LANDSCAPE MITIGATION PLAN

NZUP - SH6 / 6A Intersection & Bus Hub

KHT-NZU-LD-RP-18

Kā Huanui a Tāhuna

QUEENSTOWN LAKES DISTRICT COUNCIL

WAKA KOTAHI NZ TRANSPORT AGENCY

Queenstown Package | New Zealand Upgrade Programme

Document produced by the Ka Huanui a Tahuna alliance

Document Control				
Revision	*Date Issued*	*Purpose*	*Prepared By*	*Verified By*
A	4.12.23	FOR WAKA KOTAHI & QDLC REVIEW	Jesse Byrne	Wade Robertson

Contents

1.1 INTRODUCTION

This Landscape mitigation plan (document) has been prepared as part of the New Zealand Upgrade Programme (NZUP) in Queenstown and is the requirement of a designation condition under the Frankton SH6 / 6A Intersection & Bus Hub Notice of requirement (NOR) process. Refer appendix i for the designation conditions response table.

The purpose of the document is to identify areas of existing vegetation that are impacted by the project works at the Frankton SH6 / 6A Intersection & Bus Hub areas and the proposed mitigation measures that would be required to reduce resulting adverse effects.

This document has been prepared in collaboration with the QLDC Parks team and in conjunction with the following reference documents:

- QLDC Tree policy 2022
- QLDC Land Development and Subdivision Code of Practice 2020
- QLDC District Plan Chapter 17 - Airport planting guide
- Waka Kotahi Landscape Guidelines 2014
- Waka Kotahi P39 Standard Specification for Highway Landscape Treatments 2013
- NZUP Urban Design evaluation and Landscape assessment - Frankton 2022
- Tree removals Reports (Ladies mile 2021, Frankton2022, Kawarau Road 2021)
- Aukaha Cultural Design Framework 2022 DRAFT
- NZUP Landscape Management Plan 2022 DRAFT

1.2 PROPOSAL

The proposal allows for urgent transportation corridor upgrades in response to the increased population growth in the immediate area and wider Wakatipu region. Detailed works include the introduction of roundabouts, signalised intersections and road widening for bus and cycle lanes as well as off road shared path networks and associated stormwater and green infrastructure. The Frankton village area will see an expansion of the footprint of the existing bus hub and a new drivers building.

The project area covers State Highway 6 (SH6) from to Kawarau Road bridge to Howards Drive at Ladies mile and SH6A from Kawarau Raod to Suburb Street in Queenstown. Two overall stages are divided in to six distinct zones allowing for the prioritisation of key areas to establish logical construction packages. For detailed project descriptions please refer to the outline plan report, to which this document is appended.

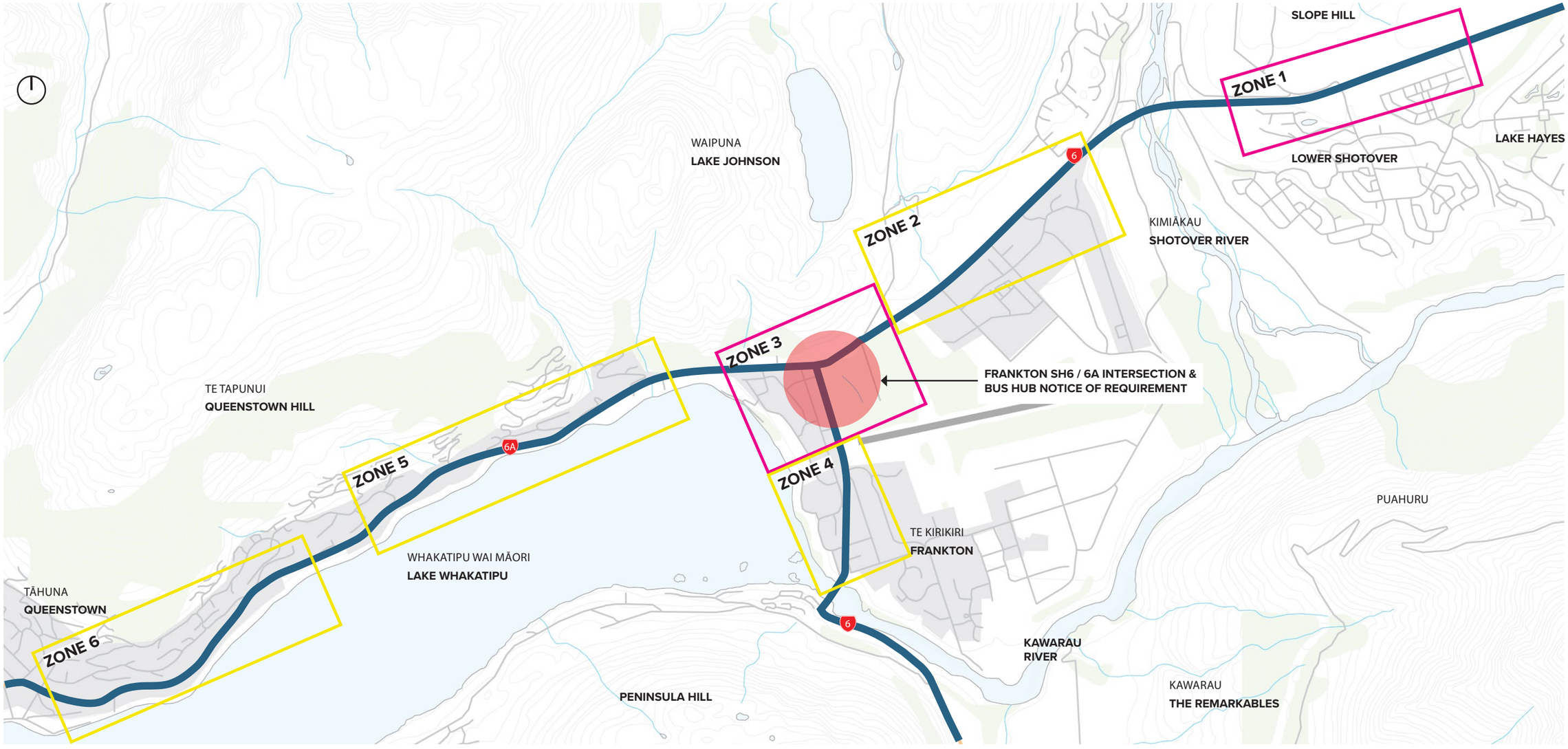
This document will cover works within Zone 3, the SH6/6A intersection and the Frankton Bus hub designation area.

1.3 OBJECTIVES & OUTCOMES

The objective of this mitigation plan is to ensure the appropriate integration of the NZUP project works into the receiving environment. This involves the appropriate design, implementation and maintenance of mitigation planting in order to meet the expected mitigation outcomes, as anticipated by the consent conditions.

The intended outcomes are:

- Mitigation planting that, at maturity, achieves appropriate canopy coverage where removals have occurred as well as increasing amenity, landscape and community values
- Offset mitigation outside of the project extents providing successional plantings to the wider community and urban forest
- Plant species align with QLDC district plan chapter 17 airport planting guide and guidance from mana whenua (Aukaha)
- Proposed plant and trees are specified appropriately to achieve the mitigation required. Species, sizing and spacings.
- Minimising effects on historic heritage, including the surroundings that contribute to people's enjoyment of the heritage values.
- A maintenance regime that suppresses weed and pest species and ensures the successful establishment of mitigation planting

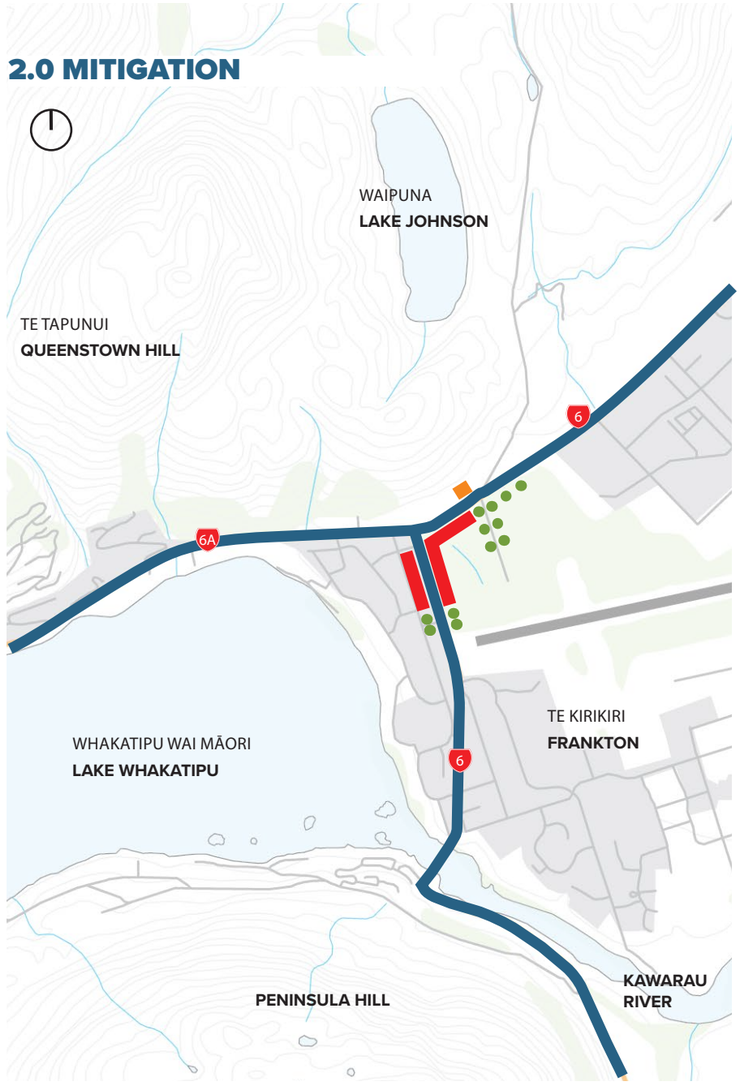


CONTEXT PLAN

LEGEND

- State Highway 6 & 6A
- Existing roads
- Existing blue network
- Existing green network
- Built form/urban development
- Stage 1
- Stage 2

2.0 MITIGATION



TREE REMOVALS PLAN

LEGEND

- State Highway 6 & 6A
- Existing roads
- Existing blue network
- Existing green network
- Built form/urban development
- Tree removals - QLDC
- Tree removals - Waka Kotahi
- Significant trees to be retained

1. View to the south showing existing vegetation (to be removed) and fence adjacent to 24 and 26 McBride Street

2. View to the north west showing existing vegetation (to be removed) within the Frankton bus hub

3. View to the east showing existing vegetation (to be removed) along Frankton Golf Centre boundary

3. View to the east showing existing vegetation (to be removed) within the Frankton Golf Centre

2.1 TREE REMOVALS

Due to the nature of the works and the constrained corridor the removal of existing vegetation is unavoidable, where possible the design has been altered to avoid healthy mature trees. This vegetation sits within the existing roading designation, QLDC administered land and on private property, which will eventually form part of the new roading designation.

Removals within the project extent are driven by the road geometric design and supporting elements including barriers and stormwater devices. Typologies of vegetation include;

• Exotic shelter belts (considered to have low community value)

• Exotic scrub and weed species

• Parkland specimen trees (primarily exotic with some groves of native trees)

Trees marked for removal within the existing roading designation will not fall under the QLDC Tree Policy requirements, removals will be replaced where corridor constraints allow, as agreed between Waka kotahi and QLDC parks. Any vegetation removal required outside the designation on private land will be subject to the property agreement process. Tree removals within QLDC land will require a 2:1 replacement ratio or achieve a similar or increased canopy coverage to comply with the policy. Due to the corridor constraints, land available to achieve this replacement policy is limited, QLDC have provided opportunities for replacement plantings outside of the project extents. Refer appendix ii for the QLDC Opportunities plan.

Key areas of vegetation removal and retention are marked on the plan to the left and the quantities are summarised below.

- 106 trees are marked for removal in QLDC land, and have been collectively assessed as having significant landscape effects. Resulting in a replacement of a minimum of 212 trees as a means of mitigation. Refer Appendix iii for LVA
- 113 Street and specimen trees have been proposed in this area, within the roading designation and QLDC administered land. It is expected that the proposed 113 trees will, as they mature, achieve the canopy coverage lost due to the removals.
- 12,534m2 of planted garden is proposed within the roading designation and QLDC administered land.
- To achieve the 2:1 replacement ratio required under the QLDC tree policy an additional 99 trees have been proposed outside of the project extents, in QLDC administered land identified in the aforementioned opportunities plan. The design intent for these trees is to perform as successional tree plantings to the existing tree stock that lines the Frankton Reserve and the Kawarau Falls Reserve.

Trees

Zones	Total tree removal	QLDC Tree Removed	Total number to replace
S1Z3	124	106	212
Zones	**Total prop**	**QLDC**	**Other**
S1Z3	113	109	4
Zones	**Minimum**		
S1Z3	**-99**	Required to meet 2:1 ratio	

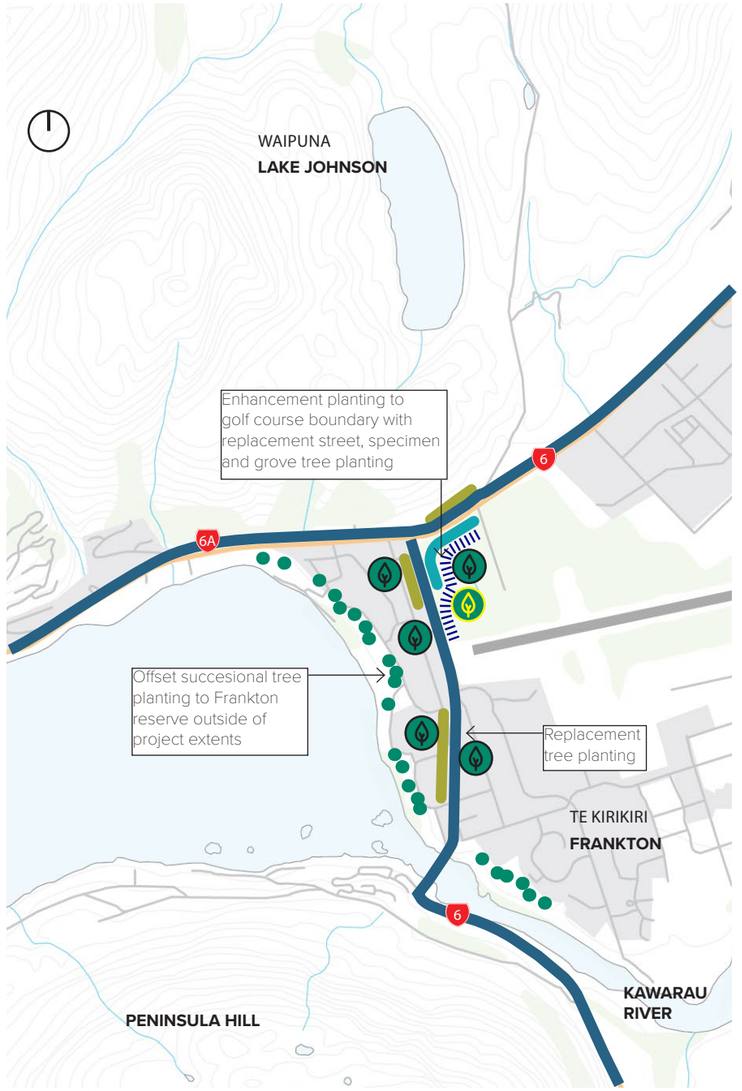
2.2 LANDSCAPE MITIGATION PLAN

The project extents stretches over rural, peri urban and urban environments which have varying degrees of change in their landscape character and vegetation patterns. For this reason the landscape response will also vary as a means of integrating the infrastructure upgrades into each of the receiving environments.

The key moves in terms of landscape response are below;

Zone 3

- Approximately 100 specimen and grove tree plantings along the Frankton Golf Centre boundary which aim to reduce tree loss impact as they mature
- Offset specimen tree planting to the QLDC Frankton and Kawarau Reserves to meet QLDC tree removals policy, aiming to provide successional plantings to the existing vegetation in the reserves
- Enhancement revegetation planting along the Frankton Golf Centre boundary
- Street trees in strata vault tree pits with paved areas to create some verticality and shade to the western bush hub
- Amenity gardens within the streetscape aim to improve sense of place and community value
- Stormwater infrastructure being naturalised where possible with a mixture of grass, pockets of native riparian species and lined with schist riprap



LANDSCAPE MITIGATION PLAN

LEGEND

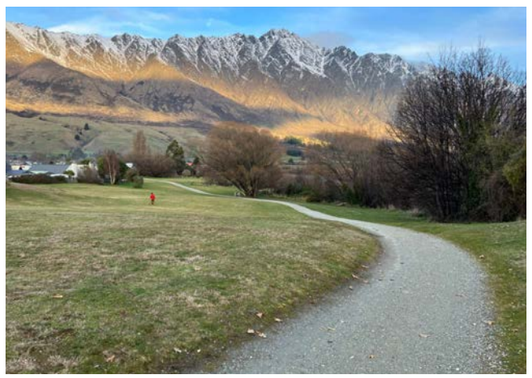
- State Highway 6 & 6A
- Existing roads
- Existing blue network
- Existing green network
- Built form/urban development
- Specimen & street trees
- Native grove trees
- Offset tree plantings
- Verge & amenity plantings
- Revegetation plantings
- Riparian & Stormwater plantings

Verge and amenity planting - native grass and groundcover mixes

Revegetation planting - Native shrub and grass mixes

Rock lined stormwater infrastructure with native grass mixes

Native grove tree planting



Offset tree planting opportunities - Kawarau Falls Scenic Reserve

Offset successional tree planting opportunities - Frankton reserve

2.3 PLANT PALETTE

Where suitable the overall landscape planting strategy aims to enhance the underlying landscape elements, patterns, and processes adjacent to the road corridor. In certain areas along the corridor a grass reinstatement approach has been adopted, this is due to the existing open pasture rural character and the recent land use changes which will see major urban development on these land parcels in the coming years.

The porposed species have been selected from the QLDC District Plan, Chapter 17 – Airport Zone plant list with the exception of two additonal proposed species, providing these are a approved by Queenstown Airport for approval.

Trees

Grove trees will be tightly spaced mixes of native trees providing a natural buffer between the open space network and the road corridor.

Specimen trees will be a mixture of exotic and native trees which aim to provide verticality and scale to the wider landscape where proposed in a reserve setting. These species will also act as street trees where their deciduous nature will be advantageous for shade in summer and sunlight in winter.

All proposed specimen trees or trees within the bus hub will have a minimum height of 2m at the time of planting, with certain exotic species expected to be at a height of 3-3.5m.

Planting

The plant palette consists of 4 typologies being; verge, amenity, stormwater and revegetation.

The design aims to provide

- Species that complement existing rural character and ecology with both exotic and native species.
- A perceived slow speed environment by planting road verges.
- Amenity planting that improves community and user experience.
- Planting that is culturally expressive of the Wakatipu basin.
- Opportunities for natural regeneration processes.
- Endemic eco-sourced native species that require little ongoing maintenance following the establishment period.
- Consider safety through CPTED, maintaining sight lines by setting back planting from edge of pathways and layering plant species to enable clear sight lines.
- Opportunities for establishing dense areas of native bush along the golf course boundary and steep batters along the SH6A corridor.

Grass areas

These areas will have a maximum mowable batter of 1V:4H, unless agreed otherwise with QLDC. Bird resistant seeds will be used to avoid attracting birds to the site, due to proximity to the airport. Grassed areas will be contiguous and able to be easily mown by mechanical means. Areas around structures and other furniture elements will be sealed with hardstand to reduce the need for spraying.

Irrigation

Design build irrigation is proposed within the gardens and trees of the bus hub and the Frankton Golf Centre bund. Irrigation is not proposed outside of these areas which aligns with the QLDC guidance and the Waka Kotahi Landscape guidelines. Plan highlighting these areas will be included as part of the outline plan.

Grove Trees

Tawhairauriki / Mountain Beech
Fuscospora cliffortioides

Houhere / Lacebark
Hoheria augustifolia

Horoeka/Lancewood
Pseudopanax crassifolius

Totara
Podocarpus laetus

Specimen Trees

European beech
Fagus sylvatica

Manatu / Ribbonwood
Plagianthus regius

Kowhai
Sophora microphylla

Pin oak
Quercus palustris

Chinese Lacebark Elm
Ulmus parvifolia

Golden Elm
Ulmus parvifolia 'Louis Van Houtte'

Frontier Elm
Ulmus parvifolia 'Frontier'

2.3 PLANT PALETTE

Verge

Red Tussock
Chionochloa rubra

Groundcover Coprosma
Coprosma acerosa 'Red Rocks'

Mikoikoi
Libertia ixioides

Pohuehue
Muehlenbeckia axillaris

Dwarf Mountain Flax / Whaririki
Phormium cookianum 'Emerald Green'

Silver Tussock
Poa cita

Amenity

Speckled Sedge
Carex testacea

Dwarf Toetoe
Chionochloa flavicans

Red Tussock
Chionochloa rubra

Groundcover Coprosma
Coprosma acerosa 'Red Rocks'

Mikoikoi
Libertia ixioides

Pohuehue
Muehlenbeckia axillaris

Marlborough Rock Daisy
Pachystegia insignis

Silver Tussock
Poa cita

Revegetation

Dwarf Toetoe
Chionochloa flavicans

Red Tussock
Chionochloa rubra

Mingimingi
Coprosma propinqua

Korokio
Corokia cotoneaster

Koromiko
Hebe salicifolia

Manuka
Leptospermum scoparium

Shrubby toroaro
Muehlenbeckia astonii

Small leaved tree daisy
Olearia lineata

Golden Ake Ake
Olearia paniculata

Dwarf Mountain Flax / Whaririki
Phormium cookianum 'Emerald Green'

Kohuhu / Black Matipo
Pittosporum tenuifolium

Stormwater

Mingimingi
Coprosma propinqua

Red Tussock
Chionochloa rubra

Manuka
Leptospermum scoparium

Dwarf Mountain Flax / Whaririki
Phormium cookianum 'Emerald Green'

Silver Tussock
Poa cita

2.4 PLANT SCHEDULE

Kā huanui a Tāhuna

Plant Palette
Project: NZUP
Pase: Outline Plan Frankton
Date: 08.09.2023 **Rev No. A**

Botanical Name	Common Name	Spacing (m)	Procure	Size
All plant species subject to availability, with any substitutions required to be advised by Landscape Contractor for approval by Landscape Architect.			**Procurement:** g = grown on	
Verge				
Chionochloa rubra	Red Tussock	0.8	g	PB3
Coprosma acerosa 'Red Rocks'	Groundcover Coprosma	0.8	g	PB3
Libertia ixioides	Mikoikoi	0.5	g	PB3
Muehlenbeckia axillaris	Pohuehue	0.7	g	PB3
Phormium cookianum 'Emerald Gem'	Dwarf Mountain Flax	0.7	g	PB3
Poa cita	Silver tussock	0.6	g	PB3
Amenity				
Carex testacea	Speckled sedge	0.6	g	PB3
Chionochloa flavicans	Dwarf toetoe	0.8	g	PB3
Chionochloa rubra	Red Tussock	0.8	g	PB3
Coprosma acerosa 'Red Rocks'	Groundcover Coprosma	0.8	g	PB3
Libertia ixioides	Mikoikoi	0.5	g	PB3
Muehlenbeckia axillaris	Pohuehue	0.7	g	PB3
Pachystegia insignis	Marlborough Rock Daisy	0.8	g	PB3
Poa cita	Silver tussock	0.6	g	PB3
Revegetation				
Chionochloa flavicans	Dwarf toetoe	0.8	g	PB3
Chionochloa rubra	Red Tussock	0.8	g	PB3
Coprosma propinqua	Mingiming	1.2	g	PB3
Corokia cotoneaster	Korokio	1.2	g	PB3
Hebe salicifolia	Koromiko	1.0	g	PB3
Leptospermum scoparium	Mānuka	1.0	g	PB3
Muehlenbeckia astonii	Shrubby tororaro	1.0	g	PB3
Olearia lineata	Small leaved tree daisy	1.2	g	PB3
Olearia paniculata	Golden ake ake	1.2	g	PB3
Phormium cookianum 'Emerald Gem'	Dwarf Mountain Flax	0.7	g	PB3
Pittosporum tenuifolium	Kōhūhū / Black Matipo	1.5	g	PB3
Stormwater				
Coprosma propinqua	Mingiming	1.2	g	PB3
Chionochloa rubra	Red Tussock	0.8	g	PB3
Leptospermum scoparium	Mānuka	1.0	g	PB3
Phormium cookianum 'Emerald Gem'	Dwarf Mountain Flax	0.7	g	PB3
Poa cita	Silver tussock	0.6	g	PB3

Kā huanui a Tāhuna

Tree Schedule
Project: NZUP
Pase: Outline Plan
Date: 08.09.2023 **Rev No. A**

	Code	Botanical Name	Nv/Ex	Common Name	Spacing (m)		Size	Qty	
			**native / exotic*						
STREET TREES									
	FS	*Fagus sylvatica*	Ex	European beech	as shown		45L	4	
	FC	*Fuscospora cliffortioides*	Nv	Tawhai Rauriki / Mountain Beech	as shown		45L	24	
	HA	*Hoheria anugustifolia*	Nv	Houhere / Lacebark	as shown		45L	6	
	PR	*Plagianthus regius*	Nv	Manatu / Ribbonwood	as shown		45L	10	
	PL	*Podocarpus laetus*	Nv	Tōtara	as shown		45L	3	
	PC	*Pseudopanax crassifolius*	Nv	Horoeka / Lancewood	as shown		45L	9	
	QP	*Quercus palustris*	Ex	Pin oak	as shown		45L	11	
	SM	*Sophora microphylla*	Nv	Kōwhai	as shown		45L	17	
	UP	*Ulmus parvifolia*	Ex	Chinese Lacebark Elm	as shown		45L	2	
	UPL	*Ulmus parvifolia 'Louis van Houtte'*	Ex	Golden Elm	as shown		45L	2	
	UPF	*Ulmus parvifolia 'Frontier'*	Ex	Frontier Elm	as shown		45L	13	
	UPF	*Ulmus parvifolia 'Frontier'*	Ex	Frontier Elm	as shown		60L	12	
NOTE - FINAL TREE SPECEIS TO BE CONFIRMED WITH FURTHER CONSULTATION - ABOVE TO BE USED A PRCING GUIDE									
							Total	**113**	**no.**

All plant species subject to availability, with any substitutions
required to be advised by Landscape Contractor for approval by Landscape Architect.

2.5 LANDSCAPE SPECIFICATION

All landscape works and maintenance will be carried out to Waka Kotahis P39 Standard Specification for Highway Landscape Treatments 2013 and will meet Part 7 – Landscape, of QLDC's Land Development and Subdivision Code of Practice (dated 2020)

The following are extracts from the project specification which references or amends specific clauses in the P39 specification.

36 LANDSCAPE – SOFTSCAPE WORKS

36.0 General

36.0.1 Standard Specification

This landscape specification is to be read in conjunction with NZTA P39: Standard Specification for Highway Landscape Treatments: 2013.

This specification adds or amends P39 outlining project specific works, specific Project Minimum Requirements and Designation or Consent Conditions.

References to 'Landscape Architect' in P39 shall be taken to mean the Engineer.

36.0.2 Perfomance criteria

The aim of the following performance criteria is to achieve the quality landscape outcomes sought by Waka Kotahi. The following criteria apply to all highway landscape treatments:

- All ground preparation, topsoil and mulch shall support plant growth within landscape treatments associated with the Project;
- All planting shall include quality plant stock, true to form and shape with healthy signs of growth;
- At least five (5) different plant species shall be included in all planted areas (excluding linear narrow or small gardens, less than 20m2), with the aim of supporting resilience within plantings;
- For biodiversity reasons locally appropriate plants shall be specified;
- All associated plant ancillaries (such as matting, tree stakes and ties) shall meet this specification;
- All planting shall be 100% complete at practical completion, with 10% maximum plant loss being acceptable for grades smaller than 2lt/PB 3 at the completion of the defects liability and maintenance period, provided that the losses are spread evenly throughout the planting and there are not noticeable bare patches
- All larger plant grades 2lt/ PB 3 and over shall be 100% complete at practical completion, with no loss being acceptable at the completion of the defects liability and maintenance period (by contract completion);
- Grass and hydro seeding coverage shall achieve 95% coverage of the area by the end of the Defects Liability and Maintenance Period with no single area of exposed soil greater than 100mm diameter in any one location;
- The effects of pest plants shall be managed so that all planting achieves establishment. Consistent control of pest plants is required through the contract period;
- All planted areas shall achieve 80% canopy coverage of the area by then end of the Defects Liability and Maintenance Period;
- Defects Liability and Maintenance Period commences when Practical Completion has been signed off by the Engineer. At this stage, all landscape treatment works of the project shall be complete and in compliance with the specification and drawings following compliance inspections;
- All defects shall have been progressively rectified during the defects period and prior to issue of the Defects Liability Certificate at the end of the period. A post construction review shall be undertaken between six and twelve months of the Project opening and again after the Defects Notification Period. The reviews report and supporting information shall be supplied to the Engineer for review; and
- At the end of the Defects Liability and Maintenance periods the Engineer shall complete a producer statement. The statement shall confirm that the contract works have been undertaken in accordance with the plans and specification. Waka Kotahi may accept the producer statement as evidence the landscape works comply with the landscape design and the requirements included in the NZTA P39 Standard Specification for Highway Landscape Treatments.

36.0.3 Materials

All Materials supplied shall be new and to the best of their respective kinds, suitable for the purpose for which they are intended and complying in all respects with this Specification.

Any materials herein specified that are not procurable at the time they are required, thus tending to delay the progress of the contract, may be substituted with other materials (including plant species, and specimen sizes), provided that substitution is made with the prior approval of the Engineer.

36.0.4 Notice

The Constructor shall provide written notice to the Engineer, at least two (2) Working Days prior to carrying out all activities detailed in Section B, Table1 of NZTA P39:2013 to enable the Engineer to inspect key works.

36.0.5 Setting Out

The Constructor shall set out the works from the information shown on the Landscape Drawings (LD1000 & LD2500). The site shall be provided with survey control points to be used for setting out. Should any conflict and / or discrepancy exist, the Constructor shall request instruction from the Engineer prior to proceeding. All existing survey marks on Site shall be protected. Any disturbance, displacement or destruction of existing survey marks shall be reinstated.

36.1 Quality Control, Inspections and Reporting

36.1.1 The Quality control, inspections and reporting for all landscaping work shall fully comply with Section B of NZTA P39:2013 unless stated otherwise.

36.1.2 Reporting

Throughout the implementation of the works and during the Defects Liability and Maintenance period the Constructor shall monitor the progress and condition of the works and record this information in the monthly reports prepared throughout the construction of the project section on landscaping.

Reports shall note health and safety, progress relative to the programme, any requests for information, inspection requirements. They shall also report on matters of material supply, condition of plant material, design issues, construction issues, soil condition, mulch levels and condition, plant growth, pests or disease (if any), vandalism (if any) and any other issues which arise.

All reporting shall be in accordance with the established Ka Huanui a Tahuna reporting systems and health and safety protocols.

36.1.3 Inspections and hold points

- Hold Point (HP): An identified point in the construction process which the Constructor shall not proceed past without a direction from the Engineer
- Witness Point (WP): An identified point in a construction process at which an activity can be observed by the Engineer with the Constructor providing at least one business days' notice to the Engineer prior to the activity taking place.

