoe
- Phormium tenax* - Harakeke
- Juncus edgariae* – common rush
- Juncus pallidus* – Giant Rush
- Juncus australis* – Rush

Plants set back from Stream and Wetland Margins

- Astelia frangrans* – kahakaha
- Coprosma propinqua* – Mingimingi
- Coprosma rigida* – streamside coprosma
- Coprosma robusta* – Karamū
- Myrsine divaricate* – Weeping Māpou
- Veronica stricta* – Koromiko

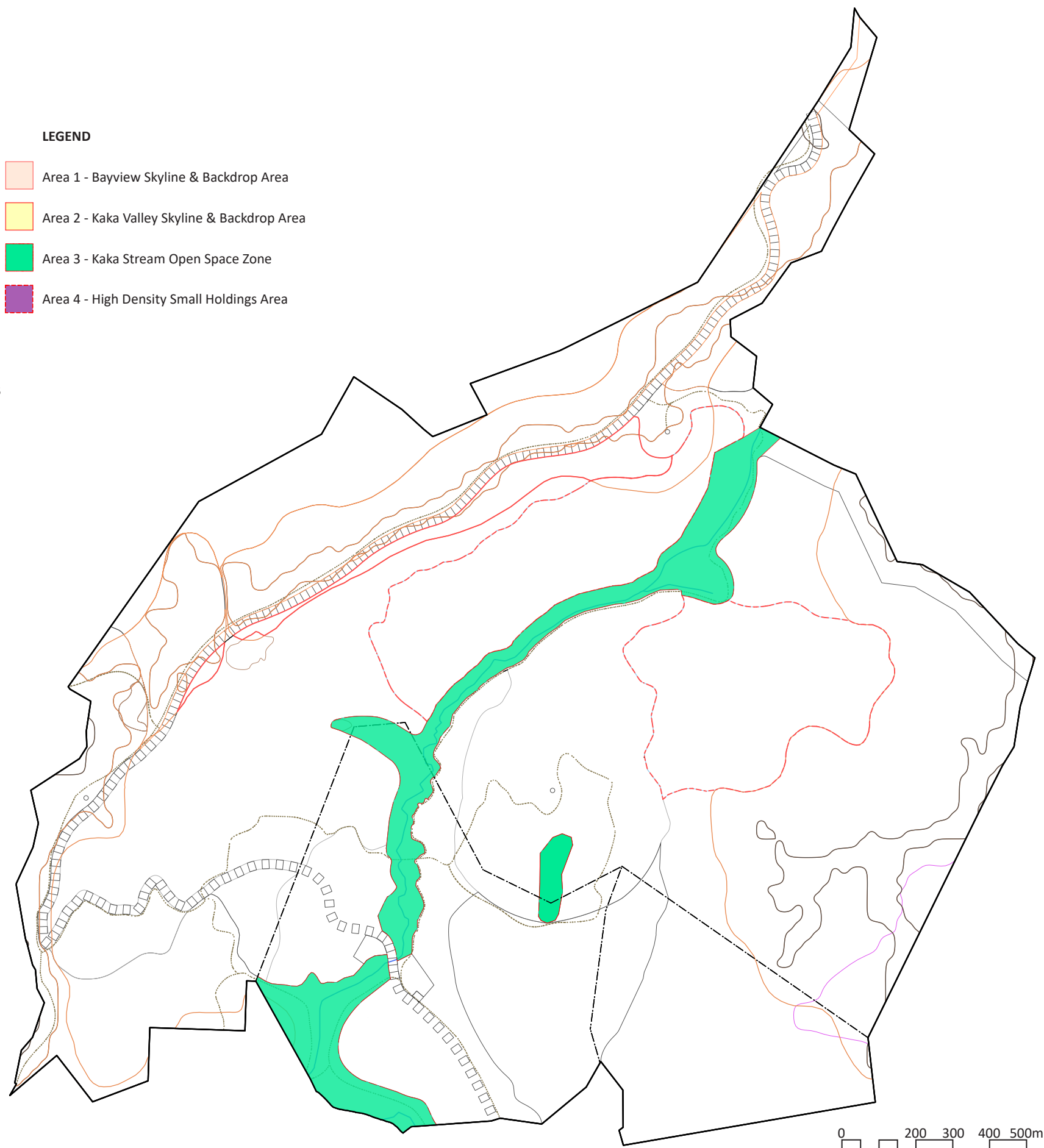


Figure 57: Kaka Stream Open Space Zone

Area 4 - High Density Small Holdings Area

20% of future properties within the high density small holdings area shall be planted in native plants from the following lists.

This area consists of lowland hill slopes, silt loam, is well drained, has low to moderate fertility, with existing land use includes pastoral farming, scrub (gorse and broom) and cropping.

This area has high sunshine hours; mild annual temperatures; frosts are slight to moderate; and an annual rainfall of 890-1000mm.