These Witness and Hold Point inspections and close outs shall be undertaken by the project Engineer.

Table 1: Landscape works inspection requirements, Hold Points & Witness Points

Section	Item	Requirements	Type
-	*Topsoil Stockpile Observation*	*Assess the condition of the existing topsoil and define soil testing locations*	
-	*Existing topsoil and imported topsoil*	*Receipt of topsoil testing results from laboratory testing, with accompanying recommendations from a soil scientist for soil remediation measures (if any are required). One test per source site for existing topsoil and one test per 5,000m^3 of imported topsoil*	*Witness*
-	*Vegetation Clearing*	*Vegetation to be retained is to be assessed by the Engineer once marked on site by the Constructor and before fencing off*	*Witness*
-	*Site Preparation*	*All subsurface works, including drainage and topsoil shall not be placed and spread if the earth-worked sub-surfaces are not to the required standard.*	*Witness*
-	*Site Preparation*	*Scarification shall be completed prior to the re-spreading of stockpiled topsoil or spreading of imported topsoil. Engineer to inspect one scarification sample based on a methodology agreed with the Constructor.*	*Witness*
-	*Pest Plant and Animal Pest Control**	*Detailed methodology and programme report shall be submitted for acceptance prior to site preparation and planting*	*Hold*
-	*Pest Plant and Animal Pest Control*	*Remove and control plant pests regularly throughout the contract period, and nority Engineer where vegetation is damaged*	*Witness*
-	*Plant Propagation**	*Assessment of plants during any phase of the eco-sourcing of parent material or seeds, propagation or on growing* *Constructor shall provide eco-seed source certification acceptable to the Principal*	*Witness*
-	*Assessment of the propagated plants*	*Constructor to notify the Engineer for prearranged nursery visits and inspection of propagated plants during the growing on period and prior to commencement of planting within each planting season.*	*Witness*
-	*Mulch*	*Engineer to review mulch samples with accepted sample becoming the base sample by which all mulch will be compared*	*Witness*
-	*Setting out*	*Constructor shall arrange for the Engineer to inspect the typical plant set outs of each plant typology to be followed throughout the project.*	*Witness*
-	*Pasture grass seed mix*	*Engineer to review grass seed mix and germination tests prior to application and sowing*	*Witness*
-	*Hydro-seed grass species mix*	*Engineer to review grass seed mix and germination tests prior to application and sowing*	*Witness*

2.5 LANDSCAPE SPECIFICATION

36.1.4 Grassed surface quality

Grassed surfaces shall be deemed in an acceptable condition when;

- Have fully established with vigorous growth; No ponding of surface water occurs;
- Grass covers 95% of the grassed areas;
- No single area of exposed soil shall be greater than 100mm diameter in any one location; Broadleaf weeds less than 10% of cover visible by eye through 360 degrees from any location;
- Mowing has been undertaken in accordance with this specification, and operations shall avoid tracking mud onto the highway; and
- The grassed areas shall not be considered complete until the grass meets the acceptance tolerances detailed above.

The grassed areas shall not be considered complete until the grass meets the acceptance tolerances detailed above.

36.1.5 Hydroseed quality

Hydro-seeded grass surfaces shall be deemed in an acceptable condition when:

- Have fully established grass with vigorous growth; No ponding of surface water occurs;
- Grass covers 95% of the grassed areas;
- No single area of exposed soil shall be greater than 100mm diameter in any one location; Broadleaved weeds visible by eye through 360 degrees from any location are limited to 4 plants; and
- Mowing where applicable has been undertaken in accordance with this specification.

36.2 Site Preparation

36.2.1 The clearing and disposal of existing vegetation, removal and disposal of existing hardstand surfaces, inorganic debris, site preparation spraying, pruning and minor landscape earthworks, and topsoil re-spreading shall fully comply with Section C of NZTA P39:2013.

36.2.2 Where possible, existing vegetation that is removed via site clearance shall be converted to mulch and stockpiled in an appropriate location.

36.2.3 All measures to protect existing vegetation (e.g. mature trees, native bush/ scrub and select exotic species) and features (e.g. archaeological sites) shall be in place prior to any site preparation commencing. These shall be in accordance with any designation and/ or resource consent conditions.

36.2.4 Vegetation clearing

Vegetation clearance is generally required for the following reasons:

- Clearance to enable construction works to be undertaken;
- Clearance for safety, visibility/views and removal of hazards;
- Clearance of exotic vegetation and/or pest plants in association with native revegetation planting (noting some existing exotic species will be retained and integrated with the native revegetation planting); and
- Clearance of exotic pest plants to reduce long term maintenance costs and the spread of pest plants.

For all clearance works associated with plant pest removal, refer to Section 36.4 – Landscaping – Plant and Animal Pest Control; where the use of herbicides in site preparation spraying is covered.

The area of any clearing work shown on the relevant drawings shall be cleared of all exotic trees, shrubs or grass, dependent on height as tabled below. Where identified all vegetation to be retained shall remain undisturbed.

Table 3: Clearing Schedule

Material	Location	Height	Clearing Details
Grass and Weeds	Trees located in grassed areas	NA	Spot spray 1.0m2 area around plant locations, two applications may be required in certain situations. (Specified below)
Grass and weeds	Massed planting	N/A	Blanket spray with herbicide, up to two applications dependent upon the situation and weed type.
Invasive weed species	All areas to be planted / grassed	All	Cut and mulch and spray regrowth with approved herbicide.

36.2.5 Vegetation to be retained

The Constructor shall take all necessary measures to protect existing vegetation to be retained from damage.

A tree management plan to be produced for approval prior to any work commencing on site. Tree management plan should cover but not limited to, removals, working around roots, protective fencing and pruning to 'AS 4970-2009 Protection of trees on development sites'.

Trees to be retained within the project area, as identified on the, shall be fenced around the drip line and the existing ground levels retained beneath the canopy of the tree.

Vegetation to be retained shall be marked on site by the Constructor, and then inspected and approved by the Engineer, prior to fencing off.

36.3 Topsoil

36.3.1 All topsoil obtained from on-site stripping or off-site supply shall be screened and free if unsuitable materials.

36.3.2 All topsoil and operations relating to topsoil for the project shall fully conform to Section F of NZTA P39:2013.

36.3.3 Final grading

All earthworks are to be shaped to integrate the works with the surrounding landform with a smooth transition; and All areas to be planted (or grassed) shall have been contoured when the topsoil is reasonably dry and workable to smooth flowing contours with falls for adequate drainage and, removing all minor hollows and ridges.

36.3.4 Inspections

The Constructor shall notify the Engineer for inspection of the works following:

- Set out for vegetation clearing;
- On completion of the clearance;
- During site preparation, identification of sub-surfaces being at the required standard; and
- Completion of cultivation prior to the placement of stockpiled topsoil, soil mix, or imported topsoil.

36.4 Plant Pest Control and Animal Pest Control

36.4.1 All plant and animal pest control used for the landscaping works shall fully comply with section D of NZTA P39:2013.

36.4.2 Methodology and programme

A detailed methodology and programme report shall be prepared by the Constructor for approval by the Engineer prior to site preparation and planting. The methodology and programme shall address pests identified in the pest assessment. Including the following:

1) A plan or map detailing the extent of the site preparation/clearance areas to be managed, and the location of any sensitive areas;
2) Types of chemicals (herbicide, fungicide, baits) that will be used and the times of year that any control operations are likely to occur;
3) Strategies used to avoid contamination of sensitive areas. This could include specific application techniques, no-spray buffer zones, a list of people who need to be informed of spraying operations;
4) The identity of the person likely to be undertaking the work and confirmation of their current qualifications/ certifications;
5) Particular weather conditions which may increase potential drift hazard;
6) Indication of agrichemicals to be used that may present a specific hazard;
7) A critical path timeline capable of showing progress through the contract period up to the end of the Defects Notification Period; and

This methodology and programme shall be prepared using critical path techniques and shall be capable of showing actual progress through the project.

The Constructor shall then undertake the pest control works in general accordance with the approved methodology and programme. Where necessary, alternative programme dates shall be set to meet the pest control strategy.

36.4.3 Plant Pest Control

All plant pest control works shall be in accordance with the accepted horticultural practices and shall be carried out by suitably qualified and experienced personnel in relation to use of herbicides Growsafe certified or similar shall be required.

36.4.4 Animal Pest Control

All animal pest control works shall be undertaken by staff suitably qualified and experienced in the handling (including holding a controlled substance licence CSL if required) and application of pesticides and traps, and familiarity with the Hazardous Substances and New Organisms Act 1996, the Biosecurity Act 1993 and Wild Animal Control Act 1977.

36.5 Plant Propagation

36.5.1 All collection of seeds and parent cutting, plant propagation, growing-on and hardening of plant material shall fully comply with Section E of NZTA P39:2013.

2.5 LANDSCAPE SPECIFICATION

36.5.2 All native seeds, plants, cuttings etc. shall be eco-sourced from the Otago Region only. Any departure from this to be approved by Engineer

36.6 Planting

36.6.1 The preparation of planting, supply of plants, planting, staking (of trees if required), fertilizing and mulching of all plant material shall fully comply with Section G of NZTA P39:2013.

36.6.2 Timing

Planting shall take place within the planting seasons provided by QLDC 'Spring planting' (Sept / Oct) and 'Autumn planting' (March / April). No planting in summer months permitted. Planting in winter months, heavy frosts and or snow fall may lead to plant failure. Requests for planting within winter months to be submitted to Engineer, as will be weather dependant.
Planting shall occur in the first planting season following construction works in any given area.

36.6.3 Delivery

The method of transportation is at the discretion of, and responsibility of the Constructor.

Plants shall be carefully loaded by hand, unless special container arrangements for mechanical handling have been provided and accepted by the Engineer.

No plant material shall be subjected to adverse conditions in transit to the work site. Adverse conditions may include:

- Drying-out (even in still, apparently moist air);
- Prolonged heating under humid conditions;
- Freezing;
- Water-logging; and
- Physical breakage.

Amongst other factors plant viability can be reduced by crushing, dropping etc. even if no visible physical breakage results. Plants must therefore be handled gently and with care at all times.

All plant material shall be adequately protected from damage during transit.

All plants shall be loaded, stacked and unloaded in such a way that breakage or crushing by the weight of plants above is avoided during loading, transit and unloading. All plant material being transported shall be completely and firmly covered in such a way that there is the minimum draught from the direction of travel. Provision shall also be made so that the load remains cool and moist at all times.

Where transport is by others, not under the control of the Constructor, the sender is to provide appropriate packaging to protect the plants whilst in the third party's charge.

All plant material being transported shall be clearly addressed, manageable units, securely packaged to withstand mechanical damage. The packaging must also include sufficient moisture retentive material around the roots so that they remain cool and moist until they are delivered to the purchaser.

The Constructor shall provide documentation showing the species, grades and quantities of all plant material being transported, to be assessed against the minimum plant requirement in the landscape specification.

Plant Delivery Planning

It is essential that;

The planting specifications are prepared in detail to suit the requirements of the project phases and delivery locations;

- The planting is planned, as far as possible in advance of the planting, however depending on seasonal conditions planting may occur during a two week 'shoulder' at both ends of the core planting season may be possible), and plants are propagated and available in the sizes specified;
- Site preparation has occurred, and the soil conditions are suitable in advance of planting;
- Plant supply needs to be coordinated with the plant supplier so that planting can occur upon delivery, during the planting season;
- Adequate facilities are available for the receipt and storage of plants, including a conveniently situated and suitable water supply; and
- Suitably qualified and experienced Constructor shall care for plants and undertake planting and maintenance. Quality control checks shall be undertaken as per the specification.

Temporary Storage

Generally, plants shall be planted upon delivery to site. If on site storage is required, the following shall apply:

- Plants shall be stood upright on well-drained, weed-free ground;
- All plants shall be adequately watered prior to and shall be protected from potential wind damage and sun scorching;
- Tall plants will require support to prevent them blowing over; and
- Species susceptible to frost damage shall be given temporary protection.

36.6.4 Reporting

The Constructor shall keep records on the progress of plant propagations and provide copies of these to the Engineer at the end of each three-month period (dependent on the scale of plant propagation). These records shall include;

- Inventory of seeds and plants that have been eco-sourced including parent plant details of location (e.g. GPS locations), height, grade and condition;
- Plant material propagated, timing of sowing, potted up date, and size;
- Delivery process;
- Holding areas on site, including description of area, available water supply and security;
- Progress for each species in relation to programme for delivery date; and
- Any other matters which affect the propagation, growing, supply and storage of the plant material.

36.6.5 Container Grown Shrubs

Container grown shrubs shall be to the container size (litre grade or pint bag) specified in the Schedule and on the drawings.

Container grown shrubs shall be strong well-rooted sturdy plants without stakes or canes. Shrubs shall have two or three main stems and a good bushy form. They must have been grown in the containers for a sufficient time prior to planting out and the container shall be full of roots but not root bound.

36.6.6 Trees

45L and 80L specimen and stree trees are to be planted in tree pits and staked as specimen plants.

Advanced stock shall be to the bag litre, girth or height or a combination of these specified on the plans and schedules.

All trees to be a minimum of 2m height at the time of planting.

Trees shall have sturdy straight and vertical stems with a well-balanced canopy of branches. Only specimens which have a well-defined, single central leader which is reasonably straight and upright will be accepted, unless a single straight leader is uncharacteristic of the habit of a particular species. In locations such as at the interchanges where specimen grade trees of one species are proposed, evenness of shape and size will be required.

Refer LD3010 to 3013 for tree pit details.

36.6.7 Stakes and Ties

All stakes shall be driven sufficiently deep enough to secure the plant. In total 4 stakes per tree shall be used.

Stakes shall be straight pointed: H4 treated Pinus radiata stakes 50 x 50 x 2500mm long (or similar). The final desired height for the stakes shall be set so that ties secure the plant.

Ties shall be 50mm wide flexible tie attached to stakes with galvanised fastenings (hessian webbing or similar proprietary products). Ties and fixings to the stakes shall be sufficiently durable to provide required support to the plants for a minimum of 3 years.

Refer LD3010 to 3013 for tree pit details

36.6.8 Bark mulch to be a high grade locally sourced multi purpose mulch to meet New Zealand Standard for Composts, Soil Conditioners and Mulches (NZS 4454:2005).

36.6.9 Weedmat to be 750GSM Eco Jute, supplied by Advanced Landscapes Ltd. and comply with Section G of NZTA P39:2013.

36.6.10 Schist gravel mulch to be shotover schist 12-20mm diameter, locally sourced and comply with Section G of NZTA P39:2013.

36.6.11 Combi guards and required to specified locations. Refer LD2500 series for locations.

KBC combi guard '3602' Light Tan Sleeve or similar approved.

36.6.12 Spiral Guards required to specified locations. Refer LD2500 series for locations.

KBC spiral guard '3055' Heavy duty Sleeve or similar approved.

36.6.13 Acceptance of Soil Conditions

All subsoil shall be reviewed prior to topsoiling and planting. Prior to planting the Constructor shall also consider whether the existing topsoil is deficient, or waterlogged. The Constructor shall conduct soil testing for sectors or groups of adjoining sectors and for batches of manufactured topsoil to ascertain the soil condition and whether any remedial measures will be required.

The Constructor shall review soil tests along with the accompanying recommendations from a soil scientist for soil remediation and any remedial measures to be undertaken.

In the event that the Constructor fails to accept the advice of the soil scientist regarding soil problems and remediation, and plants subsequently die due to topsoil conditions or associated effects (e.g. waterlogging), the Constructor shall be responsible for the ground (topsoil) remediation and the replacement of those plants.

36.6.14 Setting Out

Prior to planting all plant positions shall be pegged/laid out, in accordance with the planting plan. Set out shall recognise the growth and spread of all planting and associated setbacks in relation to highway barriers, structures, signage, utilities/ services and maintenance and operations access.

In areas of planting, plants shall be spaced evenly so that when established they will completely fill the areas. Planting shall be in general accordance with standard planting details as shown on the drawings.

The Constructor shall arrange for the Engineer to inspect the typical plant set outs of each plant typology which will serve as a benchmark for all plant setting out throughout the project. The Engineer may require minor refinement to the design with adjustments to lines, levels and grouping of trees/shrubs locally as the planting proceeds requiring the Constructor's co-operation and agreement.

The Constructor shall not commence planting until the typical plant set outs have been reviewed by the Engineer.

2.5 LANDSCAPE SPECIFICATION

36.6.15 Water

All plants shall be thoroughly watered a few hours prior to planting to help with successful establishment.

Notwithstanding any prevailing restrictions by the local authority on the use of water for watering any plants, the Constructor shall be deemed totally responsible for making any special arrangements which may be necessary to achieve adequate supply of water, as required, for watering of trees and shrubs for successful establishment.

In the interests of good horticultural practice watering shall be sufficient to give 300mm minimum depth penetration and not just surface dampening.

Drought Conditions:

In the event of drought conditions, and if water supply is likely to be restricted, the Constructor shall organise water from other sources, as required. The Constructor shall be responsible for watering all plants as required to maximise their survival.

36.6.16 Fertilisers

All plants shall be planted with and a controlled, slow release fertiliser such as 'Nutricote' or 'Osmocote Plus' or 'Grotabs' of composition 6:15:3 (N:P:K).

Fertiliser shall be applied to the backfill of each tree, shrub and groundcover in accordance with the following application rates. In all cases, the fertiliser shall be mixed with the soil in the prepared hole prior to placement of the root ball. Care shall be taken to avoid the roots having direct contact with the fertiliser.

Table 6: Fertiliser Application Rates

Plant Size	Application Rate per Plant -Tab
1.5 litre (PB3)	1x tab
45 litre	5x tabs
80 litre	8x tabs

Note: No fertiliser application to riparian areas.

36.6.17 Spade cut edge

All planting beds located adjacent to lawn (where timber edge has not been specified) shall have a spade cut edge and have the mulch finished below the adjacent grass level to contain the mulch and to provide a neat border with the adjacent lawn.

36.6.18 Timber edge

Where specified 150X25mm Pinus radiata H4 Timber batten with 50X50X500mm H4 pegs at 1m centers to be isntalled to garden edge.

Refer LD2500 for locations.

36.6.19 Quality Control

See Section 36.1 – Landscaping – Quality Control.

During the Contract Period, the Constructor shall control weeds, which affect the establishment and growth of the plants already installed under the contract. Prior to release of the Certificate of Practical Completion, the Constructor shall control all weeds within landscape treatment areas.

Removal shall be deemed to include the killing of the weed with approved herbicide or removal of the root system.

The Constructor shall also control weeds throughout the Defects Notification Period as set out in Section 36.11.

36.6.20 Defects

During implementation of planting works under the contract, all defects shall be repaired / replaced – refer Section 36.11 – Landscaping - Defects Liability and Maintenance.

Defects for which the Constructor is liable prior to issue of Practical Completion include the following;

- Defective plants shall be deemed to be those plants, which in the opinion of the Engineer are dead or dying (beyond the tolerances of 10% no bare patches allowed for within the Specification);
- Vandalised or broken plants or stakes; and
- Mulch not to the specified depth at Practical Completion.

36.6.21 Completion

Condition on Acceptance

The Constructor shall remedy non-conformances with these specifications will be remedied prior to application for issue of the Certificate of Practical Completion. The Engineer shall inspect planting on completion for each sector.

36.6.22 Damage of Theft of Plants

Loss or damage of plants greater than 2Ltr. during the Defects Notification Period, shall be made good by the Constructor.

Greater than 10% loss or damage of similar plants (other than to create a bare patch) during the Defects Notification Period, shall be made good by the Constructor.

A loss of 10% of plants less than (and not including) 2 Ltr. is deemed to be an acceptable loss, provided the lost plants are evenly spread over the whole of the planted area and are not noticeable as a bare patch. In the event that loss occurs over a confined area, the Constructor shall replace such plants.

36.7 Mulch Rings to Existing Trees

36.7.1 Mulch rings (1500mm wide dia. X 100mm depth) to be applied to existing trees where earthworks batters require local steepening to avoid root clashes. Refer LD1000 series for locations.

36.7.2 Mulch shall be to typical landscape tree detail LD3000 series and meet New Zealand Standard for Composts, Soil Conditioners and Mulches (NZS 4454:2005).

36.8 Grassed Surfaces

36.8.1 Any grass seeding of stripped, cleared, or earthworks areas shall fully conform to Section H of NZTA P39:2013.

36.8.2 Grass Seed Mix

The seed mix shall be specified by the Constructor and reviewed by the Engineer before commencing the work. The mix shall consider the geology and soil chemistry of the area and be designed to build root mass but not cause water retention due to heavy leaf or top cover.

All seed shall be certified seed of the most recent crop available. All seed label analysis data shall comply with trade standards. The germination capacity of each constituent of the mixture should be not less than 80%, and the purity of the mixture not less than 90%.

All seed shall be free of noxious weeds. Other crop seed shall not exceed 1% and weed seed shall not exceed 0.05%

- Grass seed mix for verge, amenity and make good areas shall be a native grass seed – Stewart's Slender Poa (Poa imbececilla) or equivalent. The Constructor shall submit details of the proposal grass mix to the Engineer in accordance with NZTA P39.
- Grass seed mix for stormwater device inverts shall be native grass seed mix and shall comply with QLDC Land Development and Subdivision code of practice 2020.
  - A high endophyte certified seed of a Fescue/Browntop blend is suggested with a composition of 50% Winter Active Rygrass, 15% Chewing Fescue, 15% Creeping Red Fescue, 18% Tall Fescue, and 2% Browntop.
- Grass seed mix for verge, amenity and make good areas within zone 3 shall use bird deterrent seeds as per the consent conditions. PPG Wrightson Turf - AVANEX® Unique Endophyte or similar approved.

36.8.3 Protective Fencing

The Constructor shall adopt a method to protect areas of sown grass, to prevent damage to the newly prepared surface from unauthorised access.

36.8.4 Weed Control

During the grassed surface establishment period, the Constructor shall control weeds, which affect the establishment of the grassed surface and in areas to be maintained by the Constructor.

Weeds are defined as any grass or broadleaf plant not included in the seed mix (or stolons) applied as part of the grassed surface sowing and establishment.

Weeds shall be sprayed with spot spray or selective herbicide approved for use by the local authority and applied to the manufacturer's specifications preferably between 3-6 months from time of establishment.

Bare patches following weed control, shall be over-sown by the Constructor to re-establish the specified grassed surface species. A fine layer of topsoil or straw mulch will be applied over these areas to promote germination and protect young grass.

36.8.5 Establishment

The Constructor is responsible to provide an environment that promotes grass seed germination, and that grass grows, such that grassed surfaces are acceptable to the Engineer.

Where grass is shown on the drawings and/or scheduled to be mown the Constructor shall mow it when it has reached 100-200mm tall. Cutting height shall be no less than 65mm on the initial cut to be undertaken in dry conditions with sharp mower blades.

The Constructor shall mow the grass for a second time at which time the Engineer shall inspect the grass and may accept the grassed surface.

If necessary, the Constructor shall dress the grassed surface with no more than 15mm depth at a time of screened topsoil, to eliminate minor hollows.

36.8.6 Tolerances

Grassed surfaces shall be deemed in an acceptable condition when;

Have fully established with vigorous growth; No ponding of surface water occurs;

- Grass covers 95% of the grassed areas;

- No single area of exposed soil shall be greater than 100mm diameter in any one location;
- Broadleaf weeds less than 10% of cover visible by eye through 360 degrees from any location;
- Mowing has been undertaken in accordance with this specification;
- Kikuyu grass is not present / in other situations kikuyu may be sought for wear;

The Constructor shall notify the Engineer for inspection of the works following:

- Cultivation and preparatory work prior to seeding;
- Completion of re-spreading topsoil prior to final levelling and seeding; and
- Completion once grass established prior to first mowing.

36.8.7 Completion

The grassed areas shall not be considered complete until the grass meets the acceptance tolerances detailed above.

On completion of the work, the Constructor shall reinstate all surfaces affected by the works to pre-construction condition (e.g. topsoil to be swept off hard-standing surfaces) unless specified otherwise.

36.9 Hydro-Seeding Grassed Surfaces

36.9.1 The preparation, supply, and application of grass to exposed or disturbed ground resulting from earthworks shall fully comply with Section I of NZTA P39:2013

36.9.2 Timing

Successful establishment of grass seed is dependent on sowing the seed in seasonal conditions conducive to seed germination and to establish the sward. Hydro-seeding operations for permanent grass areas shall be programmed with earthworks to coincide with autumn or spring conditions where the soil moisture is sufficient to establish grass.

Hydro-seeding may be a short-term measure for erosion and sediment control prior to planting but where the hydro-seeding is to establish permanent protection to the exposed ground and limit erosion, the seed mix shall be viable to produce a sward long term.

Where adverse seasonal conditions prevail, alternative methods to hydro-seeding shall be used; these include placement of organic or straw mulch directly on to exposed areas.

36.9.3 Seed Spraying

On completion of the ground preparation, the prepared surface shall have an even application of the seed and admixture mix in two directions to give an even, consistent cover.

Seeding operations shall be programmed to suit seasonal conditions.

36.9.4 Temporary Fencing

The Constructor shall adopt a method to protect areas of sown grass, to prevent damage to the newly prepared surface from unauthorised access.

36.9.5 Weed Control

During the grassed surface establishment period, the Constructor shall control weeds which affect the establishment of the grassed surface.

Weeds are defined as any grass or broadleaf plant not included in the seed mix applied as part of the grassed surface or native species, sowing and establishment.

Weeds shall be sprayed with a selective herbicide for the weed to be controlled, approved for use by the local authority and applied at the manufacturer's rates.

36.9.6 Establishment

The Constructor shall provide an environment that promotes hydro-seed mix germination and grass growth so that grassed surfaces meet the performance criteria of this Specification.

Any areas not meeting the acceptance of the Engineer shall be re-hydro-seeded, have weeds removed, or have fertiliser applied, or any combination to produce a grassed surface acceptable. (Refer the 'Tolerance' clause below for acceptance criteria)

Where slopes indicated on drawings allow, the Constructor shall mow the grass when it has reached 100-200mm tall. Cutting height shall be no less than 65mm on the initial cut, to be undertaken in dry conditions with sharp mower blades.

The Constructor shall mow the grass for the second time at which time the Engineer shall inspect the grass to accept the grassed surface.

Where ground slopes do not allow mowing of grass to establish the Constructor shall maintain the areas to establish to the acceptable level of coverage (95% canopy coverage of the ground) by the end of the Defects Notification Period.

36.9.7 Tolerances

Grassed surfaces shall be deemed in an acceptable condition when;

- Have fully established grass with vigorous growth;
- No ponding of surface water occurs;
- Grass covers 95% of the grassed areas. No single area of exposed soil shall be greater than 100mm diameter in any one location;
- Broad leaved weeds less than 10% of cover visible by eye through 360 degrees from any location are limited to 4 plants; and
- Mowing has been undertaken in accordance with this specification.

36.9.8 Completion

The hydro-seeded areas shall not be considered complete until the grass meets the acceptance tolerances detailed above.

On completion of the work, the Constructor shall reinstate all surfaces affected by the works to pre-construction condition (e.g. topsoil to be swept off hardstand surfaces) unless specified otherwise.

The Constructor shall remove all rubbish and spoil from the site on completion of the works, leaving the site in a clean and tidy condition.

36.10 Hydro-Seed to Retaining Structures

36.10.1 Terra mulch and Hydroseed applications to be applied to the face of retaining structure to manufacturers recommendations. Methodology of hydroseed application to soil nail walls to be submitted by Constructor for Engineers approval.

36.10.2 Hydroseed mix to contain native seed mix containing a minimum of 5 species.

36.10.3 Seed mix to be reapplied where failure has occurred during the defects Liability and maientenance period.

36.11 Defects Liability and Maintenance Period

36.11.1 The correction of defects relating to the landscape treatment works installed by the Constructor together with maintenance of the site during the Defects Liability and Maintenance Period shall fully comply with Section K of NZTA P39:2013.

36.11.2 This period includes the requirement to maintain all landscape treatment works for three (3) years after practical completion. Refer section 36.2 for further information on maintenance. All traffic management required during the maintenance period shall be allowed for by the Constructor.

36.11.3 Plant losses shall be replaced within one month or at the beginning of the next planting season where loss occurs outside the planting season.

2.5 LANDSCAPE SPECIFICATION

38 LANDSCAPING – MAINTENANCE

38.0 General

38.0.1 The contract has a Maintenance Period of 36 months for landscaping as per P39 and runs concurrently with the Landscaping Defects Notification Period. The scope of this Specification includes watering but excludes irrigation.

38.0.2 The objective of this Specification is to maintain the plantings and canopy closure of the ground as well as promote plant growth and the health of the planting/vegetation. This includes keeping the landscaped areas free of pest plants and to encourage the healthy establishment of landscape treatments to a point where the owner organisations can be assured that there are no inherent defects in the planting stock.

38.0.3 The Constructor shall ensure that all maintenance be progressively undertaken during the maintenance period.

38.0.4 Defects liability relates to the Constructor making sure the works installed meet the specifications (and the Waka Kotahi landscape performance criteria) at the end of the Defects Notification Period.

38.0.5 Maintenance relates to works in maintaining the planting during the initial Defects Notification and Maintenance Period. Remediation of defects is not included in this section.

38.0.6 Continued maintenance of the landscaping will be required after the landscape maintenance period. The Principal will establish this requirement outside the scope of these Contract Works.

38.0.7 Within the Defects Notification and Maintenance Period of the Contract, the role of the Engineer is as a technical advisor and reviewer, providing quality control checks and ensuring that the works are undertaken in accordance with the specification and performance criteria set by the Principal.

38.1 Maintenance

38.1.1 The maintenance shall include all landscaped areas across the entire footprint of the works.

38.1.2 Maintenance visits shall be undertaken 15 times annually. It is the Constructor's responsibility to time these visits to provide the best outcome for the Principal and they must be a minimum of monthly with more visits in Spring and Summer than in Winter.

38.1.3 Actions during the maintenance visits shall include:

- Watering the plants as required
- Removal of all pest plants and weeds.
- Plant trimming, pruning, and other accepted horticultural operations to ensure normal and healthy plant establishment and growth
- Insect and disease control
- Grass mowing
- Checking stakes and ties
- Litter removal
- Identification of landscape treatment issues that need rectification and reporting these to the Principal. This shall include any vandalism and/or theft. Should these rectification actions be outside the scope of the Contract, a variation order may be issued.
- Ensuring any mulch layers are no less than 80mm deep and no more than 120mm deep.
- All plant guards to be removed at the end of the defects notification period and disposed of in a legal manner.

38.1.4 On completion of the site visit a report shall be provided to the Engineer within two working days from the visit date. The report shall include a discussion on the activities completed during the maintenance visit, photos of before and after (14 days after if herbicide is used) allowing the maintenance to be seen and any issues that require elevation to the Principal.

38.1.5 The final maintenance visit shall be completed immediately prior to issue of the Completion Certificate.

Table 2: Landscape Treatments Maintenance Schedule

Landscape Treatments Maintenance Schedule													
Treatment Item	Growing Season												At Completion
	Spring			Summer			Autumn			Winter			
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	
Trees, Shrubs And Groundcovers													
Staking	Monthly – As Required												
Trimming / Foliage Reduction	Monthly – As Required												
Fertiliser													
Weed Control	Three monthly												
Watering		As required During Dry Periods											
Replacement	Annually												
Weed Control	Three monthly												
Replacement	Annually												
Grass													
Mowing (Specifier ToInput Mowing Requirements To SuitHighway Setting)													
Fertiliser													
Weed Control													
Over Sowing													
Litter Removal													
Removal	Monthly												
Mulch													
Top Up													

38.2 Watering

38.2.1 The Constructor shall water all plants over periods of dry weather as part of the Constructor's obligations relating to Defects liability. In addition to the defects liability requirement to ensure the plants survive and grow, the Constructor shall undertake additional watering by automatic systems installed by the Constructor, to the frequency stated in the Maintenance Schedule to create lush vegetation.

38.2.2 Water shall be applied until the top 300mm of topsoil around each plant is at field capacity.

38.2.3 Watering should not be undertaken during the hot part of the day. Watering nozzles shall be fine rose or sprinkler heads to prevent damage to growth areas of the plants.

38.3 Weed Control

38.3.1 The Constructor shall remove and control weeds regularly throughout the period of maintenance. Removal of weeds at the end of the Defects Notification Period only is not acceptable.

38.3.2 All cultivated planted areas shall be kept weed free to the extent that perennial weed species are eradicated and annual weed species are well controlled. Care shall be taken to avoid disturbances of the shrub roots and excessive compaction of the bed surface. The Constructor shall remove all arising's, litter and other debris and dispose of offsite at the end of each maintenance site visit.

38.3.3 Weeds shall be removed to best horticultural practice and in accordance with designation requirements. Spraying of weeds with an approved herbicide will be required. Focused weed control shall be required in spring when the ground warms and seeds in the soil germinate. Herbicide application shall be spot sprayed using a protective spray nozzle/cone. Chemicals shall be selected to target weed species and avoid damaging any landscape assets through spray drift or run-off.

38.3.4 Any serious pest weeds and all plants listed as Contaminant pest plants, Eradication pest plants and potential pest plants by Otago Regional Council and Queenstown Lakes District Council shall be removed from the site within 10 days of discovery and disposed of in an approved location.

38.3.5 Inadequate mulch depth may allow excessive weed growth; therefore, mulch shall be kept topped up to not less than 75mm after settling.

38.4 Fertiliser

38.4.1 Slow-release fertiliser is applied to the bedding soil of plants at the time of plant installation.

38.4.2 Further applications of approved, NPK (nitrogen, phosphorus, and potassium) balanced; slow-release fertiliser shall be applied in accordance with the Maintenance Schedule. Application rates shall be as recommended by the fertiliser manufacturer with regard to the size of plant.

38.4.3 Fertiliser should be watered-in after application.

38.4.4 Fertiliser shall be applied to grassed areas in accordance with the maintenance programme above. Fertiliser shall be Osmocote, or similar approved, applied at the rate of 20gm/m² or at a rate recommended by the manufacturer.

38.5 Mulch

38.5.1 The Constructor shall supply and install additional mulch (the same material as originally placed) so that all mulch areas have a depth of not less than 100mm with not less than 75mm depth remaining after settling.

38.6 Specimen Trees

38.6.1 Horticultural operations

Planted trees are to be encouraged to grow to maturity as naturally as possible to achieve their natural characteristic form, through sound management practices including weeding, trimming,

2.5 LANDSCAPE SPECIFICATION

checking of stakes and ties, pruning and other accepted horticultural operations. Pruning may also be required as a safety measure to remove overhanging branches causing obstruction.

38.6.2 Staking

Young specimen trees are staked and tied when they are planted in order to protect the growth and development of these trees through to semi-maturity. Staking shall be repaired or replaced as required.

Ties must be checked regularly every two to three months, for broken ties and more importantly that they have not become tight around the trunk as the tree grows. Ties should be maintained firm but not so tight so as to cause damage to the bark. Ties should be adjusted accordingly over the initial three growing seasons for planted trees, after which time the majority of stakes can be removed.

38.6.3 Pruning

Little pruning is anticipated on this project as the native trees will be left to grow to their natural form. If any form or damage related pruning is required, the following methods shall be adopted:

Overhanging branches shall be pruned back to a minimum clearance of 2.3m above the ground. Dead and broken branches must be removed as they pose a safety hazard to the site as well as encouraging wood rotting organisms. Care must be taken when removing branches to prevent damage to nearby vegetation as well as the tree being pruned. All pruning shall be undertaken in accordance with a health and safety plan.

Prune back to a sound healthy branch with a clean cut, in accordance with good arboricultural practice. Final cuts shall be made as close as possible to the branch collar without damaging the collar. Final cuts and wound treatments are to be carried out in accordance with the principles and practice of good arboriculture.

Broken or dangerously overhanging branches shall be removed.

All pruning waste will be removed and disposed of offsite.

38.7 Shrubs and Groundcovers

38.7.1 Operations

The Constructor shall maintain planting beds to establish good plantings and achieve a high level of lush vegetation with visual impact. Maintenance shall include weed control, trimming, watering and fertilising. Ground cover plants should grow to fully cover the ground and thus reduce weed growth and maintenance.

Planting beds shall be maintained to a neat a tidy appearance in the same condition as when the works were completed at Practical Completion.

38.7.2 Trimming

The Constructor shall undertake trimming of shrubs as required to maintain the following aspects:

- Removal of dead or old weak growth;
- Cutting back to encourage vigorous growth;
- Thinning out mass planted areas to allow stronger plants to dominate; and
- Cut back groundcover plants that are growing outside the planted area and across adjacent surfaces such as grass or gravel.

Generally, pruning operations to maturing shrubs will be unnecessary for some time although some topping may be required to some species that rapidly develop a large canopy mass that may lead to instability or toppling.

38.8 Grass

38.8.1 Newly sown areas and grassed areas are to be protected against traffic until the grass is well established.

All grassed areas shall be protected and maintained to produce an even sward of grass at a uniform height and healthy colour; mowing and spraying to maintain a good quality turf.

38.8.2 If necessary, the grassed area shall be top dressed with clean screened soil to eliminate minor hollows. Applications shall be less than 15mm at any one time, preferably applied in spring or autumn.

All grassed areas shall be protected and maintained by mowing and spraying to maintain a good quality turf with a neat appearance until the end of the Defects Notification Period.

Final establishment shall be accepted at the discretion of the Designer, with regard to the acceptance criteria. If establishment is unsatisfactory the Constructor shall return the area to seed bed condition and replant with the appropriate seed mixture until satisfactory grass is established, or take remedial action as agreed by the Designer.

38.8.3 The Constructor shall maintain and mow grass to Section K of NZTA P39:2013 part 6.12 & 6.13.

38.8.4 Grass cutting shall only be undertaken in dry conditions using suitable equipment (generally a tractor mower) with sharp blades. The first cut shall be after the grass has reached 100mm high to cut no more than one third of the height of grass.

The Constructor is responsible for mowing the grass to the Waka Kotahi level of service as specified in the Maintenance and Operations Manual or 200mm height or other approved height.

Before each cut, all litter, stones and other debris must be removed so that a tide appearance is maintained at all times.

Edges to paths or around trees or structures shall be neatly trimmed each time the grass is mowed.

The Constructor shall exercise all due care in the use of mowing and trimming machines to minimise flying debris hazards. Mowers shall be fitted with stone guards designed for the mower. Safety guards shall be supplied for all other equipment used.

38.9 Completion of Maintenance Period

38.9.1 On completion of the Defects Notification Period and prior to issue to the Completion Certificate, the Constructor shall undertake/supply written summary of all maintenance visits, machinery used, staff employed and weather during maintenance visits.

38.9.2 The Contract Works may be inspected from time to time by accredited representatives of both owner organisations (Waka Kotahi and QLDC). On request, the Constructor shall provide to the Engineer information and details relating to the pest control of the Maintenance Works or its progress.

38.10 Completion of Works

38.10.1 On completion of the works the Constructor shall undertake/supply the following;

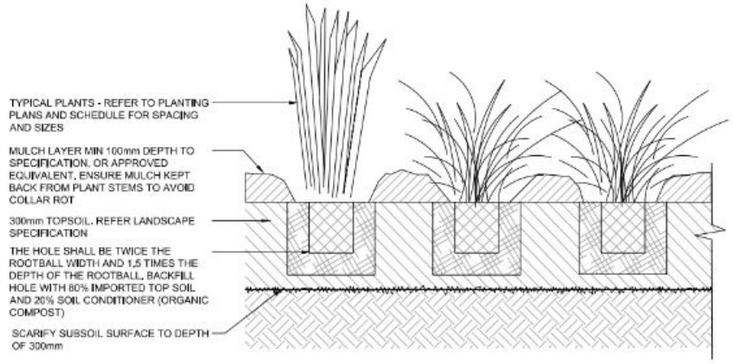
- Provide a copy of the maintenance and defects reporting;
- Provide a copy of the designer review sign-off and quality control reporting (prepared by the Engineer)

2.6 LANDSCAPE DETAILS

The following are typical landscape details which cover the implementation of;

- Grass
- Planted gardens
- Specimen tree pits
- Strata Vault tree pits

These details are likely to be developed further with the alliance design team and the QLDC parks team as part of the design development process.



01 - DETAIL SECTION - GARDEN BED WITH BARK MULCH - ALL ZONES

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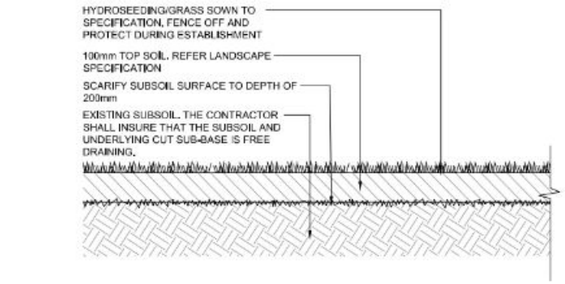
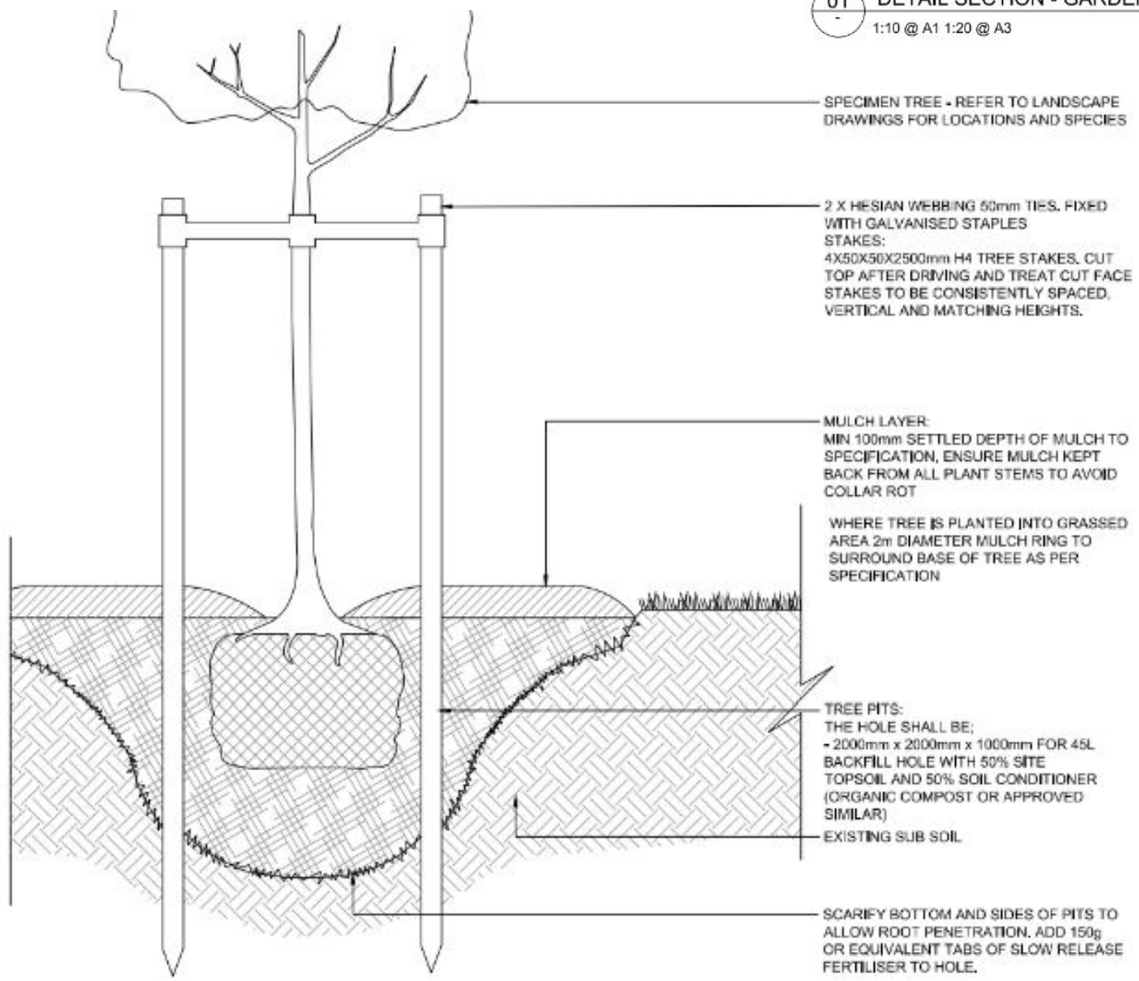


02 - DETAIL SECTION - LAWN/GRASS - ALL ZONES

1:10 @ A1 1:20 @ A3



01 - DETAIL SECTION - SPECIMEN TREE TR01 IN GRASS

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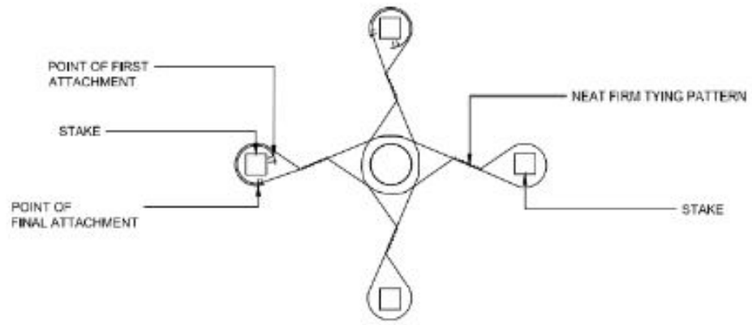
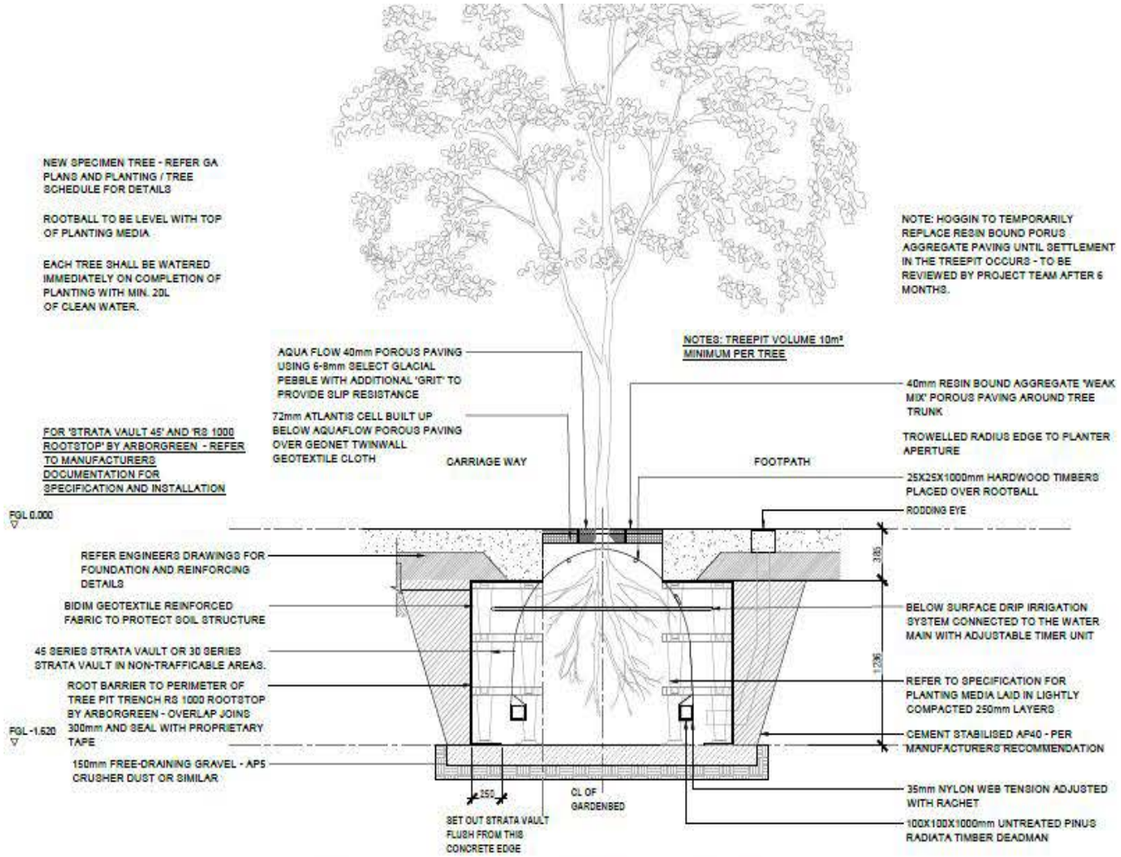


02 - DETAIL PLAN - TREE STAKING TIES

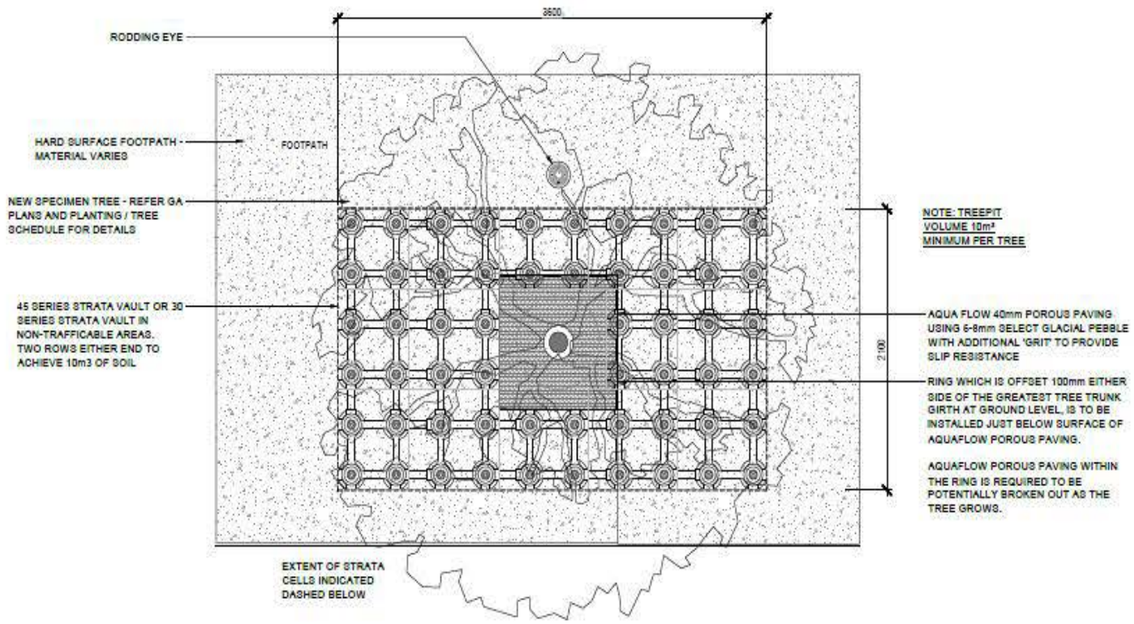
NOT TO SCALE

2.6 LANDSCAPE DETAILS



01 - DETAIL SECTION - SPECIMEN TREE IN PAVING

1:25 @ A1 1:50 @ A3



02 - DETAIL PLAN - SPECIMEN TREE IN PAVING

1:25 @ A1 1:50 @ A3

APPENDIX I

Frankton SH6 NOR Conditions response table

Condition	Response
2. Within the first planting season following the completion of construction works, a minimum of two new trees shall be planted for every tree being removed. The replacement trees shall be: a. a minimum of 2m high at the time of planting; and b. species included in the indicative planting list contained in Chapter 17 – Airport Zone of the Proposed District Plan; or where alternative species are proposed the Requiring Authority must engage with Queenstown Airport Corporation (QAC) as to acceptability. Specimen trees shall be minimum 2m high at time of planting.	*Refer section 2.1 Tree removals and 2.2 Landscape mitigation plan for a detailed break down of the tree removals and replacements.* *All proposed specimen trees will have a minimum height of 2m at the time of planting, with certain exotic species expected to be at a height of 3-3.5m. All species have been selected from the QLDC District Plan, Chapter 17- Airport Zone with the addition of two species, of which have been approved by QAC ecologist. Refer section 2.3 Plant Palette*
3. The replacement trees required by condition 2 may comprise a combination of trees planted within and outside the boundary of the designation. Replacement trees within the boundary of the designation shall be planted in locations in general accordance with the Detailed Landscape Plan required under condition 7. The location of replacement trees to be planted outside the boundary of the designation shall be provided in accordance with the Queenstown Lakes District Council (QLDC) Tree Policy 2022 and specifically, with regard to the order of priority stated in Policy 1.13.	*Refer Appendix iii for QLDC opportunities plan which identifies land outside of the project extents for mitigation planting*
4. All batter slopes and mounds shall be either vegetated in grass or landscaped. The gradient of batter slopes and mounds vegetated in grass shall not exceed a gradient of 1:4 when measured across any point to ensure that all slopes are mowable. Steeper slopes must be landscaped.	*Grass areas will have a maximum mowable batter of 1V:4H, unless agreed otherwise with QLDC.* *Refer section 2.3 Planting palette*
5. Bird resistant seeds shall be used for any exposed surfaces to be vegetated with grass to avoid attracting birds to the site.	*Refer section 2.3 Plant Palette*
6. All landscaping and planting shall be in general accordance with Part 7 – Landscape, of QLDC's Land Development and Subdivision Code of Practice (dated 2020) and subsequent amendments to that document. Where there is any inconsistency between the Code of Practice and these conditions, the conditions shall prevail. Note: The current standards are available on QLDC's website via the following link: https://www.qldc.govt.nz/media/3yyc4fzi/2020-qldc-land-development-and-subdivision-code-of-practice.pdf	*Waka Kotahi Landscape guidance documents form the basis of the NZUP project works, however all landscape works will meet Part 7 - Landscape, of QLDC's Land Development and Subdivision Code of Practice (dated 2020) and subsequent amendments to that document, unless stated otherwise.* *Refer section 1.1 Introduction* *Refer section 2.5 Landscape specification*
7. Prior to the removal of any trees on land owned or administered by the QLDC as at 2 December 2022, the Requiring Authority shall provide, as part of the Outline Plan(s) of Work(s), a Detailed Landscape Plan. This plan is to be prepared by a suitably qualified and experienced landscape architect. The Detailed Landscape Plan shall include design specifications and provide details of the following: a. The location of as many suitable replacement trees as possible to be located within the boundary of the designation. b. Clearly identify all trees, planting and landscaping, the species, size and location. c. Irrigation plan showing how trees, plants and/or grass are to be irrigated. d. Tree pit details showing root ball treatment and staking. e. Maintenance requirements. f. All plantings and landscaping must be species included in the indicative planting list contained in Chapter 17-Airport Zone of the Proposed District Plan; or where alternative species are proposed the Requiring Authority must engage with QAC as to acceptability.	*Refer Appendix iv for 'Detailed Landscape Plan' which includes;* *a. Detailed locations and individual species identified inside the designation boundary.* *b. Tree and planting layouts with schedules recording heights and plant densities.* *c. Irrigation extents identified. Irrigation will be a design build component.* *d. Refer section 2.6 Landscape details for tree pit details.* *e. Establishment maintenance to be carried out over a 36 month period to project specification and QLDC Part 7.4 Landscape Maintenance. Once established ongoing maintenance will be carried out by QLDC.* *Refer section 2.5 Landscape specification for detailed maintenance requirements.* *f. All species have been selected from the QLDC District Plan, Chapter 17- Airport Zone with the addition of two species. Refer section 2.3 Plant Palette for species information*

APPENDIX II

Bus Hub NOR Conditions response table

Condition	Response
3. Within the first planting season following the construction works, a minimum of two new trees shall be planted for every tree being removed. The replacement trees shall be: a. A minimum of 2m high at the time of planting; and b. Species included in the indicative planting list contained in Chapter 17- Airport Zone of the Proposed District Plan; or where alternative species are proposed the Requiring Authority must engage with the Queenstown Airport Corporation(QAC) as to acceptability.	*Refer section 2.1 Tree removals and 2.2 Landscape mitigation plan for a detailed break down of the tree removals and replacements.* *All proposed specimen trees will have a minimum height of 2m at the time of planting, with certain exotic species expected to be at a height of 3-3.5m. All species have been selected from the QLDC District Plan, Chapter 17- Airport Zone with the addition of two species, of which have been approved by QAC ecologist. Refer section 2.3 Plant Palette*
4. The replacement trees required by Condition 3 may comprise a combination of trees planted within and outside the boundary of the designation. Replacement trees within the boundary of the designation shall be planted in locations in accordance with the Detailed Landscape Plan required under condition 8. The location of replacement trees to be planted outside the boundary of the designation shall be provided in accordance with the Queenstown Lakes District Council (QLDC) Tree Policy 2022 and specifically, with regard to the order of priority in Policy 1.13.	*Refer Appendix iii for QLDC opportunities plan which identifies land outside of the project extents for mitigation planting*
5. All batter slopes and mounds shall be either vegetated in grass or landscaped. The gradient of batter slopes and mounds vegetated in grass shall not exceed a gradient of 1:4 when measured across any point to ensure that all slopes are mowable. Steeper slopes must be landscaped.	*Grass areas will have a maximum mowable batter of 1V:4H, unless agreed otherwise with QLDC.* *Refer section 2.3 Planting palette*
6. Bird resistant seeds shall be used for any exposed surfaces to be vegetated with grass to avoid attracting birds to the site.	*Refer section 2.3 Plant Palette*
7. All landscaping and planting shall be in general accordance with Part 7 – Landscape, of QLDC's Land Development and Subdivision Code of Practice (dated 2020) and subsequent amendments to that document. Where there is any inconsistency between the Code of Practice and these conditions, the conditions shall prevail. Note: The current standards are available on QLDC's website via the following link: https://www.qldc.govt.nz/media/3yyc4fzi/2020-qldc-land-development-and-subdivision-code-of-practice.pdf	*Waka Kotahi Landscape guidance documents form the basis of the NZUP project works, however all landscape works will meet Part 7 - Landscape, of QLDC's Land Development and Subdivision Code of Practice (dated 2020) and subsequent amendments to that document, unless stated otherwise.* *Refer section 1.1 Introduction* *Refer section 2.5 Landscape specification*
8. Prior to the removal of any trees on land owned or administered by the QLDC, the requiring authority shall provide, as part of the Outline Plans of Work(s), a Detailed Landscape Plan. This plan is to be prepared by a suitably qualified and experienced landscape architect. The Detailed Landscape Plan shall include design specifications and provide details of the following: a. The location of as many suitable replacement trees as possible to be located within the boundary of the designation. b. Clearly identify all trees, planting and landscaping, including the species, size and location. c. Irrigation plan showing how trees, plants and/or grass are to be irrigated; d. Tree pit details showing root ball treatment and staking; e. Maintenance requirements. f. All plantings and landscaping must be species included in the indicative planting list contained in Chapter 17 – Airport Zone of the Proposed District Plan; or where alternative species are proposed the Requiring Authority must engage with QAC as to acceptability.	*Refer Appendix iv for 'Detailed Landscape Plan' which includes;* *a. Detailed locations and individual species identified inside the designation boundary.* *b. Tree and planting layouts with schedules recording heights and plant densities.* *c. Irrigation extents identified. Irrigation will be a design build component.* *d. Refer section 2.6 Landscape details for tree pit details.* *e. Establishment maintenance to be carried out over a 36 month period to project specification and QLDC Part 7.4 Landscape Maintenance. Once established ongoing maintenance will be carried out by QLDC.* *Refer section 2.5 Landscape specification for detailed maintenance requirements.* *f. All species have been selected from the QLDC District Plan, Chapter 17- Airport Zone with the addition of two species. Refer section 2.3 Plant Palette for species information*

APPENDIX III

QLDC Opportunities plan

APPENDIX IV

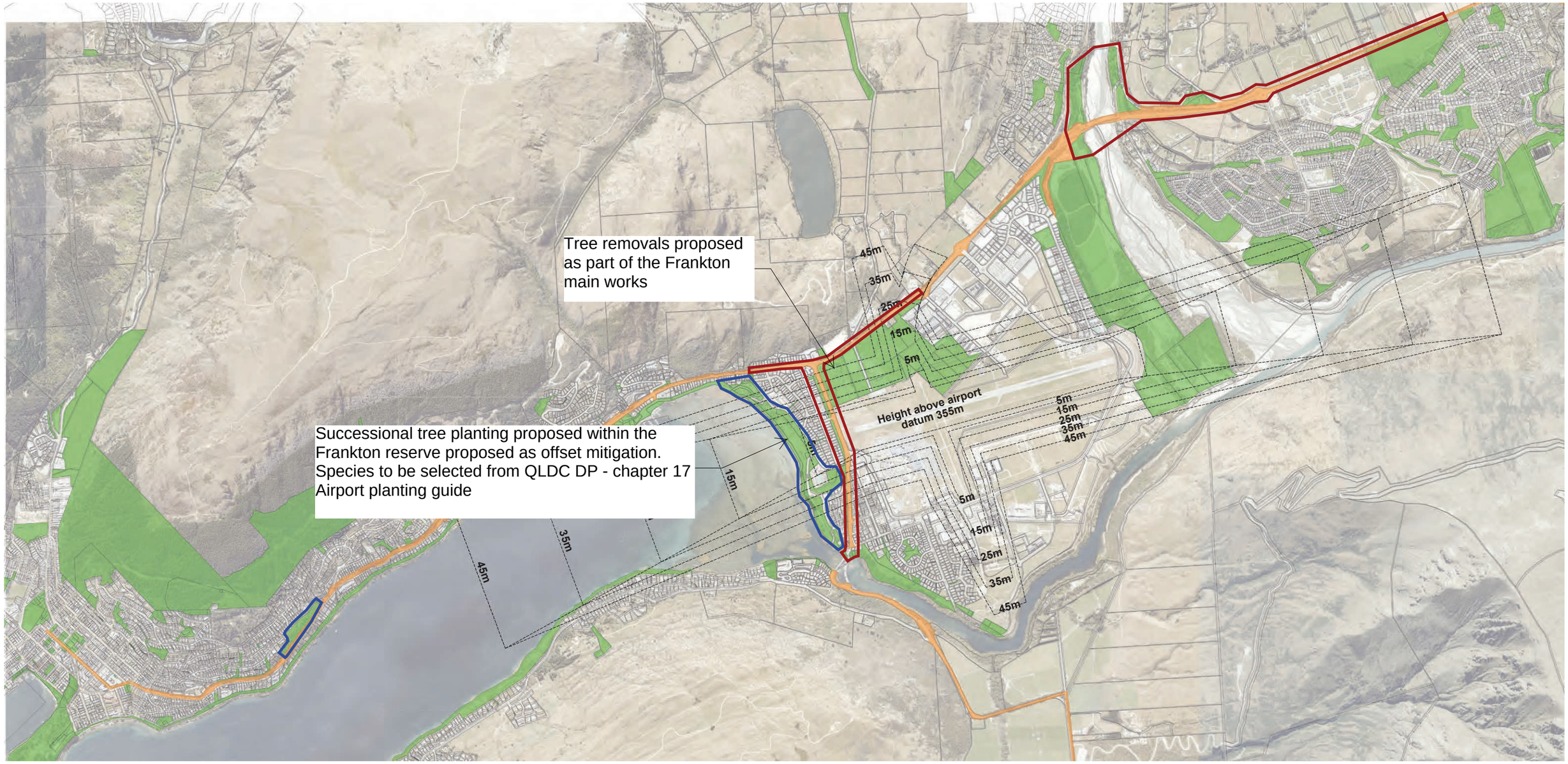
NZ Upgrade Programme – Queenstown Package
Urban Design and Landscape Assessment - Nov 2022

APPENDIX V

Arborist report - July 2022

Attachment 1

File Ref: BM220867_B_NZUP_Landownership_20230316.indd



LEGEND

- QLDC Park and Reserve Land
- State Highway / Waka Kotahi Land
- ----- Airport Height Restrictions

PLANTING OPPORTUNITIES

Tier One
- Entrances into Queenstown
- BP to Airport

Include as many green spaces as possible (garden beds, trees and re vegetation)

Tier Two
- Frankton Beach
- Hensman Road Reserve

As many replacement trees as possible

Tier Three
- Other QLDC Reserves and Waka Kotahi Land

As many replacement trees as possible

Mark up - 31.08.2023
Jesse Byrne - NZUP Landscape architecture lead

Boffa Miskell

www.boffamiskell.co.nz

NOT TO SCALE

NZUP QUEENSTOWN

Replacement Planting Opportunities

Date: 16 March 2023 | Revision:

Plan prepared for Queenstown Lakes District Council by Boffa Miskell Limited

Project Manager: megan.ash@boffamiskell.co.nz | Drawn: MAs | Checked: MMe

Figure 1

NZ Upgrade Programme

–

Queenstown Package

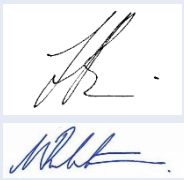
Urban Design and Landscape Assessment

Project Team: Kā Huanui a Tāhuna - NZUP Queenstown package

21 November 2022

Reference: 3336972/04E/2102

Revision History

Rev	Date	Prepared by	Reviewed by	Approved by	Description
A	12/08/2022	Jesse Byrne Wade Robertson	Stuart Bowden	Brendon Mills	Draft for review
					
B	17/08/2022	Wade Robertson	Stuart Bowden	Brendon Mills	For Issue
					
C	21/11/2022	Wade Robertson	Stuart Bowden	Brendon Mills	For Issue
					

Contents

1 INTRODUCTION

Growth in Queenstown's resident and visitor population, together with high dependency on private vehicle travel, has compounded traffic congestion and delays in the district. Waka Kotahi's NZ Upgrade Programme – Queenstown Package (NZUP) is focused on prioritising infrastructure across the State Highway network to support public transport and improve overall level of service by providing:

- Improved Public transport infrastructure – introduction of bus lanes where feasible, with additional and higher-quality stop facilities including an expansion of the existing bus hub at Frankton
- Improved facilities for Active Modes – improved infrastructure and linkages between existing and new routes
- Intersection Improvements – change in intersection form to improve road safety and access, and to enable better operational management of the network

The NZUP programme consists of six distinct packages/ zones that allow for prioritisation of key areas to establish logical construction packages. The main aspects of each zone are highlighted below to provide context for this assessment.