Trees

- Alectryon excelsus* – Tītoki
- Aristotelia serrata* – Makomako
- Beilschmiedia tawa* – Tawa
- Cordyline australis* – Cabbage tree
- Dacrycrpus dacrydioides* – Kahikitea
- Dacrydium cupressinum* – Rimu
- Fuchsia excorticata* - kōtukutuku, tree fuchsia
- Fuscospora solandri* – Black Beech
- Fuscospora truncate* – Hard Beech
- Griselinia lucida* - Puka
- Hoheria angustifolia*
- Kunzea ericoides* – Kānuka
- Leptospermum scoparium* – manuka
- Macropiper excelsum* – Kawakawa
- Melicytus ramiflorus* – Māhoe
- Myoporum laetum* - Naigo
- Myrsine australis* - Māpou
- Pittosporum eugeniioides* - Tarata
- Pittosporum tenuifolium* - Kōhūhū
- Plagianthus regius* – Lowland ribbonwood
- Podocarpus totara* – tōtara
- Prumnopitys ferruginea* - Miro
- Prumnopitys taxifolia* – Matai
- Pseudopanax crassifolius* – Lancewood
- Sophora microphylla* – Kōwhai
- Weinmannia racemose* – Kāmhai

Shrubs and Ground Covers

- Astelia frangrans* – kahakaha
- Brachyglottis repanda* – Rangiora
- Coprosma propinqua* – Mingimangi
- Coprosma rigida* – streamside coprosma
- Coprosma repens* - Taupata
- Coprosma robusta* – Karamū
- Melicytus crassifolius* – Coastal porcupine scurb
- Myrsine divaricate* – Weeping Māpou
- Ozothamnus leptophyllus* – Tauhinu
- Phormium cookianum* – Wharariki
- Veronica stricta* – Koromiko

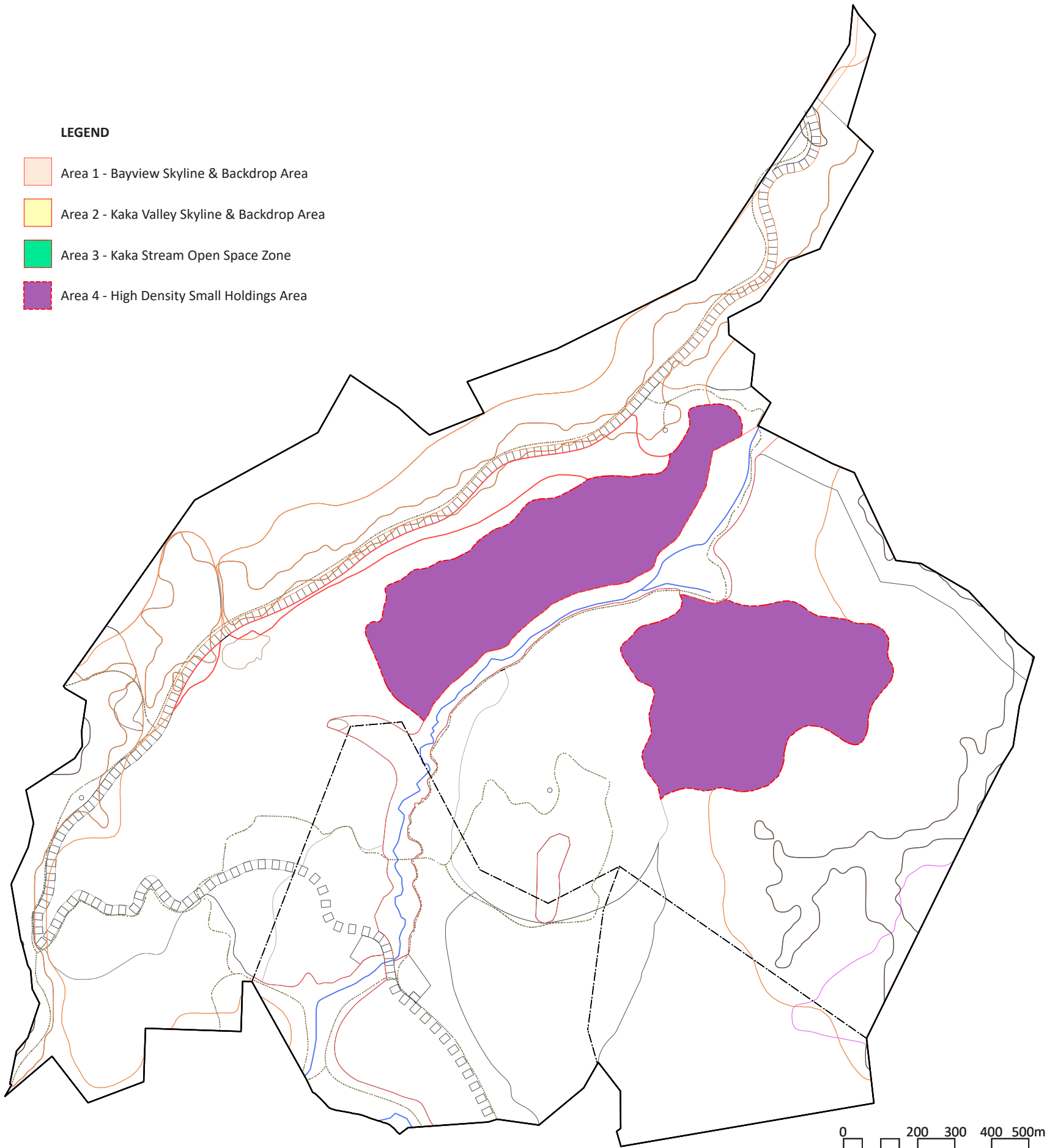


Figure 58: High Density Small Holdings Area