Zone 1 – Ladies mile

- Conversion of the existing SH6/Howards Drive T- junction to a roundabout.
- A westbound (towards Frankton) public transport priority lane between Howards Drive and the eastern side of Shotover Bridge.
- Installation of a vehicle barrier between the carriageway and the existing exotic trees on the southern edge of the road.
- 1 new bus stop, and associated shelters, seating and ski racks.
- Associated stormwater upgrades including a series of soak pits.

Zone 2 – Five mile

- Conversion of the existing roundabouts at Hawthorne Drive and Grant Road to signalised intersections.
- East and westbound public transport priority lanes between SH6/Hardware Lane and SH6/SH6A/Terrace Junction.
- A new signalised intersection at SH6/Hansen Road Access Link.
- Conversion of the existing priority intersection at SH6/Joe O'Connell Drive (Events centre entrance) to a signalised intersection.
- A shared user path on both sides of the road connecting the active travel network from Hardware Lane through to Frankton village.
- 5 new bus stops, and associated shelters, seating and ski racks.

Zone 3 – SH6 and SH6A Intersection (proposal site, highlighted in yellow in figure 2)

- Conversion of the existing SH6/6A roundabout to a signalised intersection.
- Shared user paths connecting pedestrians and cyclists traveling all directions with a focus on encouraging commuter and recreational cyclists toward the Frankton Marina and on to the Frankton Track
- Expansion of current bus hub and associated amenities, including signalised entry and exit to allow for an additional 9 bus stops.
- Conversion of existing priority intersection at Gray Street to signalised intersection, with no right turn exit.
- Drivers shared facility building to include break room, toilets, storage and an information kiosk with interpretation and information signage.
- Signalised intersection at McBride Street.
- Stormwater attenuation basin for proposed areas first flush run off.
- New access road for Frankton Golf Centre with signalised intersection.

Zone 4 – Kawarau Road

- Conversion of the existing roundabout at SH6/Lucas Place to a signalised intersection.
- Shared 'north to south' user path traveling on the western side of the road through the existing reserve land.
- Public transport priority lanes between Ross Street and Kawarau River Bridge.
- Stormwater attenuation basin for proposed areas first flush run off, located in the reserve area between Ross Street and Lucas Place.

Zone 5 – Frankton Marina to Goldfield Heights

- New access into Marina from SH6A.
- Public transport priority lanes between Marina Drive and Livingstone Lane traveling east and westbound.
- Associated stormwater and retaining structures to allow for road widening.
- Shared user path and footpath upgrades:
  - 373m long and 3m wide shared user path
  - 190m long and 2.5m wide shared user path
  - 471m of footpath upgrades
- Upgrades to existing bus stops to improve connectivity, safety and increased waiting area.
- Improved signalised pedestrian crossings.

Zone 6 –Goldfield Heights to Suburb Street

- Shared user path upgrades, space permitting.
- Improved signalised pedestrian crossings.

- Shared user path and footpath upgrades.
  - 670m long and 3m wide shared user path
- Upgrades to existing bus stops to improve connectivity, safety and increased waiting area.
- Associated stormwater and retaining structures to allow for road widening.

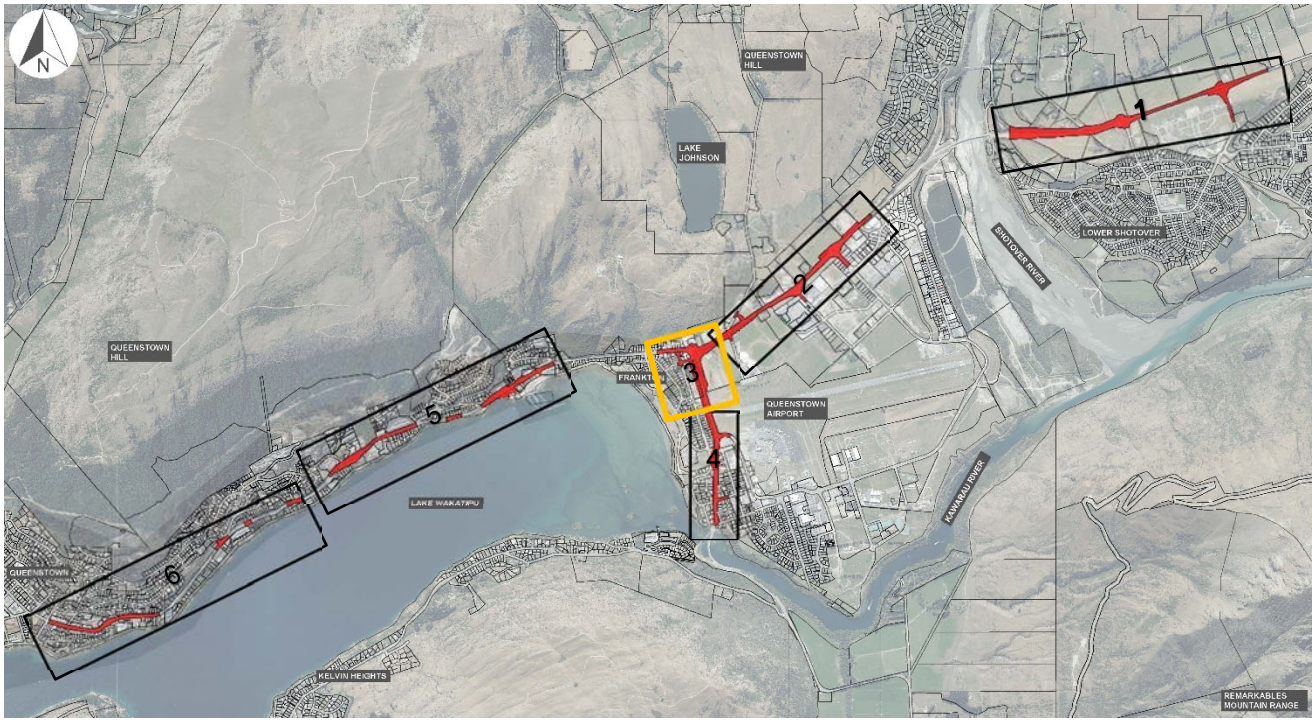


Figure 1: Overview of NZUP – Queenstown package zones 1 to 6.

This report has been prepared by Ka Huanui a Tahuna to evaluate the proposed infrastructure upgrades against the established project urban design principles and objectives and to also assess the landscape and visual effects of the proposal in relation to the alteration to designation application.

2 SCOPE AND PURPOSE

This report focuses on those areas of the NZUP programme that are subject to an alteration to existing designation within Zone 3, specifically the intersection of State Highway 6 and 6A (SH6 and SH6A) in Te Kirikiri | Frankton (refer Figure 2). This land is required to enable road widening for the reconfiguration of the existing SH6/SH6A intersection (described in Section 2) and expansion of the existing bus hub located to the west of the existing SH6 carriageway.

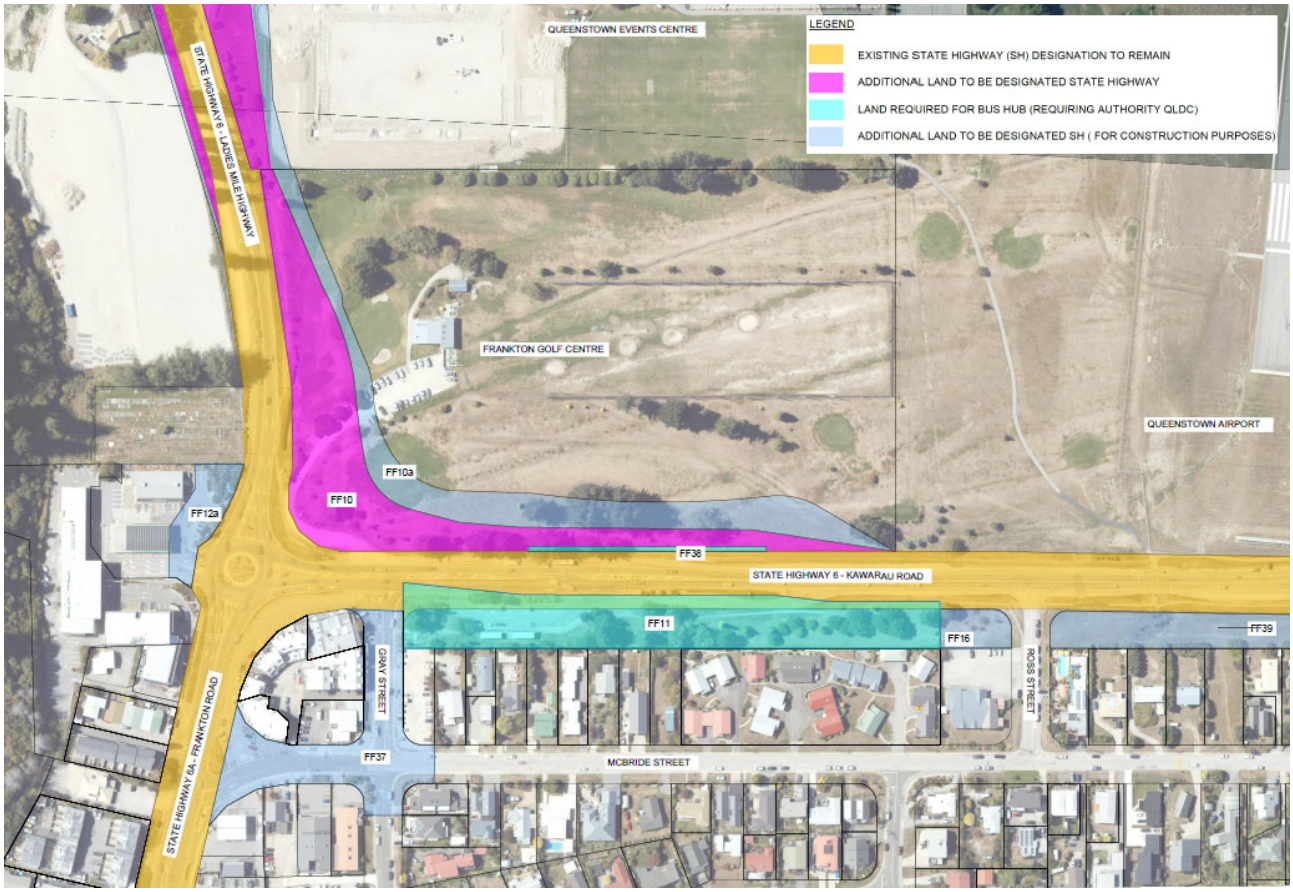


Figure 2: Overview of SH6 / SH6A intersection with designation parcels highlighted.

For clarity, the areas subject to this report (and alteration to designation) are referred to as the proposal while the wider NZUP project will herein be referred to as the 'wider project'.

A **Landscape Management Plan** (LMP) is to be prepared in accordance with Waka Kotahi's Bridging the Gap[1] to *"ensure the Project's permanent works are integrated into the surrounding rural landscape and urban context and to illustrate the urban, landscape, cultural and environmental elements of the Project to be taken into the detailed design".*[2]

[1] *Bridging the Gap, NZTA Urban Design Guidelines, Waka Kōtahi NZ Transport Agency.*

[2] Minimum Requirement F7.2.1.2(c)

In addition to the LMP, a **Cultural & Environmental Design Framework** (CEDF), specific to the Te Kirikiri | Frankton area is required by the UDLA Minimum Requirements *"addressing all proposed cultural design values, concepts, elements and outcomes… and as a consequence of mana whenua collaboration".*

The LMP and CEDF are currently under development with direct input by Mana Whenua throughout the design development process as described in Sections 2.2.3 and 2.2.4.

2.1 Approach

This report is structured as a 'hybrid' Urban Design Evaluation and a Landscape and Visual Effects Assessment; its purpose is twofold:

Urban design evaluation

Firstly, it provides an evaluation of the current design[3] against urban design principles and objectives that have been prepared in accordance with the urban and landscape design Minimum Requirements established by Waka Kotahi for the project. These establish the requirements for all urban and landscape design works being undertaken and confirm the desired urban and landscape design outcomes for the proposal and the wider project.

The following **prinicples and objectives** have been prepared as part of the LMP and provide the framework for the urban design evaluation section of this report:

Principle	Objective
ENVIRONMENT	
Design for context	The project establishes a strong sense of place and is a good 'fit' in its urban context, through consideration of design values, narrative, specific design elements and maintenance and enhancement of amenity.
Design with nature	Demonstrate how the consideration of the underlying natural environment and eco-systems has occurred and has directly informed the design. Promote blue-green infrastructure with the enhancement of indigenous vegetation within existing vegetation patterns and new infrastructural project development. This includes water management systems that buffer and prevent detrimental discharge to natural waterways with stormwater conveyance and treatment within the road corridor and adjacent land as particularly relevant.
Mitigating climate change / conscience	Design for predicted future regional climatic impacts in the corridor location. Consider the positive contribution that the corridor functions can make to the local climatic environment of future places and streets. Address long term planning in regard to climate change such as sustainable management of resources and development and adoption of renewable energy.
SOCIAL	
Respect cultural heritage values	Design does not negatively affect heritage features that are important to the wider community and mana whenua. This can include specific buildings, structures, sites and natural features, as well as the associations (i.e., narratives and meaning) that people have with them.

[3] Being preliminary design phase.

Principle	Objective
Create a positive road user experience	Provide a transport corridor that allows the user to experience the local landscape setting and sense of place in a legible and safe way.
Opportunities for collaborative design process, in the spirit of Te Tiriti o Waitangi partnership	Adopt best practice collaborative design principles and methodologies to obtain culturally inclusive design outcomes.
BUILT FORM	
Contribute to good urban form	The project recognises the function that the road network has as a key 'building block' for both existing and future urban form. The design pays particular attention to the physical and experiential quality of the road corridor and key interfaces.
Achieve a low maintenance design	Adopt best practice design principles and methodologies. Use appropriate landscape and planting material.
MOVEMENT	
Integrate all modes of movement	Allow for and accommodate good walking, cycling and micro-mobility outcomes that promote additional transport choices to and around the project area, including prioritisation of walking and cycling and quality of user experience.
Maintain local connectivity	Key physical linkages across and within the road corridor(s) are recognised and maintained, including a specific focus on the opportunity to enhance existing connections and establish new ones. Identify and recognise experiential / perceptual linkages to the road corridor, project area and wider landscape.
LAND USE	
Integrate transport and land-use	The design facilitates and enhances where possible existing land uses while providing a catalyst for new activities to occur in the future to support the vibrancy, character and economic vitality of the area.

2.2 Landscape and Visual Effects Assessment

This report also provides an assessment of the landscape and visual effects of the proposal in support of the alteration to designation application. The assessment is required to support the Notice of Requirement (NOR) for the project and the methodology used to undertake this assessment is described in Section 1.2.

3 METHODOLOGY

The key aspects of the assessment process include:

3.1 Desktop Analysis

A review of background documentation has been undertaken to identify existing relevant landscape and urban design influences on the NZUP project, and those design standards that are to be integrated into the project.

The background documents include the following.

NZUP Minimum Requirements documents

- Provide Waka Kotahi's minimum requirements for the project. The documents cover design standards, guidelines, site specific information, material finishes and processes.

Aotearoa urban street planning and design guide

- The Aotearoa Urban Street Planning and Design Guide brings together Waka Kotahi's key shifts, good urban design principles and mode specific guides, pedestrian planning guidelines, cycling network guidance, and public transport design guidelines to create a suite of technical guidance for urban mobility and a safe system.

Bridging the Gap, Waka Kotahi (NZTA) Urban Design Guidelines

- Bridging the Gap presents Waka Kotahi's urban design objectives and requirements. It sets out 10 fundamental urban design principles which should guide the development of transport projects and contains best practice on detailed design aspects. These guidelines seek to improve the understanding of what good urban design means in a transport project.

NZTA P39 Standard Specifications for Highway Landscape Treatments

- P39 provides baseline landscape specifications that set the required performance standards, quality, and workmanship for highway landscape treatments.

Te Kirikiri / Frankton Masterplan (FMP)

- The Frankton Masterplan sets a framework to respond to the future needs of Frankton as a hub for the Wakatipu basin. The outcomes cover: integrating with the water's edge; gateway into the district; enhancing the local network; unified and integrated urban centres; living and growing in harmony with nature; and inclusive neighbourhoods.

QLDC District Plans (Proposed and Operative)

- The District Plan guides land use and development across the Queenstown Lakes District. It sets out what activities you can do as of right, what activities you need resource consent for, and how certain activities may be carried out. It covers things like: land uses; noise; location and height of buildings; and the protection of indigenous vegetation.

Queenstown Lakes Spatial Plan

- The Queenstown Lakes Spatial Plan is a vision and framework for how and where the communities of the wider Wakatipu and Upper Clutha can Grow Well and develop to ensure social, environmental and economic prosperity.

Whakatipu Active Travel Network Stage 1 UDLF (WATN)

- This work aims to provide an integrated network of trails for walking and cycling that connects to public transport, providing a genuine alternative to travelling by car. It is important to incorporate the WATN trails into NZUP to ensure all trails/paths are connected, which gives users access to the wider Queenstown Lakes District.

Stage 1 Arterials UDLP

- Delivered as part of the wider Kā Huanui a Tāhuna programme of works, the Stage 1 Arterials project spans from Frankton Road and Suburb Street, through to the intersection of Henry Street, Shotover Street and Gorge Road, proximate to the Queenstown CBD. The NZUP project interfaces with Stage1 Arterials at the Frankton Road/ Suburb Street intersection. It is important to acknowledge the design language used for Arterials Stage 1 and where appropriate integrate into NZUP to ensure continuity of user experience.

Iwi environmental management resources

- Kāi Tahu ki Otago Natural Resource Management Plan (2005)
- Te Tangi a Tauira: Ngāi Tahu ki Murihiku Natural Resource and Environmental Iwi Management Plan (2008)
- Āpiti Hono, Tātai Hono: Ngā Whenua o Ngāi Tahu ki Murihiku – Stage 1 Landscape Assessment Study

3.2 Site Investigations

Visits to the wider project and proposal sites were undertaken on five separate occasions, including:

- 22nd of September 2021 – a general project wide site walkover was undertaken with other alliance design team members (including mana whenua appointed Cultural design lead from Aukaha - Keri Whaitiri). Concept plans were used to identify the extent of works and its surrounding context.
- 23rd of September 2021 – Jesse Byrne (Landscape architecture design lead) returned to site where the broader landscape character and visual catchment was observed, and representative photographs were taken.
- 23rd of November 2021 – Jesse Byrne undertook a vegetation survey with the consultant Arborist from NZ Tree Care. Trees species, condition and useful life expectancy were identified and recorded. Subsequent visits were undertaken by the project arborist in June 2022.

- 22nd of February 2022 – Following further design development the full design team and representatives from Waka Kotahi and QLDC undertook a general site walkover to discuss the design and identify specific site challenges that may affect the designs.
- 23rd of February 2022 – Jesse Byrne (Landscape architecture design lead) returned to site where neighbouring properties, potentially affected parties, and the local landscape context and edge conditions were observed, and detailed photographs taken.

3.3 Design Development

The Queenstown Integrated Transport Programme Business Case (2017), endorsed by Waka Kotahi, is the overarching strategic transport document that recommended a programme of investments for the overall Queenstown network. A subsequent business case, the Queenstown Transport Business Case, looked to merge multiple study areas in to one network.

The NZUP project was created in in response to these business cases, the concept designs which were developed as part of the above have been reviewed and analysed as part of the project start-up phase.

The proposal site is currently at the 30% preliminary design phase, meaning design layouts have been confirmed and design elements are being compiled for initial pricing.

Although the current design is in alignment with the business case there have been some key moves to improve pedestrian connectivity and safety within the bus hub.

These include providing a direct connection across Kawarau Road along the active travel route, leading to safer more legible crossing and access through the bus hub for users. The bus hub layout has been altered to include two bays, one for buses and one for pick up/drop off and private coaches. This design allows for pedestrians to safely exit vehicles on a central island and cross into the bus hub ‘proper’ over a zebra crossing.

A detailed tree survey was completed during this period an investigation and a feasibility study was undertaken to reduce tree removals within the bus hub and on the golf course land, but due to the existing versus proposed ground levels the number of trees saved as part of the development has been very low in comparison to the number of removals.

With Mana Whenua representation on the design team, through Keri Whaitiri (cultural design lead), key themes and values have been incorporated into the design layout and opportunities for cultural narrative expression have been identified. The theme of Ara Tāwhito (pathways) is being developed further as part of the Mana Whenua Cultural Values and Design Framework - Te Kirikiri / Frankton document.

Elements within the landscape design that have been identified as areas of opportunity include the noise barrier(s), located proximate to the bus hub and the bus shelter structures.

A soft landscape strategy is in development with QLDC and the design team, this is focused on using endemic grassland and shrub species to the garden areas and stormwater infrastructure within the proposal site. Street trees located within the bus hub will be exotic species which will provide a functional form within the hub and adjacent to the signalised intersection. A mixture of native grove trees and exotic and native specimen trees are proposed for the areas of reserve land which line the proposal sites.

3.4 Co-design and Partnership with Mana Whenua

A co-design approach has been adopted by Kā Huanui a Tāhuna. This includes a Mana Whenua appointed designer, Keri Whaitiri, embedded in the Alliance to ensure that both design process and outcomes appropriately reflect cultural connections to place – Keri is a designer 'by trade' and performs a Kaiwhakatere role within the UDLA and wider project team. This role and the overall approach to design is reflective of the partnership aspirations of Kā Huanui a Tāhuna and the obligations of the owner / partner organisations to meet their obligations under Te Tiriti o Waitangi

Te Kaiwhakatere has provided input to the formation of the urban design principles and objectives set out in Section 1.1. The precursor to these objectives and policies were a suite of cultural values (see Section 6.2.3) that have been used to inform the current design and provide the high-level guidance to be established in the Mana Whenua Cultural Design Integration Framework.

One of the key stages in the design process involves submission of the current design to the Kāi Tahu Design Review Panel for guidance and approval of milestone designs. This process ensures that Mana Whenua play an active and influential role in establishing appropriate areas of focus, including identifying key values, sites of significance, narratives and environmental outcomes. The feedback from these design review sessions is then fed back to the design team for incorporation into subsequent design phases. In addition, design progress is also shared with the project Mana Whenua Liaison Group, which is responsible for providing high-level overview and guidance to Kā Huanui a Tāhuna in all aspects of the project.

3.5 Urban Design Evaluation

The Urban Design Evaluation considers the proposed development against the relevant Waka Kōtahi Design Principles. It provides urban design focused commentary on the current preliminary design and recommends the framework for how and where any urban design outcomes should be considered in future design stages. These recommendations provide the basis for an urban design specific designation condition, and where there is an overlap of urban design outcomes with other considerations (for example ecological, landscape, visual or water quality related recommendations) they could be integrated within the relevant specialist conditions.

3.6 Landscape Assessment

The process that underpins the assessment of landscape effects draws on Te Tangi a Te Manu, Aotearoa New Zealand Landscape Assessment Guidelines prepared by the New Zealand Institute of Landscape Architects (NZILA)[4].

3.6.1 Defining and Describing the Landscape

Section 4 of the NZILA Guideline details those matters that are relevant to the definition of 'landscape'. This report adopts the 'tri-partite' conceptualisation provided in the guideline, including[5]:

[4] 210430_Te Tangi a te Manu_Aotearoa New Zealand Landscape Assessment Guidelines [Final Draft] May 2022.

[5] Adapted from Te Tangi a te Manu_Aotearoa New Zealand Landscape Assessment Guidelines.

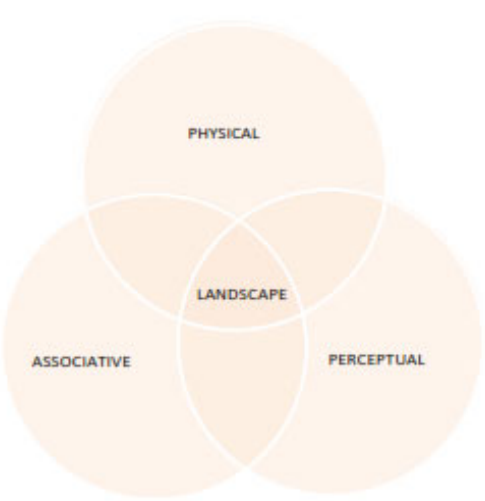


Figure 3 – Conceptualisation of Landscape

- **Physical** – meaning both the natural and human-derived features in the landscape and the interaction of natural and human processes over time. Sometimes referred to as 'natural and physical, 'natural and built environment', 'physical environment', 'biophysical' and 'geographical'.
- **Associative** – the meanings and values we associate with places. Often the intangible things such as history, identity, customs, laws, narratives, creation stories, and activities specifically associated with a landscape. Such associations typically arise over time out of the relationship between people and place. Tāngata whenua associations are therefore especially relevant because of primacy and duration. Pūrākau, tikanga, whakapapa, and mātauranga are key considerations of the associative dimension from a Te Ao Māori perspective. Other terms sometimes used for this dimension include 'intangible', 'meanings', 'place-related' (sense of place).
- **Perceptual** – being, how we perceive and experience places. 'Perceptual' means both sensory experience and interpretation and typically occurs simultaneously with interpretation, knowledge, and memory. What we know, remember, and imagine influences how we perceive a place. While sight is the sense most typically applied to landscape assessment, sensory perception includes all the senses such as sound, smell, touch, and taste. Other terms sometimes used for the perceptual dimension include 'sensory' (which suggests only raw senses and does not capture the cognitive or interpretative aspect that is implied in the term 'perceptual'), 'aesthetic' (which suggests a focus on beauty rather than wider appreciation), and 'experiential' which perhaps better conveys movement and active engagement.

The guideline lists typical factors that are often considered under each of the three conceptual headings above. They are attached to this report as Appendix A and are utilised in the description of the existing environment below.

The urban landscape

The site lies within an urban setting characterised by the relationship between the transport network/ corridor and a varied land use matrix, consisting of commercial, retail, residential, recreation, public open space and Queenstown Airport to the east.

The commentary in Section 4.46 the NZILA Guideline regarding 'Urban landscapes' is of relevance to the project, where it says:

"'Urban landscapes' are a type of landscape which fall within the same conceptual framework as all other landscapes… For the avoidance of doubt, 'urban landscapes' do not just mean the natural or green parts of cities. Rather, urban landscapes comprise the physical urban environment (its topography, streets, buildings, open spaces, and their related processes and activities), how people perceive it (its legibility, memorability, aesthetics), and what it means to them (its identity, history, sense of place)."

As above, the guideline also provides typical factors that are often used to describe urban character, and these have also been included in Appendix B for reference.

Expectedly, there is overlap between those typical factors set out in Appendix A and given the hybrid nature of this report, both lists are used together and interchangeably to describe and assess existing (urban) landscape character and values (Section 4) and resulting effects that arise from the proposal (Section 6).

Assessing landscape effects

A landscape effect is a consequence of changes in a landscape's physical attributes on that landscape's values. Change is not an effect: landscapes change constantly. ***It is the implications of change on landscape values that is relevant.***[6] ***(emphasis added)***

Therefore, the assessment of landscape effects (incl. visual) provided in Section 6 focusses on the impacts of the proposal on specific values identified in Section 4. Where particular attributes/ typical factors within the local landscape exist, but do not contribute meaningfully to the values then effects are considered negligible.

Degree of effect

In addition to describing the **nature** of the effects, the seven-point assessment scale below has been applied in assessing the **degree** of landscape effects of the proposal. Where positive effects occur they are simply described as positive and do not utilise the scale below.

To assist project planners and decision makers in understanding the degree of landscape and visual effects of the proposal and also undertaking the broader 'balance' required under the RMA, those effects that are assessed as 'low moderate' are 'minor' in planning evaluation terms. Effects that are 'high to very high' are significant.

[6] Paragraph 6.1. Te Tangi a te Manu_Aotearoa New Zealand Landscape Assessment Guidelines.

Very Low	Low	Low – Moderate	Moderate	High – Moderate	High	Very High

Figure 4: Seven-point scale to rate qualitative assessments

4 POLICY CONTEXT

4.1 Proposed District Plan

The proposal site is in the Queenstown Lakes District and is subject to the relevant objectives and policies contained within the Proposed Queenstown Lakes District Plan. A detailed consideration of the proposal against the District Plan is provided in the Notice of Requirement with those provisions that are most relevant to the scope and purpose of this report provided below (Emphasis added):

Objectives & Policies	
CHAPTER 7 – LOWER DENSITY SUBURBAN RESIDENTIAL ZONE	
Objective 7.2.1	Development within the zone provides for a mix of compatible suburban densities and a high amenity low density residential living environment for residents as well as users of public spaces within the zone
Policy 7.2.1.3	Ensure that the height, bulk and location of development maintains the suburban-intensity character of the zone, and maintains the amenity values enjoyed by users of neighbouring properties, in particular, privacy and access to sunlight.
Objective 7.2.6	Development efficiently utilises existing infrastructure and minimises impacts on infrastructure networks.
Policy 7.2.6.3	Integrate development with all transport networks and in particular, and where practicable, improve connections to public transport services and active transport networks (tracks, trails, walkways and cycleways).
CHAPTER 15 – LOCAL SHOPPING CENTRE ZONE	
Objective 15.2.1	Local Shopping Centres provide a focal point for a range of activities that meet the day to day needs of the community at a limited scale that supplements the function of town centres.
Policy 15.2.1.1	Provide for a diverse range of activities that meet the needs of the local community, enable local employment opportunities and assist with enabling the economic viability of local shopping centres
Policy 15.2.1.1	Avoid the establishment of activities that are not consistent with established amenity values, cause inappropriate environmental effects, or are more appropriately located in other zones.
CHAPTER 16 – BUSINESS MIXED USE ZONE	
Objective 16.2.3	A high quality, well designed urban environment on the northern side of State Highway 6 at Frankton, that is integrated with a primary road that connects State Highway 6 at Hawthorne Drive to Quail Rise, pedestrian and cycle access, and appropriate servicing.
Policy 16.2.3.4	Ensure safe transport connections by: a) avoiding any new access to State Highway 6; b) limiting access to the land at Frankton North to: Hawthorne Drive/SH6 roundabout, Hansen Road and Ferry Hill Drive; c) providing the primary road connection between State Highway 6 and Quail Rise;

Objectives & Policies	
CHAPTER 7 – LOWER DENSITY SUBURBAN RESIDENTIAL ZONE	
	d) providing access to the primary road connection from all sites within Frankton North: e) providing internal road, pedestrian and cycle connections that are of a form that accounts for long-term traffic demands for the area between Hansen Road and Ferry Hill Drive without the need for subsequent retrofitting or upgrade; and f) ensuring that road frontages are not dominated by vehicular access and parking; and integrating with the pedestrian and cycle path and the road network and public transport routes on the southern side of State Highway 6, including pedestrian and cycle access across State Highway 6.
CHAPTER 38 – OPEN SPACE AND RECREATION ZONES (DISTRICT WIDE)	
Objective 38.2.1	The open space land and facilities administered by the Council make a major contribution towards meeting the needs of the District's residents and visitors for passive and active recreation
Policy 38.2.1.1	The design, development, management and maintenance of Open Space and Recreation Zones shall provide for: a) the needs of the community in the area in which the zones are located, and the needs of the wider community and visitors to the District; b) the effective and efficient use of resources so as to ensure that Open Space and Recreation Zones are fit for purpose and safe for all users; c) the maintenance and enhancement of integrated public access connections to walking and cycling networks throughout the District, including along lake and river margins; d) recognise and provide for users of all ages and different physical capacities e) the location within which Open Space and Recreation Zones are situated, responding to recognised natural character, landscape and heritage values; and f) the provision of infrastructure necessary to service Open Spaces and Recreation Zones, including recreation facilities and amenities.
CHAPTER 38 – INFORMAL RECREATION ZONE	
Objective 38.4.1	Use and development for informal recreation maintains and enhances the environment
Policy 38.4.1.6	Opportunities are taken to enhance recreational trail networks, cycling and walking linkages within the zone, and to other zones, to create a contiguous network to assist residents and visitors to move through and around neighbourhoods, and to other destinations, thereby providing an alternative and sustainable mode of transport
CHAPTER 38 – COMMUNITY PURPOSES ZONE	
Objective 38.7.1	Community activities that meet the current and future social, cultural, recreation, health and community needs of both local communities and visitors to the District are provided for within a diverse range of open spaces.
Policy 38.7.12	Enable the continued operation of the District's existing cemeteries while maintaining public access, the open space amenity, and any historic heritage values of these community spaces.

Objectives & Policies	
CHAPTER 7 – LOWER DENSITY SUBURBAN RESIDENTIAL ZONE	
CHAPTER 29 – TRANSPORT	
29.2.1 Objective	An integrated, safe, and efficient transport network that: a) provides for all transport modes and the transportation of freight; b) provides for future growth needs and facilitates continued economic development; c) reduces dependency on private motor vehicles and promotes the use of shared, public, and active transport; d) contributes towards addressing the effects on climate change; reduces the dominance and congestion of vehicles, particularly in the Town Centre zones; and e) Enables the significant benefits arising from public walking and cycling trails
Policy 29.2.1.1	Require that transport networks including active transport networks, are well connected and specifically designed to: enable an efficient public transport system; reduce travel distances and improve safety and convenience through discouraging single connection streets; and provide safe, attractive, and practical walking and cycling routes between and within residential areas, public facilities and amenities, and employment centres, and to existing and planned public transport
Objective 29.2.3	Roads that facilitate continued growth, are safe and efficient for all users and modes of transport and are compatible with the level of amenity anticipated in the adjoining zones.
Policy 29.2.3.2	Enable transport infrastructure to be constructed, maintained, and repaired within roads in a safe and timely manner while: mitigating adverse effects on the streetscape and amenity of adjoining properties resulting from earthworks, vibration, construction noise, utilities, and any substantial building within the road; enabling transport infrastructure to be designed in a manner that reflects the identity of special character areas and historic management areas and avoids, remedies, or mitigates any adverse effects on listed heritage items or protected trees; and requiring transport infrastructure to be undertaken in a manner that avoids or mitigates effects on landscape values.
Policy 29.2.3.3	Ensure new roads are designed, located, and constructed in a manner that: a) provides for the needs of all modes of transport in accordance with the Council's active transport network plan and public transport network plan and for the range of road users that are expected to use the road, based on its classification; b) provides connections to existing and future roads and active transport network; c) avoids, remedies, or mitigates effects on listed heritage buildings, structures and features, or protected trees and reflects the identity of any adjoining special character areas and historic management areas; d) avoids, remedies, or mitigates adverse effects on Outstanding Natural Landscapes and Outstanding Natural Features and on landscape values in other parts of the District; and e) provides sufficient space and facilities to promote safe walking, cycling, and public transport within the road to the extent that it is relevant given the location and design function of the road.

Objectives & Policies	
CHAPTER 7 – LOWER DENSITY SUBURBAN RESIDENTIAL ZONE	
Policy 29.2.3.6	Enable public amenities within the road in recognition that the road provides an important and valuable public open space for the community which, when well designed, encourages human interaction and enrichens the social and cultural wellbeing of the community.
Policy 29.2.3.7	Encourage the incorporation of trees and vegetation within new roads and as part of roading improvements, subject to road safety and operational requirements and maintaining important views of the landscape from roads.

4.2 Other Relevant Standards and Guidelines

4.2.1 Tree Policy

QLDC has a Tree Policy that is contained within Appendix C.

The most relevant aspect of the Tree Policy relates to tree removal where it says: ***(Emphasis added)***

"Tree replacement

QLDC acknowledges that trees have a finite lifespan and may require removal for a number of different reasons. QLDC is committed to ensuring that a tree renewal programme is maintained to ensure the canopy cover is not only replaced, but appropriate character and stature are accommodated to maintain and enhance a quality treed landscape for future generations.

Policy:

1.13

A minimum of two new trees will be planted for every tree removed, with the projected canopy cover replacing what is lost within 20 years. This means more than two trees may be required. *The species of trees is determined by the appropriateness to the location as per Policy 1.2.*

The location of replacement trees will be based on the following, in order or priority:

Removals within road reserves:

(1) In the same road corridor where the tree was removed; or

(2) If no further planting can be practically located in the road corridor, then in the closest road corridor that requires either new or additional planting; or

(3) Within the urban forest.

Removals on land owned or administered by QLDC):

(1) In the same reserve where the tree was removed; or

(2) If no further planting in the reserve is required, then in the closest road corridor or reserve that requires either new or additional planting; or

(3) Within the urban forest.

Note: 'Urban forest' can be found in the Definitions section of this document."

5 PROPOSAL

The proposal allows for urgent transportation corridor upgrades to deal with the increased population growth in the immediate area and wider Whakatipu region. Figure 1 illustrates the proposal is within Zones 2 & 3 of the Queenstown NZUP Programme, which consists of a further four (4) stages of development (not subject to the current alteration to designation application).

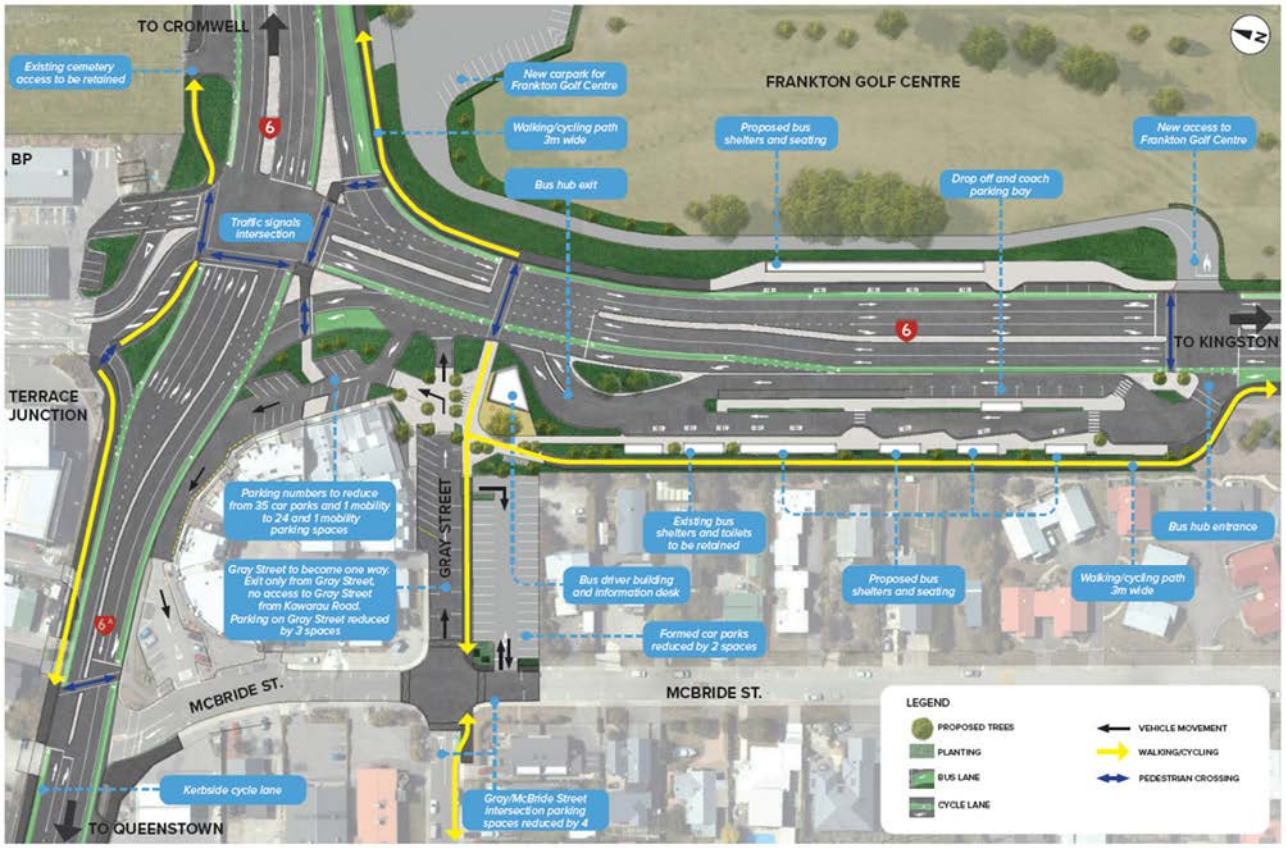


Figure 5: Landscape plan of the proposal site

Detailed features of the enhanced Te Kirikiri | Frankton Bus Hub and associated intersections are shown in Figure 5 and include:

- An expansion to the south of the existing bus hub footprint, to provide additional capacity. More kerb space is provided on SH6/ Kawarau Road southbound;
- The main northbound half of the Frankton Bus Hub is split into two “platforms”, with the (existing) west kerb used for predominantly ORC (Orbus) local bus services, and all other activity on the second platform;
- A driver rest area (building), toilets, information kiosk, bus shelters and seating for each stop, bus service information plus cycle and e-bike parking and charging;
- Signalised exit from the northern end of Frankton Bus Hub, including right turn facility towards SH6/ Kawarau Road (south);
- Pedestrian crossings at the northern and southern ends of the hub with connections for the active travel routes and connection into the golf course / informal reserve area to the east;

- Street trees and low native groundcover and grass species;
- A shared user path along the western boundary of the bus hub, providing an off-road continuation of the existing facility running along the west side of SH6 Kawarau Road;
- An expansion of the south bound bus stop extent to include additional bus stops and associated shelters; and
- Two scenarios for noise mitigation along the western edge of the bus hub. Scenario A is a 2m high noise wall between the shared path and the residential properties. Scenario B is a 2m high visually permeable noise barrier, integrated into or immediately adjacent to the proposed bus shelters.

Other features of the proposed upgrade include the following:

- Localised widening around the existing intersections to accommodate for vehicle stacking and tie-ins and walking and cycling facilities/crossings. The existing priority intersections at SH6/Joe O'Connell Drive, SH6A/McBride Street and SH6/Gray Street/Frankton will be signalised, and a new signal intersection is proposed at SH6/Frankton bus hub (southern end).
- Increased impermeable hard surface pedestrian and vehicle surface areas;
- Additional bus shelters and walls designed to improve amenity and mitigate noise;
- Reduced car parking west of Kawarau Road and additional parking to the east;
- Speed reduced to 50kph on SH6 throughout the project area.
- The proposal seeks to obtain an additional 8774m2 of land from the currently zoned informal recreation, golf course land and an additional 7739m2 of land from the currently zoned informal recreation, in which the existing bus hub is located in.

Ninety-two (92) trees have been identified for removal to accommodate the proposed infrastructure upgrades. These consist largely of exotic tree species (83 of 92) with low ecological value.

The arborists report, which provides a condition assessment and details the extent of tree removal is attached as APPENDIX D. The report highlights that 42 of the 92 trees marked for removal have been assessed as being in poor condition and are only expected to last for up to a *maximum* of 10 years. It is expected that these trees will be removed by QLDC over time as part of routine maintenance and in line with the QLDC Tree Policy described. The remaining 50 trees marked for removal have a life expectancy of 10 years or more.

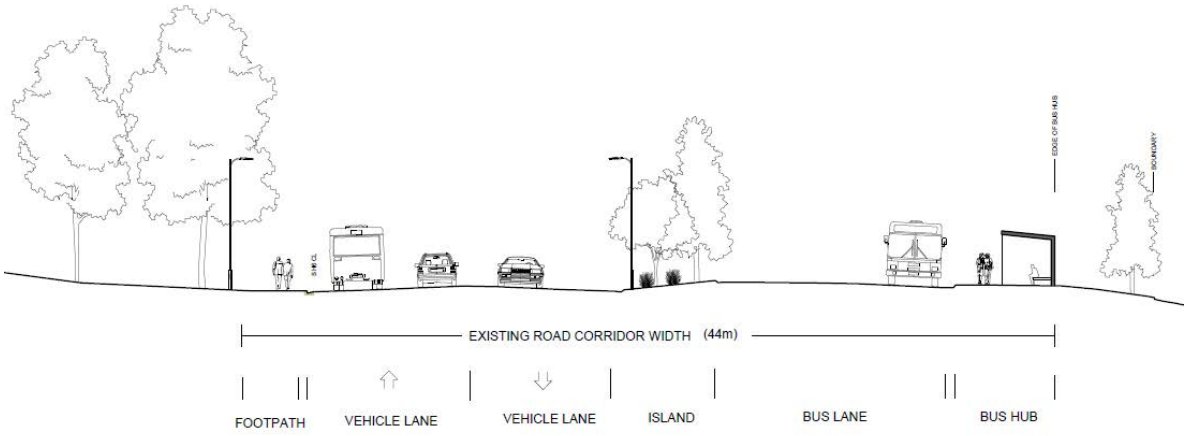


Figure 6: Existing road corridor & bus hub cross section

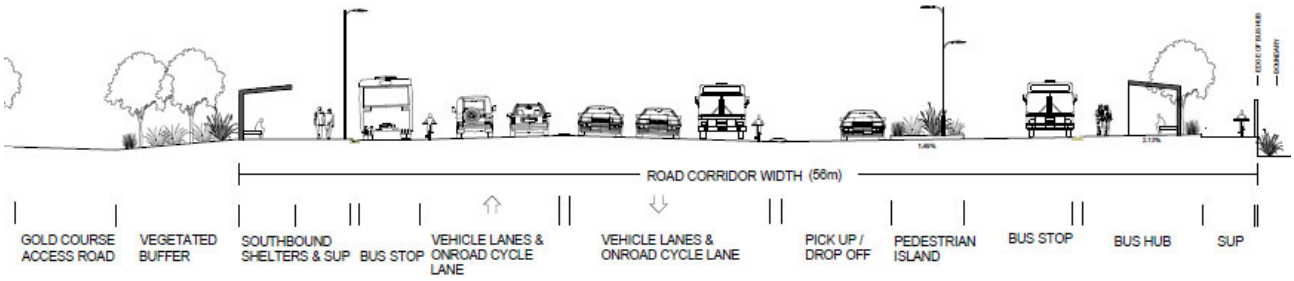


Figure 7: Proposed road corridor & bus hub cross section

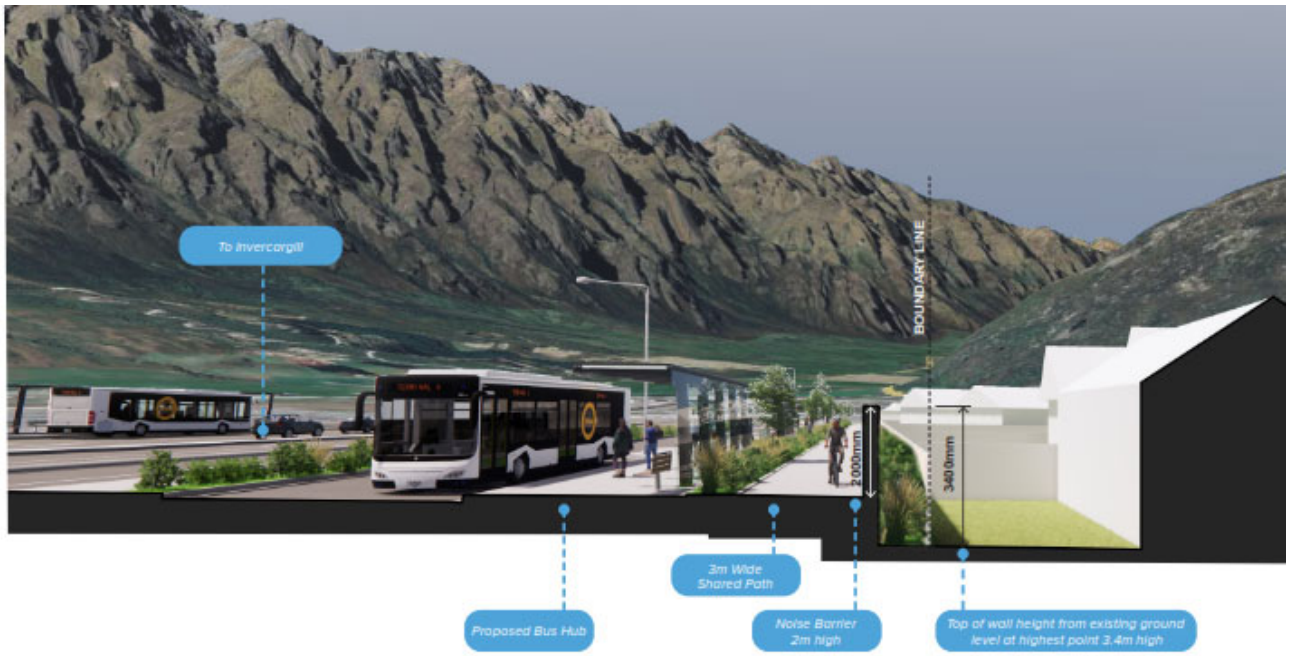


Figure 8: Proposed road corridor & bus hub pictorial cross section

The LMP and CEDF documents highlighted earlier form the basis for the urban and landscape design aspects of the proposal. The proposal is to include these documents and their specific requirements as designation conditions and tie them to Outline development Plans so the intended urban and landscape desaign outcomes are met. Taken with the current preliminary design the LMP and CEDF framework provide the basis of assesment for this report.

#

6 EXISTING ENVIRONMENT

6.1 Physical

The site context photos included in this report illustrate the physical characteristics / features of the site.

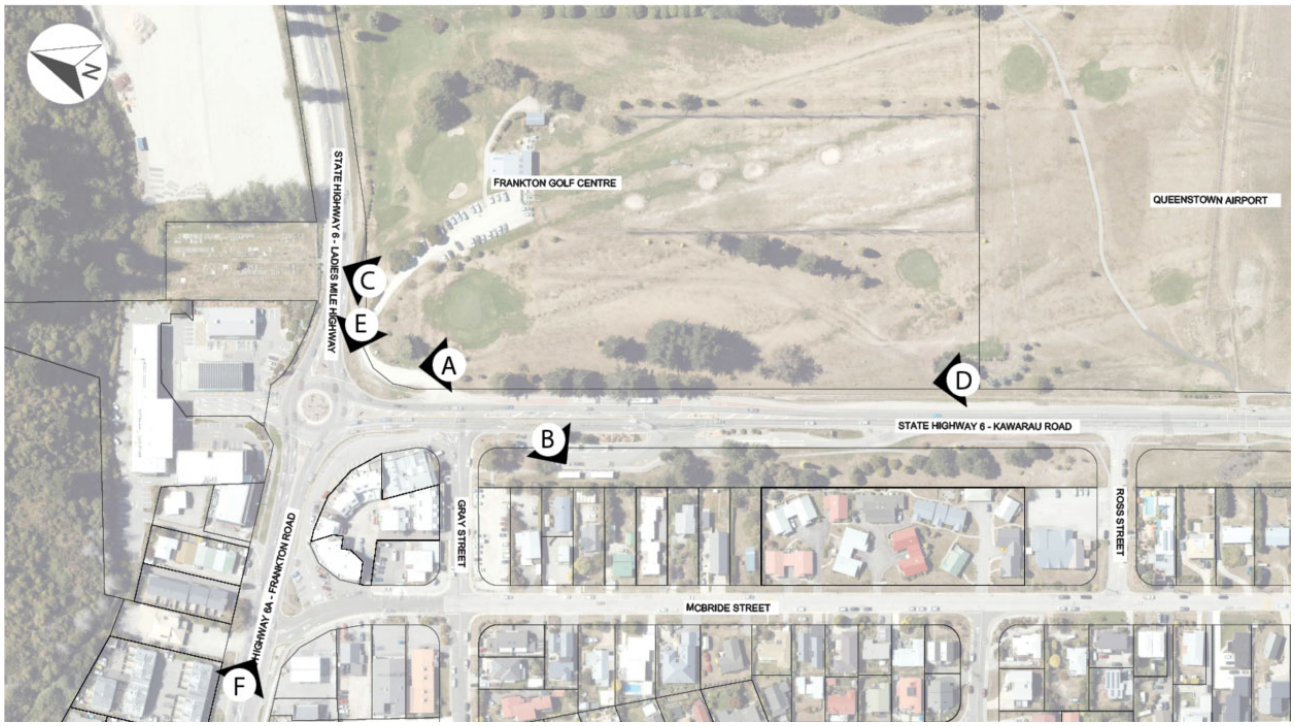


Figure 9 – Viewpoint location plan

6.1.1 Landform and Natural Features

The underlying topography of the local landscape is relatively flat but also slopes away steeply to the south and west towards the Kawarau River and Whakatipu Waimāori | Lake Wakatipu respectively. The areas that are subject to the designation are typical in this sense, with the land to the east that abuts the Frankton Golf Centre undulating and rising from the existing road corridor towards the golf course.

Rolling hills with a mixture of wilding pines, scrub, and pockets of native shrubs lie directly north of the proposal site. Wider vegetation consists mainly of well-established trees located within the golf centre and open space land to the east of the road corridor. These trees have high amenity value however they are not noted as significant in the Queenstown District Plan. Small areas of native vegetation occur in traffic islands adjacent to the BP service station and along Kawarau Road (SH6).

There is also a mix of trees and shrubs to the west of the road corridor and within the reserve and open space areas that separate the carriageway from those residential dwellings to the west. Vegetation on these properties is a mixture of exotic and native trees and shrubs, typical of a residential area of this nature.

There are no natural water courses within or proximate to the proposal, with surface water runoff accommodated via the underground (piped) stormwater system and draining into Whakatipu Waimāori to the west.

"With the Remarkables range to the south, Te Kirikiri / Frankton largely retains a sunny aspect. It has longer sunlight hours than south-facing Queenstown, due to its relief and relative distance from overshadowing of Queenstown Hill. The number of daylight hours are halved from summer to winter…".[7] The Whakatipu landscape is a relatively dry one with lower winter temperatures resulting in snow on the surrounding mountain ranges and often to low levels. Winds vary through the year with the calmest period from November to May.

6.1.2 Land Use

There are six (6) existing land uses surrounding the proposal site including low-density residential dwellings and community purpose land to the west and the Frankton Golf Centre to the east.

The Frankton Shops are directly to the southwest of the SH6/SH6A roundabout, containing a mix of commercial and retail buildings. A variety of food and beverage businesses and services are located here including takeaways, restaurants, a pharmacy, florist, convenience store and post office. Small apartments are located on the second floor of the shopping centre. There is a service station (Mobil) and MacDonalds restaurant further to the west and approximately 150m from the roundabout on SH6A.

There is another service station (BP) and commercial/ retail area (Terrace Junction) to the north of the roundabout, which includes various public amenities including for example Westpac, Burger King, Physiotherapist, a medical centre, IT repairs, veterinary practice and financial services.

Frankton Cemetery is to the north east of the roundabout with access off SH6.

Queenstown Airport is further to the southwest although it bears little physical connection to the proposal site. The impact or / influence the airport has on the experience of the local landscape is discussed in Section 6.3.

Along with the commercial and retail land use located at the SH6/ SH6A intersection, the road corridor is the most notable/ dominant land use in the local landscape. The carriageway is a combination of single and double lane configuration (on approach to the existing roundabout) and ranges in width from approximately 9.5m to 17.5m. Except for some low-level planting within the roundabout, the road corridor is devoid of planting in the medians and road verge.

6.1.3 Built Form

There are four discrete areas/ clusters of buildings in the proposal site:

Frankton Village Shops

Figure 10 shows that the village shops located to the west of the existing roundabout consist of five different building typologies, consisting of:

- Red – single storey, heritage imitation, food and beverage

[7] Section 2.5 Historic and Cultural Context. Te Kirikiri | Frankton Masterplan (2020). https://www.qldc.govt.nz/media/33wkqu1f/5a-8-oct-2020-att-a-frankton-masterplan.pdf

- Blue and violet – three story, 70's geometric architecture, mixed use, retail to bottom floor with apartments above
- Black – two story, 90's Mediterranean style building, mixed use, retail and food & beverage to ground floor and office space above
- Yellow – single story, 40's residential style property, retrofitted modern street frontage, retail space with onsite parking adjacent

Taken together these different typologies represent an eclectic mix of buildings with the most visually prominent being those that are two and three stories in height. The unique design of the three story [blue] buildings, with their geometric façade and roof line makes this cluster of building highly recognisable in the Frankton context.

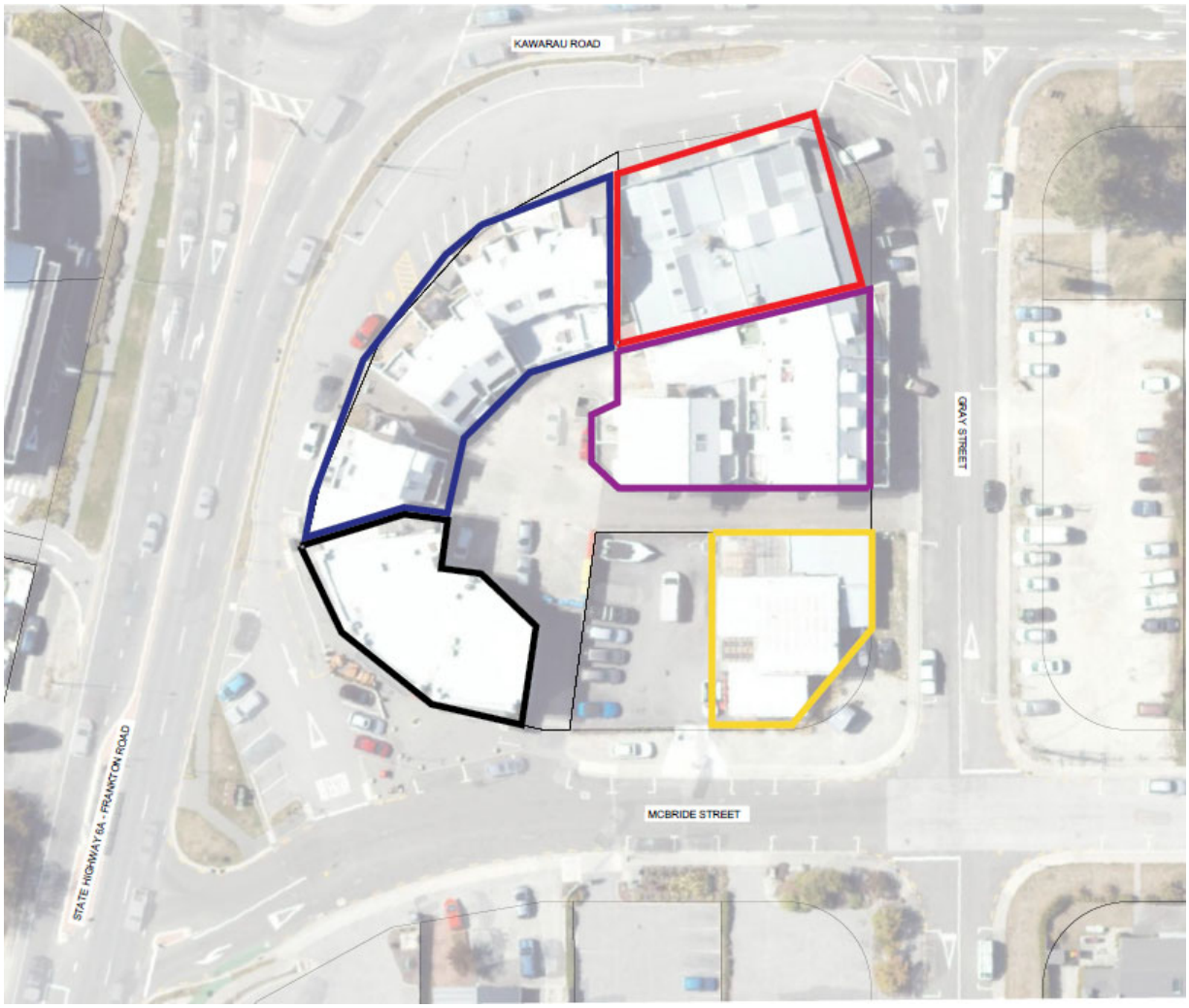


Figure 10 – Frankton Village Shops key plan

Terrace Junction (including BP service station)

The Terrace Junction shopping centre to the north of the intersection is a newer, more contemporary design with rectilinear form and predominantly glass façades establishing a higher degree of coherency in appearance. Counter to this, variations in cladding materials and colour,

roof line profile and building elevation across the site provides visual relief and taken alongside the BP service station maintains a high level of variability in built form across the proposal site.

Figure 11 – Terrace Junction shopping centre to the north of SH6/6A roundabout (Viewpoint location A)

6.1.3.1 Existing Bus Hub

The existing bus hub consists of two single story 'buildings that house a toilet block and information kiosk. The toilet block is clad in concrete block, with a mono pitch white colour steel roof. The information kiosk is enclosed on two sides with concrete block to the rear and colour steel cladding wrapping down the southern face. Both structures are connected by a corten steel structure, which screens the toilet block doors and provides for signage along the top of the structure.

Figure 12 – Bus Shelter and Toilet Block looking south (existing bus hub) (Viewpoint location B)

Residential properties

Those residential properties that back on to the open space to the west of SH6/ Kawarau Road and located between Gray Street and Ross Street are relevant to this assessment. All of these

properties consist of single storey, stand-alone houses accessed off McBride Street and oriented to the west, away from the proposal site. Where views towards the proposal site do exist, they are screened and/or obscured by a combination of well-established vegetation and boundary fences.

Other built elements

The small-scale structures reflect the function of the SH6/6A transport corridor with traffic islands, signage, lighting and bollards.

There are currently two crossing points at Kawarau Road, one 'non-signalised' at Gray Street and one signalised crossing at the southern end of the existing bus hub.

The surface within the bus hub is concrete with a 2m wide concrete footpath connecting the bus hub with Gray Street. There is a meandering asphalt footpath which connects the bus hub with Ross Street to the south. The eastern side of Kawarau Road which contains an existing bus stop has a 1.8m wide asphalt footpath connecting it to the crossing points mentioned above.

Gray Street has a 1.2-1.8m wide asphalt footpath both sides of the street, connecting it to McBride Street.

The Frankton Shops, which contain a number of angled car parks have a 2m wide block paver footpath along the shop frontages connecting in with McBride Street.

There is a non-signalised pedestrian crossing from the McBride Street section of the Frankton Shops across State Highway 6A to residential dwellings and short stay accommodation premises.

There are no pedestrian crossings immediately adjacent to the SH6/6A roundabout and there are no formed footpaths along State Highway 6 Ladies Mile highway, between Frankton and the events centre. The existing unformed footpaths or tracks connect Terrace Junction shops and the BP service station to the Cemetery on the northern side of the road. The Southern side of the road also contains an unformed footpath connecting the roundabout to the events centre. There is a pedestrian link between the events centre and Kawarau Road, adjacent to Ross Street.

There are no on road or shared cycling facilities within the proposal site, cyclists currently share the narrow footpaths with pedestrians or cycle within the vehicle lanes.

6.2 Associative

6.2.1 Historical Context

The Frankton Masterplan[8] provides a succinct description of the historical and cultural context surrounding the proposal site. Much of the historical context for Māori and post-colonal cultures, including European and Chinese, is tied to the 'resource rich' Whakatipu-Wai-Maori and the surrounding landscape. For Māori the multi-generational connection to the area as Mahika Kāi (resource gathering, use and transportation) is reflected by concepts of Nohoaka and Kāika

[8] Section 2.3 Historic and Cultural Context. Te Kirikiri | Frankton Masterplan (2020). https://www.qldc.govt.nz/media/33wkqu1f/5a-8-oct-2020-att-a-frankton-masterplan.pdf

(settlement and villages) that are connected in time and space via Ara Tawhito (trails), which wind their way through Whaktipu-Wai-Maori and connecting the area with wider Te Wai Pounamu.

These historical associations for Māori are also reflected in post-colonial culutral connections to Te Kirikiri | Frankton and the wider Whakatipu landscape. In 1863 Queenstown's founder, William Rees, named Frankton after his wife, Frances and was drawn to the area in search of land to farm. After the discovery of gold in the Arrow River by one of Rees' farm workers (Jack Tawa), the area underwent a significant shift with Queenstown becoming a *"roaring goldmining town".*

Fundamentally, these historical trends and the influence they have had on the associative landscape are based on the concepts of Mahika Kāi (resource utilisation), Nohoaka (pathways) and Kāika (villages) and the opportunity they provide for modern day society to occupy Te Kiriri | Frankton, which taken together is an expression of Ahi Kaa (fire of occupation).

6.2.2 Heritage Features including Site of Significance

The Frankton cemetery wall is a stacked schist wall with lime mortar pointing, dating back to the late 19th century. The wall is approximately 45m long where it interfaces with SH6 and it contains three pillars which form a pedestrian and vehicle entrance and associated wrought iron gates. The wall is approximately 1m high, but this varies from street level as a portion of the wall sits on a higher earth mound. The pillars stand approximately 1.8m high and are topped with a pointed schist capping.

The wall is screened in parts by a maintained herbaceous border made up of exotic and native species. This separates the wall from the road by approximately 2m in most areas.

The wall is nestled into the landscape due to its recessive colours, its height and existing screen vegetation. It is inconspicuous when viewed from the road by passing vehicles, unless they are stopped in traffic waiting to enter the SH6/6A roundabout.

The wall is unique to its surrounding landscape and built environment and as mentioned in Section 3 it is a listed heritage item in both the Operative and Proposed District Plan.

Figure 13 – Frankton Cemetery Wall (Viewpoint location C)

There are no other known features (i.e. structures, natural elements or specific sites including waahi tapu) in the proposal site that are of 'listed' heritage value however, it is acknowledged that aspects of the community to place value in the current degree of open space adjacent to the road corridor and specifically the mature vegetation found in these areas. The Council's current policies regarding tree retention and replacement (see Section 3 above) reflects the value that is placed in this type of vegetation.

6.2.3 Mana Whenua Values

The historical context provided above recognises the high-level associative values that Mana Whenua have with Te Kirikiri | Frankton. The Mana Whenua Cultural Design Integration Framework that is being prepared for the Project will establish all cultural design values, concepts, elements and outcomes to be achieved.

Kā Huanui a Tāhuna

Integral to the formation of the Kā Huanui a Tāhuna Alliance and commencement of the NZUP project was gifting of the Alliance name by mana whenua. With that gifting came a suite of values that have been embedded in the co-design process that underpins the proposed urban design outcomes.

The overarching values for Kā Huanui a Tāhuna projects include:

- **Ara tāwhito** (*traditional trails and networks forged over time*) are recognised as the precursor to contemporary arterial and active travel networks;
- **Ahikāroa** (*ancestral connection and identity*) is elevated in all aspects of the project development for the arterial and active travel networks, consistent with region-wide civic and infrastructural development;
- **Mahika kai** (*natural resources gathering and harvesting, species, practices and places*) is fundamental to mana whenua enduring associations with place. It offers a benchmark for monitoring effects and positive influences of development approaches on the environment;
- **Pukumahi** (*industriousness, resilience, perseverance, expertise*) is prioritised as an exemplary attribute in both ancestral resource production and contemporary development contexts;
- **Oraka tonutaka** (*refuge, rest, recuperation and revitalisation*) is a critical counterpart to the various modes of movement across the Whakatipu landscape, ensuring health and vitality for all.
- **Manaakitaka** (*support, take care of, give hospitality to, protect, look out for*) is the deliberate channelling of a deep respect, generosity and care for others in all interactions. This is closely aligned with Whanaukataka and the growth of robust and enduring relationships that reflect partnership in action.

NZUP

In relation to the NZUP project Mana Whenua identified specific kaupapa to consider and apply during design development:

- **Utu** (management and maintenance of balance and harmony in relationships)

  Utu is closely linked to 'mana' and includes both reciprocation of kind deeds, as well as retribution for wrong-doing. Utu is a form of social obligation that may be incurred by an individual or group but, if unresolved, is borne by their kin until balance is resolved. Traditionally, utu could be meted out in many varied ways that may differ from the original act. It is often iterative, in which case, utu tended to escalate and intensify from exchange to exchange.

- **Whakatipu** (to cause to grow, rear, cherish, bring up, raise)

  Whakatipu as applied here is the notion of environmentally-linked growth and development. In a traditional sense, it is associated with sustainable management and maintenance of natural resources and their productive transformation. This notion of positive, sustainable growth and development is fundamental to the viable production, economic continuity and socio-political wellbeing of a people.

- **Tōtōā** (wasteful; careless; lavish; irresponsible; disrespectful – refers to potential for exploitation and extinction)

  The full effects of development are sometimes slow and indiscernible but may be cumulative over time with wide-reaching negative impacts across society. Tōtōā is 'wastefulness' and is included here for reflexive purpose. It is the converse of Whakatipu and is a portent of the potential for exploitation of resources towards depletion and extinction. It challenges us to learn from hara, mistakes of the past that have impacted everyday existence and led to irreversible change. The archaeological site of a local moa butchery is an example of poor resource management and exploitation resulting in species extinction. This reminds us to be watchful and proactively rebalance the deleterious effects of commonplace practices, actions and behaviours. Climate change is an instance of tōtōā that is currently challenging societies across the globe. The depletion of biodiversity and natural ecosystems through the displacement of natural habitats is another. The future fallout of poorly monitored and controlled economic growth and development is to be anticipated and avoided.

- **Mana o Te Taiao**

  Mana o te Taiao places the wellbeing of the environment at the centre of all we do. It is also the name of the recent Central Government-led Biodiversity Strategy (2020) and Implementation Plan (2022). Development of an ecosystems services landscape strategy, with community wellbeing (cultural ecosystems services) as an integral part of a well devised blue-green infrastructure matrix is an aspiration of mana whenua and lays a foundation for future urban development in the region.

6.3 Perceptual

"The landscape setting and the backdrop of the mountain ranges is a fundamental component of the character of the area, including creating a unique arrival experience for those entering the area."[9]

The combination of mountain range backdrop and notable water bodies (e.g. Whakatipu Waimaori, Lake Hayes | Te Whaka-ata a Haki-te-kura and the Kawarau and Kimiākau | Shotover Rivers provide for high geographic and perceptual legibility (i.e. wayfinding) in the wider landscape. The Remarkables | Kawarau, Peninsula Hill and wider Queenstown Hill | Te Tapu-nui provide the backdrop to Te Kirikiri | Frankton with distant views to Cecil Peak and Walter Peak available to the east on approach to the SH6/6A roundabout. While views of Whakatipu Waimaori are screened by the commercial and residential development to the west of SH6, glimpses to the upper reaches of the lake do exist from the road corridor and golf course.

The location of the SH6 road corridor on the western edge of the Te Kirikiri | Frankton alluvial plain reinforces the underlying geomorphology of the area and creates a sense of cohesion between human and natural patterns in the local landscape.

The Te Kirikiri | Frankton roundabout is a well-known marker in the wider Whakatipu | Queenstown landscape, being the gateway to the Tāhuna | Queenstown CBD for travellers from the north (i.e. Wanaka, North Otago and Canterbury), east (i.e. North Otago) and south (i.e. central and southern Otago and Southland). The area surrounding the proposal site is also a key point for the arrival and departure of people flying in and out of Queenstown Airport. In this context 'all roads lead to Frankton' and for this reason the area plays a key role in the wayfinding experience for a large part of the resident and visitor population, especially for vehicular modes of transport. As discussed above, these 'movement corridor' characteristics tie back to historical associations with Te Kirikiri | Frankton and for Mana Whenua in particular – Ara Tawhito.

Despite the level of development that has occurred adjacent to the SH6/6A roundabout the scale of the wider landscape and prominence of the features described above instils a high level of naturalness and creates a sense of openness when travelling through the local landscape. The open space on both sides of the SH6 road corridor reinforce this sense of openness, especially on approach to the roundabout and adjacent to the proposal site and the established vegetation on both sides of the SH6 on approach to the roundabout enhances naturalness and predominance of the wider 'large scale' landscape and natural features over the infrastructure and built form.[10]

[9] Section 2.5 Historic and Cultural Context. Te Kirikiri | Frankton Masterplan (2020). https://www.qldc.govt.nz/media/33wkqu1f/5a-8-oct-2020-att-a-frankton-masterplan.pdf

[10] This especially the case for northbound vehicles and pedestrians heading towards the roundabout on SH6. The sense of naturalness is less for southbound travellers on SH6 from the east and even less so for people travelling out of Queenstown (CBD & township) on SH6A.

Figure 14 – view from SH6 | Kawarau Road looking towards SH6/6A roundabout (Viewpoint location D)

Figure 15 – view from SH6 looking west towards SH6/6A roundabout (Viewpoint location E)

Figure 16 – view from SH6A looking east towards SH6/6A roundabout (Viewpoint location F)

Openness aside, the experience of moving through proposal site is not always a positive one with the SH6/6A roundabout synonymous with congestion and regular traffic delays, especially during peak travel time and peak tourist season. The relationship between adjacent land uses and road layout creates a degree confusion for travellers and tension between vehicles and other transport modes, especially cyclists and pedestrians.

6.3.1 Visual Catchment

Given the extent of the alteration to designation (particularly permanent land acquisition) the proposal has a small visual catchment that is limited to the existing road corridor, adjoining open space and mix of commercial/ retail land. There are also views from the residential properties to the west, although they are obscured by existing fences and established vegetation.

Refer Figure 9 for viewpoint location plan.

6.4 Landscape Character and Values

The *character* of the existing local landscape, including the proposal site and approaches to SH6/6A roundabout, is defined by the physical attributes associated with the road corridor, adjacent commercial/ retail development, and open space. All three elements/ factors exist together within the wider, highly natural backdrop of mountain ranges and Whakatipu Waimāori and the balance and/or prominence between all three varies as one moves through the landscape. This 'shift' in balance is typical of transport corridors set within existing urban environments and especially along the state highway network when travellers pass from an undeveloped/natural/ rural setting to more developed/ urban fringe land and into town and city centres. Te Kirikiri | Frankton exhibits a character that is consistent with small town centre/ urban fringe land as described above.

The underlying *values* of the local landscape are typified by the current and historic associations with both movement and settlement. Te Kirikiri | Frankton's identity as a key 'confluence for movement' throughout the wider Whakatipu and Te Waipounamu landscape is long held and clearly reflected in the characteristics describe previously. Any future development needs to

respond to this underlying value and pay particular attention to the 'balance' referenced above and the maintenance and enhancement of the experience of moving through the township whilst continuing to connect with the wider, highly natural landscape. Specific features within the existing landscape that exhibit notable value include:

- Public open space and the sense of openness and connection to the wider landscape it affords.
- Mature trees located with open space areas (e.g. Frankton Golf Centre)
- Frankton Cemetery and historic stacked schist drywall.

6.5 Potential Future Environment

In addition to the features, character and values associated with the existing environment it is also relevant to acknowledge that the project wide area will undergo further development with changes in land use from residential to commercial and rural to mixed use residential over the next 30 years.

The Frankton Masterplan (2019) was commissioned to present an integrated programme of land use, environmental, amenity, cultural and transport projects designed to ensure that Frankton can continue to provide its function as a transport network, while enhancing the visitor experience and residents' quality of life. The masterplan also promotes converting the Frankton-Ladies Mile Highway to a 'high amenity urban arterial'. Given the current function of the road as a regionally important State Highway carrying up to 30,000 vehicles per day, this is likely to create conflicts between movement and place that will need to be carefully managed through design.

Figure 10 shows an outline of the Masterplan. Of particular note to the SH6 Frankton-Ladies Mile Highway corridor, is the business mixed use and high-density land use projected for the north side of SH6. This intended land use change is reflected in the zoning contained within the Proposed District Plan, where there is a change in the zoning of the land to the north of the SH6/6A roundabout (i.e. including Terrace Junction and land to the east of the Frankton Cemetery) from Commercial/ Retail and Rural to Local Shopping Centre and Business Mixed Use.

These zone changes will see a shift in the nature of development on this land and the character of the local landscape (i.e. the proposal site) will change as a result. With this change comes the need to provide safe access onto SH6, and a key focus of the wider NZUP project is to achieve improve access to and around this area.

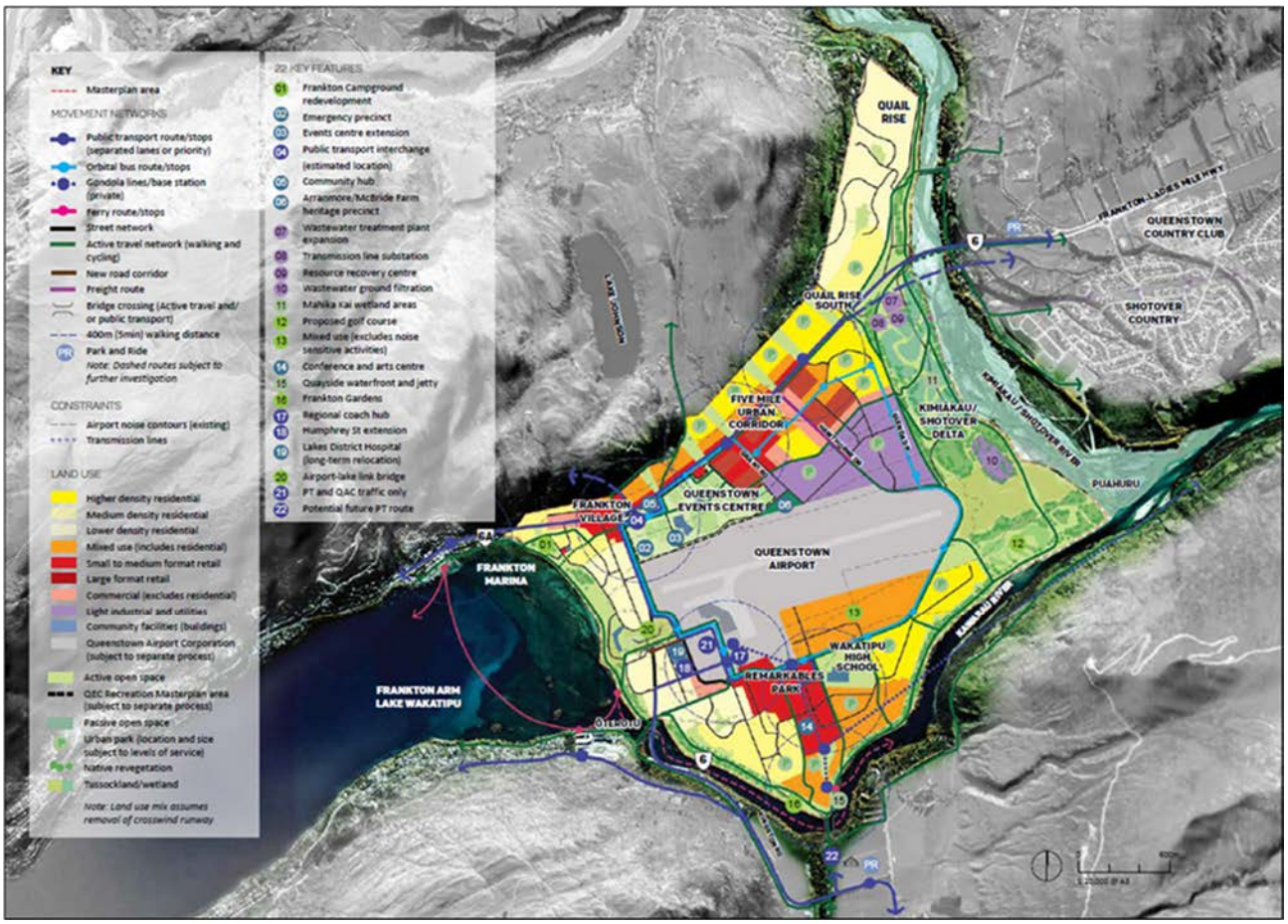


Figure 17: Frankton Masterplan

The existing recreational land uses are anticipated to remain; however, it is expected they may be developed to support the expanding urbanised area. Additional passive recreation uses such as walking, cycling along the local paths/greenways and along future stream esplanades are also proposed within the master plan.

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7 URBAN DESIGN EVALUATION

The following table provides an evaluation of the proposal against the Principles and Objectives outlined in Section 1.1.

Table 1: Urban Design Evaluation Summary

Principle	Explanation	Evaluation commentary
ENVIRONMENT		
Design for the context	The project establishes a strong sense of place and is a good 'fit' in its urban context, through consideration of design values, narrative, specific design elements and maintenance and enhancement of amenity.	• The bus hub upgrade preliminary design uses an existing corridor and demonstrates a close and connected alignment to the existing landform, generally balancing earthworks while minimising unnecessary disturbance and materials. • The upgraded corridor demonstrates an efficient alignment relative to existing property boundaries along the corridor, minimising land impacts and inefficient residual land portions.
Design with nature	Demonstrate consideration of the underlying natural environment and eco-systems and how this directly informs the design. Promote blue-green infrastructure with the enhancement of indigenous vegetation within existing vegetation patterns and new infrastructural project development.	• The upgrade prioritises indigenous planting appropriate to the ecological district where new or replacement planting is to occur (e.g., road verges, swales and street trees). • The integration of native planting with existing exotic vegetation has also been considered to re-establish local biodiversity.
Mitigate climate change / conscience	Design for predicted future regional climatic impacts in the corridor location. Consider the positive contribution that the corridor functions can make to the local climatic environment of future places and streets. Address long term planning in regard to climate change such as sustainable management of resources and development and adoption of renewable energy.	• The upgrade provides for active modes and public transport options to support modal shift and reduce climate change impacts. • The upgrade provides consideration of future flood levels where relevant. • The design responds to the microclimatic conditions and characteristics of the area and accommodates amenity measures such as space for shade, trees, wind protection, orientation of connections.
SOCIAL		
Create a positive road user experience	Provide a transport corridor that allows the user to experience the local landscape setting and sense of place in a legible and safe way.	• The cross section (**Error! Reference source not found.**) demonstrates how the proposal can provide support for active edges, permeable access for pedestrians and vegetation appropriately scaled to built form.

Principle	Explanation	Evaluation commentary
		• The bus hub upgrade can deliver a greater level of safety, access and movement to future local communities, and promote a sense of personal safety, particularly for pedestrians and cyclists. • Active travel solutions (walking and cycling) are proposed as fully segregated and prioritised with signalised intersections.
Respect cultural heritage values	Design does not negatively affect heritage features that are important to the wider community and mana whenua. This can include specific buildings, structures, sites and natural features, as well as the associations (i.e., narratives and meaning) that people have with them.	• There are no sites of significance to mana whenua that have been identified along or in the proximity to the Frankton Bus Hub Upgrade.
Opportunities for collaborative design process, in the spirit of Te Tiriti o Waitangi partnership	Adopt best practice collaborative design principles and methodologies to obtain culturally inclusive design outcomes.	• Consideration of tikaka Māori in all aspects of the design process. • Integration of best practice dual language use for Te reo Māori words and names, particular to the Kāi Tahu dialect where possible.
BUILT FORM		
Contribute to good urban form	The project recognises the function that the road network has as a key 'building block' for both existing and future urban form. The design pays particular attention to the physical and experiential quality of the road corridor and key interfaces.	• The Frankton Bus Hub Upgrade provides a safe and connected focal point given the increased demand on public transport routes within the region. • The upgrade scale and configuration also provides an appropriate response to the current and potential needs of the transportation network, for example through efficient localised movement. • The bus hub upgrade cross section demonstrates consideration towards place as well as movement function with clear allocation of street space, for example separated pedestrian and cycle facilities and potential road median spaces that provide safe waiting zones for pedestrians. In the absence of medians, consider signalised or legal crossings, spaced appropriately for the adjacent land-uses and pedestrian desire routes involved.

Principle	Explanation	Evaluation commentary
		• The corridor cross section also demonstrates connectivity at a fine grain (pedestrian level), for example direct pedestrian access to and from Frankton shopping centre and Terrace Junction shops and adjacent residential dwellings is accommodated and encouraged by placing pedestrian circulation closest to the corridor boundary.
Achieve a low maintenance design	Adopt best practice design principles and methodologies. Use appropriate landscape and planting material.	• Materials used to construct the Bus Hub Upgrade are robust, durable, fit for purpose and appropriate for the context. • Plant species selected to be long-lived, hardy with good weed suppression capability.
MOVEMENT		
Integrate all modes of movement	Allow for and accommodate good walking, cycling and micro-mobility outcomes that promote additional transport choices to and around the project area, including prioritisation of walking and cycling and quality of user experience.	• The Bus Hub Upgrade provides simple but complete connectivity for all modes (walking, cycling, public transport, and private vehicle). • The cross sections accommodate high-quality active travel facilities, for example separated pedestrian and cycle pathways.
Maintain local connectivity	Key physical linkages across and within the road corridor(s) are recognised and maintained, including a specific focus on the opportunity to enhance existing connections and establish new ones. Identify and recognise experiential / perceptual linkages to the road corridor, project area and wider landscape.	The Bus Hub Upgrade is located along a strategic corridor, providing a key link through the centre of Frankton. The hub provides regional connectivity to communities located further west, south and east, such as Queenstown, Cromwell, Jacks Point, Kelvin Heights. • The Bus Hub Upgrade provides tangible and direct connectivity between complementary local destinations, such as the Frankton Shopping Centre on SH6A and the low-density residential area adjacent to the proposed bus hub on Kawarau Road (SH6).
LAND USE		
Integrate transport and land-use	The design facilitates and enhances where possible existing land uses while providing a catalyst for new activities to occur in the future to support the vibrancy, character and economic vitality of the area.	• The Frankton Bus Hub Upgrade can accommodate future public transport connections • The design considers the Te Kirikiri /Frankton Masterplan and other relevant documents that provide guidance on future land use development. • The potential negative impacts on the function/ operation of adjoining land uses are avoided

Principle	Explanation	Evaluation commentary
		and existing levels of liveability and amenity are maintained through noise and visual mitigation. • Support for economic outcomes is achieved through efficient city and regional movement.

8 LANDSCAPE EFFECTS

8.1 Landscape Effects

8.1.1 Adverse Effects

8.1.1.1 Physical

The widening of the road corridor to provide for intersection and carriageway reconfiguration and expansion of the existing bus hub facilities will generate physical change in the landscape. However, aside from associated tree removals the resulting adverse physical effects will be low in degree owing to the relatively flat topography and lack of distinguishing physical features within the proposal site.

The removal of 92 trees from the area (including 50 that are healthy and have a life expectancy of >10 years) will result in a **high degree of physical effect** in the short term to medium term and while this degree of effect will diminish over time (due to replacement trees maturing and achieve comparable canopy closure) interim effects will be significant. There will be positive effects resulting from additional planting within the road corridor and adjacent to the bus hub/ shared path, however it will largely consist of lower growing native species and will not mitigate the loss of large, well-established trees to any real degree, owing to the difference in physical character and 'presence' of proposed vegetation vs that being removed.

8.1.1.2 Perceptual

Tree removal and occupation of existing open space/ recreation land will result in a shift in balance between 'natural' and built elements (i.e. loss of trees and grassed golf center land) and the reduction in openness resulting from the increased road corridor foot print. The impact on the functionality of the golf center/ course (reducing from 9 holes to 8) is also a factor in considering perceptual impacts of the proposal. These effects will be experienced most by residents, locals and regular visitors to Te Kirikiri | Frankton that have sufficient familiarity with the location to appreciate the changes the proposal will bring.

Temporary construction works located in proximity to the golf course and the Frankton shops, including construction traffic and laydown/ storage areas, will impact on residential and open space amenity. Typically, construction works negatively impact on amenity due to the increase in construction traffic and the disruption to street network/ movement and increased noise and presence of heavy vehicles that result. In this case the areas sought for the construction works are small and the duration of works will be over a 18-24 month period, resulting in a low degree of effect on the perceptual landscape.

Visual effects will occur where the proposed noise barrier and/or bus shelter structures[11] project above existing residential fence lines and taken with the removal of vegetation in open space land

[11] Depending on which noise mitigation scenario ends up being selected i.e. continuous 2m high noise wall located adjacent to the existing residential boundary or noise barriers integrated into or immediately adjacent to the proposed bus shelters.

to the west of SH6 the overall balance in the landscape will shift towards 'built'. These effects will vary from property to property based on outlook and overall visual effects will be low.

Overall adverse perceptual effects will be moderate-high

8.1.2 Positive effects

8.1.2.1 Perceptual

The proposal will enhance the quality of the road corridor and overall user experience. Upgrading the likes of footpaths and areas surrounding the bus hub will improve the overall 'look and feel' of the corridor. The new bus hub and improved pedestrian and cycling facilities will significantly improve wayfinding and experiences for all transport modes especially bus users, pedestrians and cyclists where there are currently no established facilities and a low-quality existing environment.

The degree of positive perceptual/ experiential effects resulting from these changes will be high.

8.1.2.2 Associative

The proposal will result in a positive expression of Mana Whenua connection to place (sense of place) with the cultural values identified under the CEDF being expressed through physical elements such as planting, tohu whenua (markers) and noise barrier design. The design process described in the methodology section of this report is also a positive expression of partnership and that is considered to a positive effect as it relates to cultural concepts such as ahikāroa.

The enhancement of user experience and recognition of heritage values of Frankton Cemetery is also a positive associative effect of the proposal. The introduction of a dedicated parking area with associated planting and more formalised entry will improved the appearance and sense of arrival to the cemetery. This will provide more opportunity for the listed heritage wall to be experienced and appreciated by visitors and passersby.

The degree of positive perceptual/ experiential effects resulting from these changes will be high and the **overall positive effects of the proposal will be high** also.

8.1.3 Summary of Effects

On balance the degree of effect on the local landscape will be **moderate** with the primary adverse effect stemming from the removal of existing mature vegetation and the loss open space land as the result of road corridor widening.

As described above, there are both adverse and positive effects associated with the proposal and although there will be a notable increase in the scale and prominence of the road corridor in the local landscape the 'balance' that underpins the existing landscape values will not be significantly affected in the long term.

There will be a marked improvement in relation to user experience and for all modes of transport, including enhanced pedestrian, cycle and public transport users. Wayfinding within the proposal site will be improved and associative values will be enhanced through specific design measures like the Frankton Cemetery entrance/ car park and the introduction of cultural design elements within the corridor as overt expressions of Mana Whenua values and sense of place.

9 CONCLUSION

The focus of this report is to evaluate the proposed alteration to designation that provides for the proposed infrastructure upgrades within Stages 2 & 3 of Waka Kotahi's Queenstown NZ Upgrade Programme, including the existing SH6/6A intersection roundabout within Te Kirikiri | Frankton township.

The proposal is to expand the existing state highway designation on both sides of SH6 to allow for reconfiguration of the existing intersection and carriageway, including new public transport and shared cycle and pedestrian paths, and new bus hub facilities located on existing open space/ recreation land.

Urban and landscape design input has been central to the development of the project to date and the on-going resolution of project outcomes are subject to a range of urban and landscape design values, principals, objectives and criteria established under the Mana Whenua Cultural Design Integration Framework and Landscape Management Plan required by Waka Kotahi.[12] The proposed conditions require the outcomes sought in these documents to be demonstrated in future design stages and as part of outline development plan process.

Urban design outcomes are consistent with the principals and objectives that have been established for the project and satisfy the relevant objectives and policies set out in the Proposed District Plan. Despite the proposed increase in footprint the proposal is consistent with the character and function of the existing road corridor. It will significantly improve the safety and efficiency of transport modes through Te Kirikiri | Frankton and is compatible with current and future adjoining land uses.

Landscape effects will be low-moderate in degree with the primary adverse effect stemming from the removal of existing mature vegetation and the loss open space land as the result of road corridor widening. These physical changes will not compromise existing landscape character to any significant degree and the overall enhancements to the road user experience and connections to place (i.e. associative values) via new safe and efficient shared paths and public transport facilities and cultural representation (features) represent significant improvements to the existing urban landscape.

[12] Under the project Urban Design and Landscape Minimum Requirements.

APPENDIX A:
TE TANGI A TE MANU 4.29

Typical factors

4.29 The following illustrates typical factors often considered under the three dimensions.

Physical (natural and human):

- Geology and geomorphology.
- Topography and hydrology (including drainage patterns).
- Climate and weather patterns.[57]
- Soil patterns.
- Vegetation patterns.
- Ecological (flora and fauna) and dynamic components.
- Settlements and occupation.
- Roads and circulation.
- Land use – cadastral pattern.
- Buildings.
- Archaeology and heritage features.
- Tāngata whenua features.

Associative

- Tāngata whenua creation and origin traditions manifest in landscape features.[58]
- Tāngata whenua associations and experience – (historic, contemporary, and future)[59] including pūrākau, whakapapa, tikanga, and mātauranga.
- Tāngata whenua metaphysical aspects such as wairua and mauri.
- Legal personification of landscape features.
- Shared and recognised values of a landscape derived from community life including the community's livelihood, its history and reason for being in that place, places of social life and gathering, places associated with metaphysical meanings such as retreat, contemplation, and commemoration.
- Landscape values associated with identity such as attributes that are emblematic for an area, places that are central to a community (main street, wharf, park), features that are anthropomorphised. Landscapes that are engaged through activities such traditional food and resource gathering, recreational use, food and wine that reflect a locale, tourism based on landscape experience or appreciation of a landscape's qualities.

Perceptual

- Geomorphic legibility (how obviously a landscape expresses the geomorphic processes).
- Wayfinding and mental maps (legibility or visual clarity of landmarks, routes, nodes, edges, and areas of different character).
- Memorability.
- Coherence (the extent to which patterns reinforce each other, coherence between human patterns and underlying natural landscape).
- Aesthetic qualities.
- Naturalness.
- Views.

[57] Factors are intertwined. For example, high rainfall on the West Coast results in lush vegetation and very active erosion compared to the dry regimes east of the Southern Alps. Much of the topography of the Southern Alps is influenced by glaciation which is also strongly influenced by climate. Characteristic weather patterns are also part of a landscape's character, such as the Waikato's river mists, Hauturu-o-Toi's cloud puff, Canterbury's Nor-west arch, and Greymouth's 'The Barber' wind.

[58] Such traditions often explain the appearance of features, whakapapa connections between them and between features and tangata whenua, and patterns of occupation and use. Creation and origin traditions are associated with many landscape features – particularly notable examples include Aoraki, Mauao, Taranaki maunga, and Te Mata-o-Rongokako.

[59] Tāngata whenua have a holistic relationship with landscape in all its dimensions. The highlighting of certain factors in this list is not to be interpreted as restricting tāngata whenua landscape values to such factors. See paragraph 4.15.

APPENDIX B:
TE TANGI A TE MANU 4.47

4.47 The following list[72] illustrates typical factors (amongst many others) that contribute to urban landscape character: [73]

- **Context** or setting of the urban area and its relationship to the wider landscape.
- **Topography** and response of urban form to topography.
- **Grain** of the built form and its relationship to historic patterns.
- Layout and scale of **built form**, **density** of development and **building types**, including **architectural characteristics**, period, and materials.
- Patterns of **activities** (land use) past and present.
- Contribution of **natural features** such as coastlines, rivers, watercourses, maunga, hills and high points, harbours.
- Nature and location of **vegetation**, including the different types of green space and tree cover and their relationships to buildings and streets and topography.
- Types of **open space** and character and qualities of the public realm [public domain].
- Access and **connectivity**, including streets [street networks and patterns, pedestrian circulation].
- Places and values of significance to **tāngata whenua**, such as whakapapa, kōrero tuku iho, and mana, and the observable mauri of a place.
- **Sense of place** including historical associations, identity.

4.48 Many of the detail factors for urban landscapes fall under 'urban design'. Urban design is sometimes conceived of as a specialist area of practice and sometimes as the overlap between different disciplines (architecture, landscape, planning). Landscape assessors working in urban environments should be knowledgeable and informed on matters relating to such environments – as for all other landscape types. But do not be overly concerned with distinctions between landscape and urban design. The urban environment does not belong to a profession. The point is to assist decision makers (and others) within your expertise on matters relating to the urban landscape. It is the environment that is the focus – not the profession.[74]

Coastal environment landscapes

4.49 The coastal environment has special relevance because it has its own national policy statement, the 'New Zealand Coastal Policy Statement' (**NZCPS**). It is relevant to the requirement to protect the natural character of the coastal environment which is covered under Chapter 9 (Natural Character). This section addresses **landscapes** within the coastal environment.

4.50 The coastal environment includes both land and sea. It is described in Policy 1 of the NZCPS as (amongst other things) *"areas where coastal processes, influences or qualities are significant…"* and as including the "*coastal marine area*" which comprises the extent of territorial waters (generally 12 nautical miles from the mainland or islands). Landscapes in the coastal

[72] Adapted and expanded from 'townscape' factors listed in the UK Guidelines for Landscape and Visual Impact Assessment (**GLVIA**), the Landscape Institute and the Institute of Environmental Management and Assessment, Third Edition, section 5.5 Townscape Character Assessment

[73] It has been observed that the list in the following paragraph could also be applied to rural landscapes which reinforces the point that different types of landscape fall within the same physical, associative, and perceptual framework.

[74] For instance, it was reported in feedback that landscape architects and urban designers often arrive at different findings with respect to visual effects. Some of this was explained in terms of different spatial perspectives – urban designers tending to focus on an immediate context and landscape architects on a wider context. However, visual effects are agnostic as to discipline.

APPENDIX C:
QLDC TREE POLICY

TREE POLICY

Introduction

Trees are a vital part of our district's sustainable health and wellbeing. They provide wildlife habitat, carbon sequestration, shade, and are part of our identity as an active outdoor adventure district with outstanding natural landscape values. Trees can be significant landmarks, providing an immediate impression to visitors and generate ongoing associations for residents. Stunning natural scenery is a hallmark of the Queenstown Lakes and trees are an integral part of the picture. A healthy, abundant, and well-maintained treed landscape reflects a caring community.

Queenstown Lakes District Council (QLDC) provides a leadership role in the management of trees to maximise their social, cultural, environmental, and economic benefits for current and future generations. All landowners are encouraged to contribute to urban greening on their own land.

This Policy is aligned with other QLDC strategies including the QLDC Climate Action Plan, QLDC Vision Beyond 2050 and the requirements to maintain membership as a Tree City of the World.

Purpose

QLDC's Tree Policy provides guidance on planting, maintenance, working around trees, and removals on Council land. It aims to help manage trees to meet community aspirations, service requests, and provide clear direction for decision making while maintaining consistency in the approaches taken by QLDC and our consultants and contractors.

Policy statement

The principal objective of this policy is to provide consistency and clarity in decision making when planting, maintaining, working around, and replacing trees on Council land.

Objectives:

- Appropriate tree planting in appropriate locations
- Sustainable, high quality tree environment and spaces
- Acceptable maintenance practices
- Acceptable tree protection during construction or earthworks
- Appropriate public safety risk management
- Effective use of public funds
- Clear framework for tree removal decision making and sustainable mitigation

Policy scope

Policies apply to individual trees and groups of trees on Council administered reserves, civic open spaces and other Council-owned property (including QLDC owned land which is licensed and leased to third parties, such as campgrounds) and the road reserve (including unformed roads).

The following activities are included in this policy:

1.0 Planting

2.0 Maintenance

3.0 Protection during construction or earthworks

4.0 Removal and mitigation

This policy *does not* include trees located in the following areas:

On private land not owned or leased by QLDC (For example: refer to the District Plan, covenants)

On state highway land (Refer to Waka Kotahi)

Public land not owned or leased by QLDC (For example: refer to Department of Conservation, Land Information New Zealand)

Other areas which are *not* included in this policy:

Native revegetation or regeneration (For example: refer to Whakatipu Reforestation Trust)

Noxious and pest plant species (For example: refer to Otago Regional Council Pest Management Plan)

Plantation forestry (Refer to the District Plan)

Process

Enquiries regarding public trees are dealt with by Parks Officers, including the Council Arborist. This may include consultation with neighbours or community associations. When a resolution does not satisfy all parties, depending on the significance, the Parks Manager will make a decision or escalate to the Parks Community & Services Committee or the Wanaka Community Board for a decision.

Note: 'Significance' is determined by factors such as the long term life expectancy, amenity, and number of trees identified.

1.0 Tree planting

Tree planting

Tree planting is necessary to ensure long term sustainable benefits. Appropriate tree planting supports biodiversity, climate regulation, and living well by providing habitat, shade, storm water regulation, flood mitigation, amenity, and by improving walkability and human health. The greatest benefits are derived from mature trees.

However, trees can also damage infrastructure, block drains, and adversely shade properties.

QLDC has a duty to optimise the quality of trees and manage their safety pragmatically while considering their long-term maintenance requirements. Optimum benefits will be achieved by careful species selection appropriate to the planting site.

Policy:

1.1

QLDC will seek planting opportunities to deliver ongoing social, cultural, economic, and environmental benefits and ensure iconic landscape features are always present.

1.2

QLDC will endeavour to plant appropriate tree species in appropriate places. Appropriateness is guided by the characteristics of the tree, in both juvenile and mature form and its ability to support biodiversity, landscape character, urban walkability, pedestrian and road user safety, climate resilience and community aspirations. This includes both native and exotic trees.

1.3

Succession planting will be undertaken to provide replacement trees ensuring a continuity of trees in advance of when mature trees require removal.

1.4

All projects on Council land, including QLDC-led projects, will prioritise retaining existing mature trees and the incorporation of new tree planting and planting sites from the outset of the design process. Projects must allow for sufficient rooting environment for new trees and meet the minimum requirements of QLDC's Land Development and Subdivision Code of Practice. This may include, but is not limited to:

- Aligning underground services to allow sufficient rooting environment for new trees
- Including centre islands or median strips wide enough for tree planting
- Optimising potential width of grass berms to allow for tree planting
- Varying carriageway alignment (E.g., intersection improvements)
- Using setbacks, especially in commercial zones

- Using New Zealand Standard SNZHB 44:2001 Subdivision for People and the Environment
- Mitigating adverse effects from large car parking areas, by using trees to screen cars and provide shade, whilst also maintaining a safe environment for car park users

1.5
Large tree species will be selected, both individual specimens and groves, where space permits. Planning and development must include spaces that can accommodate large species.

1.6
Quality stock will be selected for planting to support longevity and heritage value and incorporate eco-sourced nursery stock where possible. Choosing quality stock maximises the health and longevity of the planting, which reduces long-term maintenance costs.

1.7
For trees planted in the road reserve, the species selected will have sufficient space to grow into mature and healthy specimens, without causing significant damage to existing infrastructure, in place prior to the planting of the tree, or impacting the safety of pedestrians and road users. New development can incorporate engineered solutions to limit infrastructure damage.

Note: 'significant damage' can be found in the Definitions section of this document.

1.8
Trees will be planted under power lines only where the species selected is able to grow to maturity without requiring line clearance pruning, which can result in poor tree form or structure.

1.9
Developments are required to submit plans for approval to the Council as part of QLDC Land Development and Subdivision Code of Practice. As part of the consent process, a street tree planting plan detailing species, size, location, irrigation, and an outline of on–going maintenance regimes is required.

1.10
The cost of planting and establishing street and park trees within new subdivisions will be covered by the developer. All trees will have a minimum establishment maintenance period of 36 months. Planting must meet the maintenance standards required in the QLDC Land Development and Subdivision Code of Practice.

1.11
Any private individual seeking to plant a tree on Council land will require a Licence to Occupy from the Council. QLDC is entitled to remove unauthorised plantings and recover the costs of the removal process.

1.12
Council shall continue to partner with community groups which manage wilding control strategically, with an approach based on profile and vulnerability of landscapes. Vulnerable landscapes include sub-alpine tussock land and grey shrub land.

Note: Planting wilding exotic species, those with potential invasive growth, is prohibited for most species as identified in QLDC's District Plan Wilding Exotic Trees Chapter (Chapter 34 of the Proposed District Plan).

Note: For more information on tree planting refer to:

- *QLDC District Plan - Wilding Exotic Trees Chapter*
- *QLDC Land Development and Subdivision Code of Practice*
- *QLDC Subdivision Guidelines*
- *QLDC Subdivision Tree Planting Guide*
- *QLDC Trail Design Standards & Specifications*

Tree replacement

QLDC acknowledges that trees have a finite lifespan and may require removal for a number of different reasons. QLDC is committed to ensuring that a tree renewal programme is maintained to ensure the canopy cover is not only replaced, but appropriate character and stature are accommodated to maintain and enhance a quality treed landscape for future generations.

Policy:

1.13
A minimum of two new trees will be planted for every tree removed, with the projected canopy cover replacing what is lost within 20 years. This means more than two trees may be required. The species of trees is determined by the appropriateness to the location as per Policy 1.2.

The location of replacement trees will be based on the following, in order or priority:

Removals within road reserves:
(1) In the same road corridor where the tree was removed; or
(2) If no further planting can be practically located in the road corridor, then in the closest road corridor that requires either new or additional planting; or
(3) Within the urban forest.

Removals on land owned or administered by QLDC):
(1) In the same reserve where the tree was removed; or
(2) If no further planting in the reserve is required, then in the closest road corridor or reserve that requires either new or additional planting; or
(3) Within the urban forest.

Note: 'Urban forest' can be found in the Definitions section of this document.

Community tree planting

QLDC supports community care and ongoing stewardship of public open spaces. Community planting is one way residents can become directly involved with the care of their local reserve and

neighbourhood. Community-initiated tree planting requires prior approval from the asset owner of the land (i.e. the specific Council department). Information to be provided for approval should include the proposed site, planting locations, species, the perspective of surrounding neighbours, effects on land uses such as tracks and infrastructure, and ongoing maintenance arrangements.

Policy:

1.14
QLDC encourages community involvement and will endeavour to support and enhance community planting and engagement opportunities.

Note: Community Harvest Gardens and orchards are subject to management agreements with QLDC.

Commemorative trees

Commemorative tree planting is generally undertaken to honour a significant person or event. The tree species and location need to be relevant to the commemoration and contribute to the amenity of the surrounding environment. Once planted, commemorative trees become a public tree asset and are mapped as commemorative trees. Commemorative trees do not apply to cemetery reserves.

Removals may be necessary. It is worth considering alternatives to commemorative trees, such as:

- Plant a commemorative tree on private land
- Participate in a community planting day
- Donate to QLDC's tree planting programme, the Heritage Trust, or a local community planting group.

Policy:

1.15
Requests for commemorative tree planting in public open space will be considered. Applications will be considered according to the commemorative purpose, site, and tree species. Decisions will be made by the relevant committee or board.

1.16
While QLDC will make every effort to retain a commemorative tree, we reserve the right to remove commemorative trees in line with our removals policies. The tree replacement policy applies, however the replacement trees will not be commemorative trees.

Note: For more information on memorials refer to:

- *QLDC Plaques, Memorials & Monuments Policy*
- *QLDC Cemeteries Handbook*

2.0 Maintenance

Tree maintenance

QLDC will care for and maintain public tree assets to maximise their benefits while minimising conflicts and disruptions.

Policy:

2.1
QLDC will maintain tree canopy clearances over footpaths, cycle ways, tracks and trails, carriageways, vehicle crossings, and on-street car parks where it is practical to do so. In instances when pruning is likely to cause long or short-term detriment to the tree, Council will prune the tree to the extent required for the interest of public safety.

2.2
Trees which compromise and/or conflict with shipping navigation aids or radio and telecommunications operations shall be pruned and/or removed as deemed necessary to maintain safety and essential services.

2.3
Trees on urban connector routes and roads shall be pruned or replaced to provide adequate visibility where they impede or obstruct access for pedestrian, active travel and vehicular traffic.

2.4
QLDC will prune trees to provide necessary clearances to above-ground infrastructure such as power lines and other overhead services. Where pruning is likely to cause long term detriment to the tree's health and structure, we will engage with the network owner to explore alternative options to pruning, such as the bundling of wires.

2.5
QLDC will prune trees obstructing street and reserve lights to limit any reduction in light penetration.

2.6
Where appropriate, trees will be pruned to improve public safety. This may include but is not limited to pruning to improve sightlines or pruning for crime prevention purposes.

2.7
All pruning shall be undertaken by, or under the supervision of, a works arborist employed or contracted by QLDC or a network utility operator. Where Council property leaseholders have agreements to maintain their trees, they must use a qualified arborist.

Note: 'Works arborist' and 'Qualified arborist' can be found in the Definitions section of this document.

2.8
Tree work shall be carried out in alignment with the minimum recognised and accepted contemporary arboricultural standards according to NZARB (New Zealand Arboricultural Association).

2.9
All pruning methods will use Minimum Industry Standards (MIS 308).

2.10
QLDC will not undertake full height reduction pruning to alleviate tree issues such as shading or debris, or the establishment, retention or enhancement of views (trees shall not be topped). Maintaining trees in their natural form is best for tree health. Topping can create additional maintenance issues, e.g., by creating an entry point for decay. Topping is internationally recognised as unsound arboricultural practice.

2.11
QLDC may consider other forms of pruning, branch removal or targeted canopy reductions to alleviate boundary encroachment, views, adverse shading or debris at the request of an individual. Provided, in a Council arborist's opinion, this will not negatively affect the health or structural integrity of the tree or the environmental, aesthetic, landscape or amenity benefits provided by the tree.

2.12
Where a tree pruning request has been approved by a Council arborist, and the benefits of the pruning are considered to be solely beneficial to the property owner(s), Council reserves the right to request the resident(s) meet(s) the financial costs of pruning. We will provide the expected costs for the works for approval prior to any works being undertaken.

Tree risk

QLDC acknowledges the risk posed to people and property through failure of a whole tree or individual branches. While the risk posed by trees is inherently low, we will use reasonable endeavours to ensure that tree risk is managed in a proportionate and practical way.

Policy:

2.13
QLDC will maintain our trees to promote structurally sound growth and reduce branch and whole tree failure where it is likely to increase risk to people and property to an unacceptable risk.

2.14
QLDC has developed and adheres to a Tree Risk Management Procedure to manage the risk posed by trees in a proportionate and practical way.

This will include the following:

- How to identify high risk trees
- Details of different types of assessments
- Frequency of assessments
- How these trees will be managed
- Process for escalating tree risk once identified.

Note: More information can be found in QLDC's Tree Risk Management Procedure

2.15
QLDC will improve and maintain a publicly available database of tree assets.

2.16
The management of risk posed by trees shall be prioritised over the amenity or historical value provided by the tree. The management of risk should include tree pruning and/or adapting the area surrounding the tree. Removal should only be considered as a last resort.

Note: 'Unacceptable risk' can be found in the Definitions section of this document.

Ecological and heritage improvements

Trees make a significant contribution to the ecological environment within the Queenstown Lakes. Many organisms would not be able to survive without the services trees provide, whether it be habitat or food source. QLDC acknowledges the important role trees play in the natural environment and will strive to manage trees in a way that will foster and enhance the environment for indigenous flora and fauna.

Trees worthy of protection under QLDC's District Plan provide significant contribution to social and cultural heritage. These trees are landmarks in time and setting that provide intergenerational connection.

Policy:

2.17
Council will encourage opportunities to provide habitat for indigenous flora and fauna.

2.18
Council will support the ecological benefits provided by trees through our tree maintenance programme.

2.19
Council will customise maintenance for Protected Trees on Council land and for trees of significance that are likely to be worthy of protected status in the future. Protected Trees have achieved this status through the public District Plan process due to attributes such as historic significance, species and health. They have a level of protection afforded that means they should be well cared for.

3.0 Working around trees

Working around trees

Trees within the urban environment are often subjected to adverse conditions, particularity during construction activity. It is important to manage works around trees to ensure they are not subjected to work practices that are detrimental to their health or structural integrity. In the event this may occur, QLDC require a Tree Protection Management Plan (TPMP) to be developed by the person(s) undertaking/managing the works. This must be approved by either the Council arborist or an approved consulting arborist prior to work commencing.

Policy:

3.1
A Tree Protection Management Plan (TPMP) is to be submitted to QLDC for any activity or work proposed near one of our trees where the works are within the root protection zone or likely to impact the tree. See Diagram 1 below.

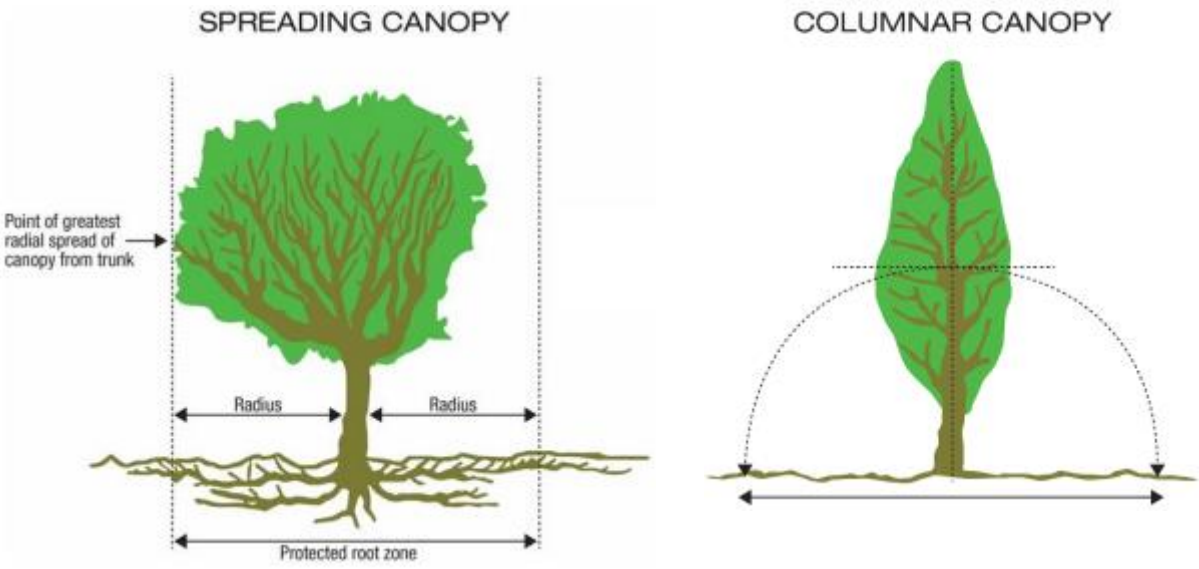


Diagram 1: Root protection zone. For a spreading canopy it is the area beneath the canopy and for a columnar canopy it extends to a radius half the height of the tree.

3.2
TPMPs are to be developed by the person(s) undertaking/managing the works and be in accordance with the QLDC Land Development and Subdivision Code of Practice. QLDC must approve a TPMP prior to work commencing.

3.3
Development projects on Council land will prioritise the retention of mature trees through all aspects of the project.

3.4
QLDC reserves the right to seek compensation and/or remediation for loss or damage to public trees and their immediate environment as a result of works. Damage or loss will include but is not limited to:

- Death or decline of tree(s) health
- Physical damage to the tree(s)
- Damage to the tree(s) roots and/or rooting environment including compaction or contamination of the soil
- Loss of environmental and ecological benefits provided by the tree.

QLDC will determine the value through either the cost of replacement/repair of loss/damage or through an approved tree valuation method (refer to Policies 3.5-3.7), whichever we deem to be most appropriate.

Replacement costs include removal of tree debris, stump grinding, new tree establishment, irrigation, and formative maintenance.

Note: Compliance with QLDC's District Plan tree rules for works within the vicinity of trees is required. This may mean in some instances a resource consent will be required, an example being for works within the dripline of a tree.

Tree value

In order for trees to be acknowledged for the value which they provide to the district we need to have a valuation system in place. Tree value includes social, environmental and cultural community benefits. Unlike most infrastructure, trees provide greater value with age, rather than decreasing in value over time.

Policy:

3.5
QLDC will implement and adapt (if required) a recognised system for valuing public trees.

3.6
The Royal New Zealand Institute of Horticulture's (RNZIH) Standard Tree Evaluation Method (STEM) shall be used as the standard for assessing the health, condition, heritage significance and if required monetary value of trees, unless superseded by a more appropriate method.

3.7
If a monetary value has been deemed the most appropriate compensation method, see Policy 3.4, payment to QLDC will be required prior to the removal of any tree approved for removal on Council land, at the rate used in the recognised valuation tool.

4.0 Tree Removal

Removal of trees

Like all living things, trees grow, age, and eventually die. Land development and decreasing lot sizes can limit the opportunity for landowners to have trees, especially large species.

Tree removal is a last resort option. The benefits of trees must be sustained for future generations. However, selective tree removal and replacement may be required to manage safety risks, poor tree health, or unsustainable maintenance requirements.

But even in decline, a tree can provide numerous benefits, such as wildlife habitat and shade.

Policy:

4.1
Trees in a state of irreversible decline, dead and/or structurally unsound, as determined by a Council or technician arborist, may be removed as part of routine maintenance and renewal programmes, or sooner, if urgent action is required for public safety or to avoid damage to property.

4.2
Trees that are unhealthy, dead and/or structurally unsound may be retained for ecological purposes if they do not pose an unacceptable risk to the public or property. This is established through the Council-approved risk assessment methodology in Policy 2.17.

4.3
Tree removal will be considered where the tree is causing, or likely to cause, significant damage to buildings, services or property (both public or privately owned), and the damage cannot be reasonably rectified or mitigated except by removing the tree. More suitable replacements will be sought and planted in the same location or vicinity if it can be achieved.

4.4
Trees that are posing an unacceptable safety risk to the public and cannot be mitigated through pruning or other engineering solutions will be removed as per the tree replacement policy.

4.5
Trees that are impeding consented legal access will be removed only when all other alternatives have been explored and are not viable.

4.6
Council will approve tree removal to carry out repairs or replace underground infrastructure only when available alternatives have been explored and are considered not viable.

4.7

Council approval for tree removal to facilitate projects on Council land will consider the value of the project to the community, including public health and/or the local environment, in conjunction with the benefits of retaining existing trees compared with their loss and proposed replacement planting.

4.8

Council may consider tree removal where the necessary pruning clearances for overhead electrical lines (as required by the relevant 'hazards from trees' regulations) are not able to be achieved without causing long term detriment to the tree and no alternative to removal can be reached with the network utility operator.

4.9

Council will only accept tree removal in emergency situations where the removal is considered absolutely necessary for immediate access to critical infrastructure. This will only be undertaken where failure to access critical infrastructure will lead to an unacceptable risk to public health, or significant property damage or harm to personnel.

Note: 'Critical infrastructure' can be found in the Definitions section of this document.

4.10

Healthy and structurally sound trees may be removed to manage or prevent the spread of pests and diseases. This includes the removal of pest trees where they are deemed a threat to indigenous flora and fauna and non-pest species.

4.11

Wilding exotic trees will be strategically removed where they are determined to be a threat as a pest species or cause a nuisance in a particular location, to manage or prevent the spread of pests and diseases. This includes the removal or poisoning of pest trees.

4.13

Tree removals must be undertaken by, or under the supervision of, a works arborist employed or contracted by QLDC or a network utility operator.

4.14

QLDC will not remove trees for the following reasons:

- To minimise obstruction of views
- To minimise obstruction of commercial or advertising signage
- To reduce leaf or fruit litter and other debris
- To reduce shading
- For contributing to allergenic or irritant responses unless approved under section 4.18.
- When the risk posed by the tree meets the requirements of the Tree Risk Management Procedure

Note: Tree Removals will be subject to the tree replacement policy.

Public requests for tree removal

QLDC often receives requests for trees to be removed from public spaces. Tree removal requests will be processed under the following policies:

Policy:

4.15
Council will assess the request against the criteria listed above (4.1 to 4.5). The tree may be removed as part of routine maintenance should the request meet any of the policy requirements, or sooner if the risk posed is unacceptable.

4.16
If the request does not meet the criteria of 4.15 above, QLDC will work with the applicant to seek alternative resolutions to removal, e.g., targeted pruning.

4.17
If no alternative resolution is acceptable, the person requesting the removal of the tree will need to submit an application to QLDC for the relevant committee or board to consider. This must be accompanied by a tree report prepared by a technician arborist and include any other relevant information pertaining to the application. If a resource consent is required, this must also be obtained prior to any application being submitted to the committee or board.

Applications can be made under the following criteria 4.18-4.20:

4.18
Health - Requests for removal of tree(s) will be considered for health reasons where there is confirmation from either the applicant(s) medical practitioner, a clinical immunologist or the medical officer of health confirming that the tree(s) is/are the sole cause of the applicant(s) condition and that removal of the tree(s) is the sole option available for improving the applicant(s) condition.

4.19
Property damage - Requests for removal of tree(s) that are causing property damage will be considered where the damage is confirmed by the Council arborist to be a direct result of the tree and where no alternative measures (including engineering solutions) can be used to mitigate the problem.

4.20
Other - Requests for removal of tree(s) due to other issues will only be approved under exceptional circumstances and will be required to meet all the criteria below:

- The issue caused by the tree has a significant effect on the applicant's day to day living

- The tree is the sole cause of the issue
- The issue is not able to be mitigated through general maintenance by the applicant (e.g., clearing gutters of leaves)
- The issue caused by the tree cannot be mitigated by pruning
- No reasonable engineering solution can mitigate the issue caused by the tree.

All reporting and consents must be provided by the applicant at the applicant's cost. Payment for removal is determined by Policy 4.22.

Cost of tree removal

The removal of trees can result in a considerable cost. In some instances, it may be considered appropriate for these costs to be recovered.

Policy:

4.21
Where the removal of a tree is requested and subsequently approved by QLDC, and the tree can be removed in accordance with policy 4.13, then QLDC will undertake the removal as part of routine maintenance and renewal programmes at no cost to the applicant.

4.22
Where the tree removal request does not meet the criteria of 4.13, but is approved by the relevant committee or board, the committee or board may resolve that the applicant is required to pay part or all of the costs, including the application fee (as per Council's Fees and Charges Schedule), including:

- Any additional costs associated with reporting on the tree removal application
- Actual cost of tree removal and replacement
- The value of the environmental, economic, and social services provided to the district by the tree (as determined by our approved tree valuation method)

Note: Projected costs will be supplied to the applicant for approval prior to any removal works.

Vandalism

Policy:

4.23
QLDC takes damage, vandalism and unauthorised removal of public trees very seriously. We will investigate and enforce under the appropriate legislation, including the Reserves Act (1977) and the Local Government Act (2002). Matters will be referred to the Police when appropriate.

Definitions

Term	Definition
Actual costs for removal and replacement	The cost incurred by the Council to remove the tree(s) and stump(s), purchasing and planting of a replacement tree(s) including 2 years establishment maintenance for the tree(s).
Amenity	Means those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes.
Best industry practice	For example but not limited to the British Standard 3998:2010 'British Standard Recommendations for Tree Work' and Australian Standard 4373 1996 Pruning of Amenity Trees MIS308 Tree Pruning.
Canopy cover	The area taken up by the tree canopy.
Commemorative trees	Includes memorial and sponsored trees.
Council/we/our/us	Means the Queenstown Lakes District Council or its authorised delegate.
Council land	Land that council owns or administers
Critical infrastructure	Infrastructure that if damaged or obstructed would create a hazard to widespread public health, safety or wellbeing.
Eco-sourcing	Refers to the use of locally sourced plant material for restoration plantings. Eco-sourced plants are those grown from seeds collected from naturally occurring remnant vegetation in the same region as those to be planted.
Emergency	Means a situation that:

	1. is the result of any happening, whether natural or otherwise, including any accident, explosion, earthquake, eruption, tsunami, land movement, flood, storm, tornado, cyclone, fire, leakage or spillage of any dangerous gas or substance, technological failure, infestation, plague, epidemic, failure of or disruption to an emergency service or a lifeline utility, or actual or imminent attack or warlike act; and 2. causes or may cause loss of life or injury or illness or distress or in any way endangers the safety of the public or property in New Zealand or any part of New Zealand
Establishment maintenance period	Establishment maintenance shall include but not be limited to watering, weed control, application of mulch (where required), and installation and removal of support systems. All maintenance should be compliant with the relevant sections of the QLDC Subdivision Code of Practice (CoP).
Exotic	Species which are not indigenous to that part of New Zealand
Full height reduction	A method of pruning which results in the removal of the upper canopy to reduce the overall height of the tree (otherwise referred to as topping).
Irreversible decline	The decline of a tree's health which is to such an extent that it is unlikely to recover.
Mature	A tree reaching its ultimate potential size, whose growth rate is slowing down, with limited potential for any significant increase in size.
Native revegetation or regeneration	An area of native New Zealand plants which have been planted to form a closed canopy. This may be directly planted or naturally occur from a nearby seed source.
Plantation forestry	Plantation Forestry is as defined by the Resource Management (National Environmental Standard for Plantation Forestry) Regulations 2017.

Pest tree	A parent tree from which seed disperses to create a “wilding tree” which causes major change to composition, structure and functioning of adjacent indigenous habitat.
Provide habitat for indigenous flora and fauna	This could be achieved by allowing dead trees to remain or keeping trees with cavities. The retention of dead wood and stubs could also be seen as providing habitat for indigenous flora and fauna.
Public open space	Means any open space, including roads, parks and reserves, accessible to the public either freely or in accordance with a charge under the Reserves Act 1977.
QLDC Land Development and Subdivision Code of Practice	Is a set of guidelines determining the standards required for the creation or enhancement of infrastructure assets either owned or to be owned by Council. Includes provisions for the protection and planting of trees.
Qualified arborist	A person who has a recognised arboricultural qualification (minimum of NZQA Level 4 Certificate in Arboriculture or similar), industry experience and is competent to carry out a specified task.
Root protection zone	For a tree with a spreading canopy, it is the area beneath the canopy spread of a tree, measured at ground level from the surface of the trunk, with a radius to the outer most extent of the spread of the tree’s branches. And; For a columnar tree, it is the area beneath the canopy extending to a radius half the height of the tree.
Significant damage	Damage that renders a place or a part unusable for the purpose it was intended.
Significant tree	A tree with long term life expectancy and/or high amenity value, or

Structurally unsound	The trees structure has been compromised to a level which is it likely to fail during normal weather conditions.
Targeted canopy reduction	The targeted pruning of selected branches within the tree canopy to shorten their length.
Technician arborist	Means a person who: 1) by possession of a recognised arboricultural degree or diploma and on the job experience, is familiar with the tasks, equipment and hazards involved in arboricultural operations; and 2) has demonstrated proficiency in tree inspection and evaluating and treating hazardous trees; and 3) has demonstrated competency to Level 6 NZQA Diploma in Arboriculture standard (or be of an equivalent arboricultural standard).
Tree	A single woody plant with the potential to reach at least 5 metres in height and have a stem diameter of, or exceeding, 150mm measured at 1.4 metres above ground. *There are certain species, which could include fruit, nut and endemic species, which may not always fit within the definition of a tree. In these situations the decision as to whether or not to include the species, or individual tree, as a tree will be determined by a Council arborist.* *Assets that are currently recorded as trees but do not fit the definition of a Tree will continue to be managed as a Tree throughout their life cycle until they are replaced.*
Tree Protection Management Plan	Where it is not possible to complete the works without encroaching within the Tree Protection Zone, a proposed methodology in the form of a Tree Management Plan shall be produced by a technician arborist as per the specifications within the relevant sections of the CSS.
Value of a tree	A monetary value determined by a council recognised system such at the Standard Tree Evaluation Method 1996 (STEM).
Wilding tree	A self-sown tree growing wild or escaped from cultivation and growing wild and not planted for any specific purpose.

Works arborist	Means a person who: a) by possession of a recognised arboricultural degree, diploma or certificate and on the job experience, is familiar with the tasks, equipment and hazards involved in arboricultural operations; and b) has demonstrated competency to Level 4 NZQA Certificate in Horticulture Services (Arboriculture) standard (or be of an equivalent arboricultural standard).
Works within the root protection zone	Includes paving, excavation, trenching, ground level changes, storage of materials, or chemicals, vehicle traffic and parking, soil compaction and construction activity, whether on the same site or not as the tree.
Urban connector	Provides safe, reliable efficient movement of people and goods. Includes roads and paths.
Urban forest	Urban forest is a forest, or the collection of trees, that grow within a city, town or urban environment.
Unacceptable risk	A level of risk determined through a recognised council approved method (e.g. Quantified Tree Risk Assessment (QTRA) or Tree Risk Assessment Qualification (TRAQ)) which is elevated beyond what the Council considers acceptable.

Other tree, vegetation and wildlife related policy and resources:

- Local Government Act (2002)
- Reserves Act (1977)
- Wildlife Act (1953)
- National Policy Statement - Biodiversity
- National Policy Statement - Fresh Water
- Otago Regional Council Pest Management Plan
- Otago Regional Council Biodiversity Strategy
- QLDC District Plan - Protected Trees Chapter
- QLDC District Plan - Wilding Exotic Trees Chapter
- QLDC Vision Beyond 2050
- QLDC Wilding Control Strategy
- QLDC Climate & Biodiversity Action Plan
- QLDC Reserve Management Plans
- QLDC Plaques & Memorials Policy
- QLDC Cemeteries Handbook
- QLDC Spray Policy
- QLDC Verge Policy
- QLDC maps

APPENDIX D:
ARBORISTS REPORT

State Highway 6 -Kawarau NZUP Zone 3 works Trees/shrubbery removals.

Attention:	Jesse Byrne NZUP Landscape Architect
Property Address	Whakatipu Transport Alliance
Postal Address:	67 Gorge Road Queenstown. 9300.
Dated:	18.07.2022
Prepared by:	New Zealand Tree Care Ltd P.O. Box 2353 Wakatipu 9349
Consultant:	David Finlin Tel: 0274-334-845
Status	REV A
Our Ref:	SH 6 (Kawarau Zone 3 Trees) R22.06.001

PLEASE NOTE: New Zealand Tree Care Ltd has taken every effort to ensure that all statements in this report are accurate and correct at the time of the assessment. However, trees are a natural, dynamic living entity and as such it is not possible to fully guarantee growth characteristics etc. This report is supplied as guide to the management of the tree. All inspections have taken place from ground level and no samples have been taken. No internal decay diagnostic equipment was used.
All dimensions have been estimated, tree locations and numbers surveyed.

Brief: As part of the SH 6 Kawarau Road corridor improvements Zone 3 programme several trees along the east and western verge have been identified as requiring removal to facilitate the upgraded works.
The report has been prepared to identify those trees proposed for removal and retention.

Introduction:

There is somewhat limited scope for the retention of trees within the physical alignment of the roading corridor upgrade however, the alignment of service roads and the sheared pathways has been designed to consider retaining as many of the better-quality amenity trees as practical.

The grouping of semi mature trees along the southwestern side of the corridor.

General comment on Trees

The trees are a mixed range of predominantly northern hemisphere ornamental deciduous and conifer species.
A small number of (native) Pittosporum shrubbery, Red and Mountain Beech trees have been established around the present Bus hub as part of previous upgrade work over the last 20 years.

The prominent tree species along the eastern side of the corridor (golf course side) are:
Douglas Fir
European Larch
Cypress.

Additionally in more recent years (5-20) various deciduous ornamentals have been planted such as.
Dogwoods
Norway Maple
Zelkova
Flowering cherry
Claret & Common Ash

The prominent tree species along the western side of the corridor (bus hub side) are:
European Larch
Silver Birch
English and Turkey Oak
Cypress.

Additionally in more recent years (5-20) various deciduous ornamentals have been planted such as.
Small Leaf Lime
Red & Mountain Beech
Kowhai
Flowering cherry
Common Ash

Prominent trees are generally considered those that have reach a level of maturity where they are highly visible within the surrounding landscape because of their size and scale.

a. The European Larch and Douglas Fir located along both sides of the corridor are the prominent species and at the time of planting last century were considered a practical, hardy, and appropriate species.

   Community attitudes toward exotic conifers particularly these species that are broadly grouped as Wilding tree species has significantly changed, to favouring New Zealand native species and ornamental trees both deciduous and coniferous that don't contribute to further seed dispersal and Wilding tree problems.

b. The Oaks, Silver Birch, and various Cypress species are also prominent trees within the landscape and have reached a semi-mature age class.
Most of these trees are generally showing a fair to good level of general health and structure and have the capacity to provide ongoing amenity for many years.

c. The trees that are identified as less prominent within the landscape are those that have been planted in more recent years and have not yet reached a size and scale of maturing within the landscape.
There are a few smaller specimen trees that appear to be establishing quite well however, many of the recent plantings are in poor health and stature due to a combination of site conditions, lack of establishment irrigation and ongoing maintenance.

Summary of trees to be retained /removed.

Refer appendix C for detailed schedule of trees to be retained / removed.

Total trees surveyed	**136**
Total trees to removed	**92**
Total trees to retained	**44**

Table: Summary of trees to be retained /removed.

	NZUP -Zone 3 Tree Survey							
		Identified on site David Finlin 8/06/2022.						
		Updated Jesse Byrne 26/06/2022						
		Updated David Finlin 14/07/2022.						
		Total Tree Count: 136						
Tree No:	**Name (Common)**	**Trunk (mm)**	**Health**	**Structure**	**ULE**	**Retain**	**Remove**	**Comments**
1.1	**Fraxinus sp. - Ash**	**400**	**G**	**G**	**40+**		●	
1.2	**Snake Bark Maple**	**180**	**G**	**G**	**40+**		●	
1.3	**Chamaecyparis sp.**	**600**	**F**	**F**	**10-20**		●	
1.4	**Cypress Cupressus**	**1200**	**F**	**P**	**10-20**	●		
1.5	**Amelanchier**	**70**	**F**	**P**	**1-5**		●	**small tree Ht 2m.**
1.6	**Dogwood (Cornus sp)**	**110**	**F**	**F**	**10-20**		●	**small tree/shrub Ht 3-4m.**
2.1	**Dogwood (Cornus sp)**	**100**	**F**	**F**	**10-20**		●	**small tree/shrub Ht 3-4m.**
2.2	**Dogwood (Cornus sp)**	**90**	**F**	**F**	**10-20**		●	**small tree/shrub Ht 3-4m.**
2.3	**Ornamental Dark Plum**	**120**	**F**	**F**	**5-10**		●	
2.4	**Irish Strawberry Tree**	**2x400 (basal)**	**G**	**G**	**10-20**	●		
2.5	**Irish Strawberry Tree**	**5x 200 (basal)**	**G**	**G**	**10-20**		●	
2.6	**Irish Strawberry Tree**	**5x 300 (basal)**	**G**	**G**	**10-20**		●	
2.7	**Flowering Cherry**	**90**	**F**	**F**	**10-20**		●	
2.8	**Crab Apple (Malus sp)**	**280**	**F**	**F**	**10-20**		●	

2.9	Ornamental Plum	330 (basal)	F	F	5-10		●	
2.10	Walnut	270	F	P	5-10		●	
2.12	Cupressus sp var. (blue ice)	800	G	F	20-40		●	
2.13	Zelkova	180	F	F	10-20		●	
2.14	Crab Apple (Malus sp)	160	F	F	5-10		●	Located 1m Power Pole.
2.15	Zelkova	90	P	F	1-5		●	
2.16	Claret Ash	90	P	F	1-5		●	Trunk damaged.
2.17	Zelkova	110	F	F	10-20		●	
2.18	Pin Oak	280	F	P	5-10	●		Confined to planter box.
2.19	Laburnum sp.	150	F	F	1-5		●	
SHEET LD 0003								
3.1	Douglas Fir	800	F	G	20-40		●	
3.2	Larch tree	450 x 2	F	P	10-20		●	Twin leader codominant, poor union at base.
3.3	Larch tree	450	F	P	10-20		●	Single leader
3.4	Laburnum	40-80	P	F	1-5		●	3 x small trees 2-3.5m Ht.
3.5	Laburnum	40-80	P	F	1-5		●	3 x small trees 2-3.5m Ht.
3.6	Laburnum	40-80	P	F	1-5		●	3 x small trees 2-3.5m Ht.
3.7	Norway Maple	70 + 140	G	F	20-40		●	Trees 4m apart.
3.8	Norway Maple	70 + 140	G	F	20-40		●	Trees 4m apart.
3.9	Douglas Fir	850	G	P	1-5		●	Twin stem codominant stems, poor union at 3m.
3.10	Claret Ash	90	F	F	10-20		●	
3.11	Chaemcyparis law. (golden)	250	F	G	20-40	●		
3.13	Douglas Fir	800	G	G	20-40	●		
3.14	Douglas Fir	810 + 810	G	F	20-40		●	
3.15	Douglas Fir	810 + 810	G	F	20-40		●	
3.16	Douglas Fir	440- 880	F	F	20-40		●	
3.17	Douglas Fir	440- 880	F	F	20-40	●		
3.18	Douglas Fir	440- 880	F	F	20-40	●		
3.19	Douglas Fir	440- 880	F	F	20-40	●		
3.20	Douglas Fir	440- 880	F	F	20-40	●		
3.21	Douglas Fir	440- 880	F	F	20-40	●		
3.22	Douglas Fir	440- 880	F	F	20-40	●		
3.23	Douglas Fir	440- 880	F	F	20-40		●	
3.24	Douglas Fir	440- 880	F	F	20-40	●		
3.25	Douglas Fir	440- 880	F	F	20-40		●	
3.26	Douglas Fir	440- 880	F	F	20-40	●		
3.27	Douglas Fir	440- 880	F	F	20-40	●		
3.28	Douglas Fir	440- 880	F	F	20-40		●	
3.29	Douglas Fir	440- 880	F	F	20-40	●		
3.30	Douglas Fir	440- 880	F	F	20-40	●		
3.31	Douglas Fir	440- 880	F	F	20-40		●	

3.32	Douglas Fir	440- 880	F	F	20-40	●		
3.33	Douglas Fir	440- 880	F	F	20-40		●	
3.34	Douglas Fir	440- 880	F	F	20-40		●	
3.35	Douglas Fir	440- 880	F	F	20-40	●		
3.36	Douglas Fir	440- 880	F	F	20-40	●		
3.42	Douglas Fir	760	F	F	20-40		●	
3.43	Larch	690	F	F	10-20		●	
3.44	Norway Maple (Acer platanoides)	100	F	F	20-40		●	
3.45	Norway Maple (Acer platanoides)	80	P	P	10-20		●	Damaged/replace
3.46	Larch	540	G	F	10-20		●	
3.47	Gum Tree (Eucalyptus sp.)	1120	G	F	20-40		●	Some d/w present in canopy.
3.51	Larch	600	F	F	10-20		●	
3.53	Red Beech	150	D	VP	0		●	Dead.
3.53	Silver Birch	300	F	F	10-20		●	
3.54	Larch	650	F	F	10-20		●	
3.55	Thuja pyramidalis	300	F	F	10-20		●	
3.56	Ornamental Plum	300	F	P	1-5		●	growing through boundary cnr fence.
3.58	Silver Birch	280	F	F	10-20		●	
3.59	Thuja pyramidalis	300	F	F	10-20		●	
3.60	Almond (fruit tree)	330	F	F	10-20		●	
3.61	Thuja pyramidalis	300	F	F	10-20		●	
3.62	Kowhai	3x150	F	F	10-20	●		Native.
3.63	Red Beech	410	G	G	20-40	●		
3.64	Red Beech	410	G	G	20-40		●	
3.65	Red Beech	410	G	G	20-40		●	
3.66	Red Beech	410	G	G	20-40		●	
3.67	Larch	610	F	F	10-20		●	
3.68	Cabbage Tree	150	F	P	1-5		●	Regrowth from old stump.
3.69	Mountain Beech	380	G	F	10-20		●	native.
3.70	Red Beech	320	F	F	10-20		●	
3.71	Hoheria (Lacebark)	360	F	P	5-10		●	native.
3.72	Larch	560	G	F	10-20		●	
3.73	Turkey Oak	240	F	P	10-20		●	Canopy suppressed proximity to Larch
3.74	Larch	560-790	F	F	10-20		●	
3.75	Larch	750	F	P	1-5		●	Twin stem codominant stems, poor union at 3m.
3.76	Dogwood (evergreen)	4 x 80	F	P	5-10		●	Shrub at 3m Ht.
3.77	Turkey Oak	580	G	G	40+		●	
3.80	Larch	740	F	F	10-20		●	Codominant side branch.
3.81	Turkey Oak	510	G	G	40+		●	
3.83	Silver Birch	590	G	G	20-40		●	
3.84	Silver Birch	370	G	G	20-40		●	

3.85	Silver Birch	490	G	G	20-40		●	
3.86	Chaemcyparis law. (golden)	260	G	G	40+		●	
3.87	English Oak	520	G	G	40+		●	
3.88	Chaemcyparis law.	450	F	G	20-40		●	
SHEET LD 0004								
4.1	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.2	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.3	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.4	Fraxinus sp. - Ash	80-100	VP	P	1-5	●		needs replacement - QLDC
4.5	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.6	Fraxinus sp. - Ash	80-100	VP	P	1-5	●		needs replacement - QLDC
4.7	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.8	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.9	Douglas Fir	800	F	P	10-20	●		Trees been topped
4.10	Douglas Fir	750	F	P	10-20	●		Trees been topped
4.11	Ornamental Plum (dark)	180 (basal)	P	P	1-5	●		
4.12	Almond	220	F	P	1-5	●		
4.13	Cypress (Blue Ice)	270	G	F	10-20		●	
4.14	Cypress (Blue Ice)	270	G	F	10-20	●		
4.15	Cypress (Blue Ice)	270	G	F	10-20	●		
4.16	Quercus palustris - Pin Oak	300	G	G	40+		●	
4.17	Quercus palustris - Pin Oak	150	G	F	10-20	●		
4.18	Chaemcyparis law.	450	F	F	20-40		●	
4.19	Small Leaf Lime (Tilia sp)	300	G	F	10-20		●	
4.20	Small Leaf Lime (Tilia sp)	7 x 80	F	P	1-5		●	Sucker regrowth from old stump.
4.21	Small Leaf Lime (Tilia sp)	350	G	G	40+		●	
4.22	Lime Tree (Tilia americana)	280	F	P	1-5		●	Multi leader from base.
4.23	Lime Tree (Tilia americana)	320	F	F	20-40	●		
4.24	English Oak	400	G	G	40+	●		
4.25	Turkey Oak	250	G	G	40+	●		
4.26	Turkey Oak	430	G	G	40+	●		
4.27	Turkey Oak	380	G	F	40+	●		
4.28	Chaemcyparis law. (golden)	280	F	F	10-20		●	500mm from edge of pathway.
4.29	English Oak	420	G	G	40+	●		
4.30	English Oak	380	G	G	40+	●		
4.31	Turkey Oak	490	G	F	40+	●		
4.32	Turkey Oak	490	G	F	40+	●		

4.33	**Turkey Oak**	**410**	**G**	**F**	**40+**	**●**		
4.34	**Flowering Cherry**	**100**	**P**	**P**	**1-5**	**●**		**Dwarf var. 1.0m ht.**
4.35	**Flowering Cherry**	**150**	**F**	**F**	**5-10**	**●**		
4.36	**Flowering Cherry**	**180**	**F**	**F**	**5-10**	**●**		
4.37	**Flowering Cherry**	**220**	**F**	**F**	**5-10**	**●**		
						44	**92**	

Summary of trees Useful Life Expectancy (ULE)

Useful Life Expectancy (ULE) 0-10 years.

Total trees with ULE of 0-10 years to be removed:	**27**
Total trees with ULE of 0-10 years to be retained:	**9**
Total trees:	**36**

Useful Life Expectancy (ULE) 10-20 years.

Total trees with ULE of 10-20 years to be removed:	**33**
Total trees with ULE of 10-20 years to be retained:	**8**
Total trees:	**41**

Useful Life Expectancy (ULE) 20-40+ years.

Total trees with ULE of 20-40+ years to be removed:	**32**
Total trees with ULE of 20-40+ years to be retained:	**27**
Total trees:	**59**

Total trees:	**136**

Appendices A **-Site/Tree Plan**

Appendices B **-Site Photos**

Appendices C **-Data Collection Description and Definitions and ULE Tree Table**

Appendices A -Site/Tree Plan

LD0001

PLAN

SCALE 1:250

TREE TO BE REMOVED

TREE TO BE RETAINED

300 mm
200
100
50
0 10 mm

PLAN
SCALE 1:250

LD0002

TREE TO BE REMOVED

TREE TO BE RETAINED

APPROXIMATE EXTENT OF WORKS LINE

KAWARAU ROAD

SHRUBS

SHRUBS ON PRIVATE PROPERTY

OPP

T-3.1 T-3.2 T-3.3 T-3.4 T-3.5 T-3.6 T-3.7 T-3.8 T-3.9 T-3.10 T-3.11 T-3.12 T-3.13 T-3.14 T-3.15 T-3.16 T-3.17 T-3.18 T-3.19 T-3.20 T-3.21 T-3.22 T-3.23 T-3.24 T-3.25 T-3.26 T-3.27 T-3.28 T-3.29 T-3.30 T-3.31 T-3.32 T-3.33 T-3.34 T-3.35 T-3.36 T-3.37 T-3.38 T-3.39 T-3.40 T-3.41 T-3.42 T-3.43 T-3.44 T-3.45 T-3.46 T-3.47 T-3.48 T-3.49 T-3.50 T-3.51 T-3.52 T-3.53 T-3.54 T-3.55 T-3.56 T-3.57 T-3.58 T-3.59 T-3.60 T-3.61 T-3.62 T-3.63 T-3.64 T-3.65 T-3.66 T-3.67 T-3.68 T-3.69 T-3.70 T-3.71 T-3.72 T-3.73 T-3.74 T-3.75 T-3.76 T-3.77 T-3.78 T-3.79 T-3.80 T-3.81 T-3.82 T-3.83 T-3.84 T-3.85 T-3.86 T-3.87 T-3.88

300 mm
200
100
50
0 10 mm

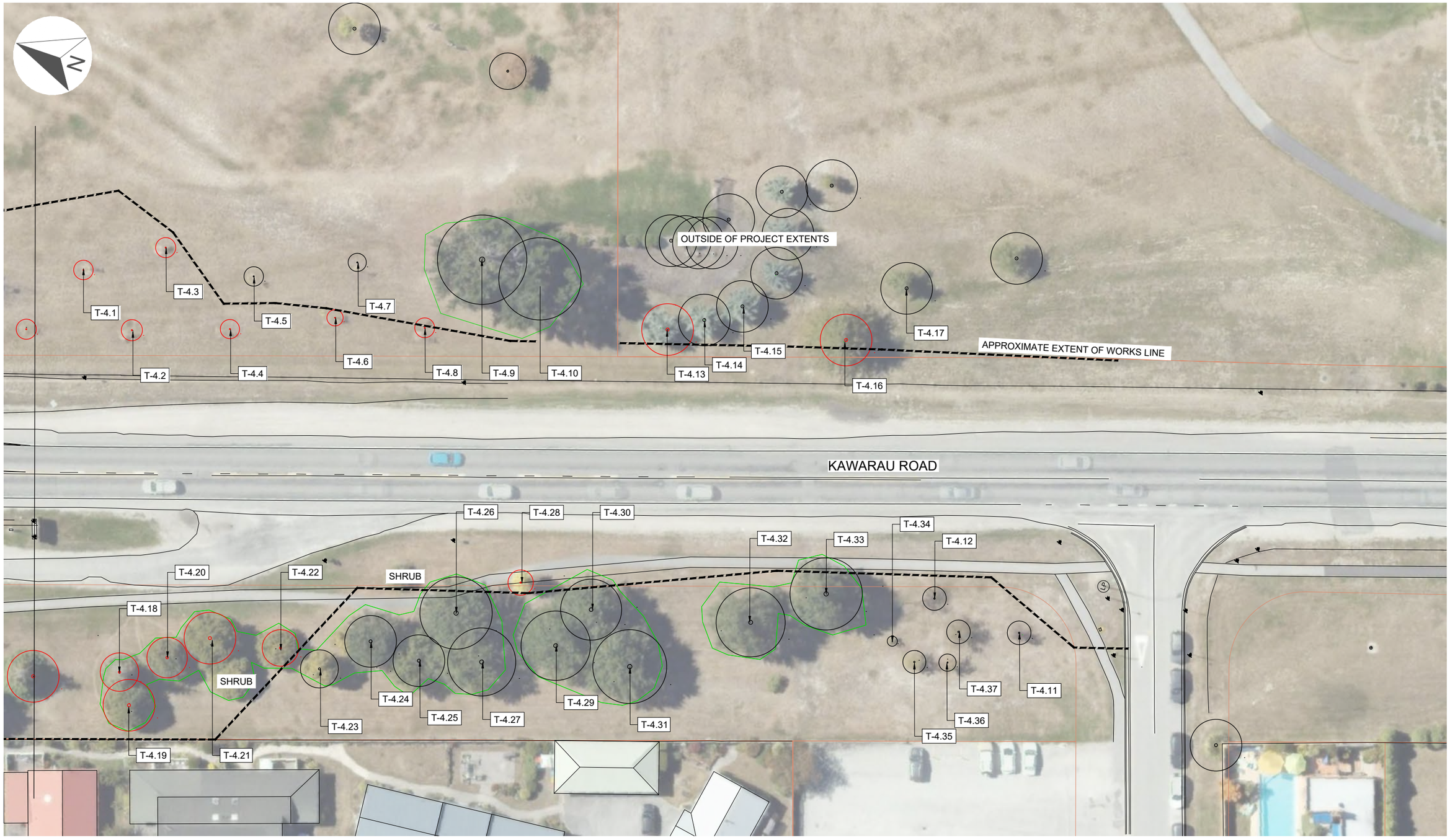
LD0003

PLAN

SCALE 1:250

TREE TO BE REMOVED

TREE TO BE RETAINED



300 mm
200
100
50
0 10 mm

LD0004

PLAN

SCALE 1:250

TREE TO BE REMOVED

TREE TO BE RETAINED

Appendices B -Site Photos

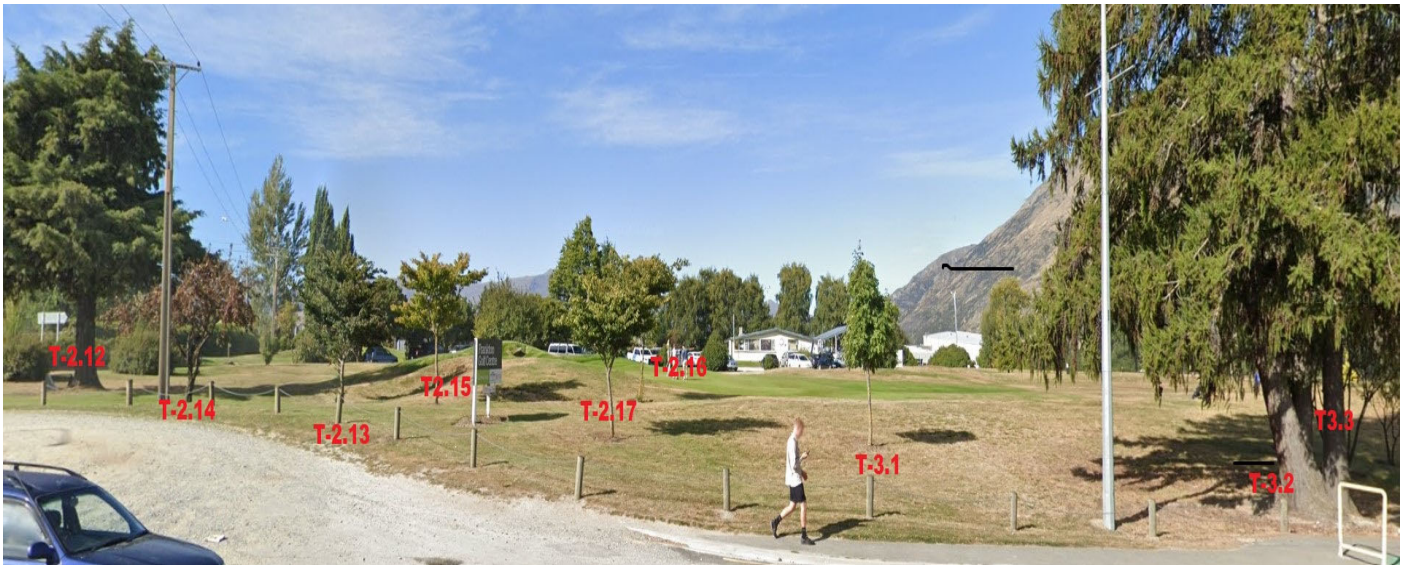


Photo – Frankton Golf course entrance.

Photo – Frankton Golf course/reserve.

Photo – Frankton Golf course/reserve.

Photo – corner of SH6 and Gray St.

Photo – Parking area bus hub.

Photo – Native vegetation island bus hub.

Photo – Southern entrance to bus hub western side of SH6.

Photo – western side of SH6.

Photo – western side of SH6.

Photo – western side of SH6.

Photo – western side of SH6 corner with Ross St.

Appendices C -Data Collection Description and Definitions

Data Collection Description and Definitions

1.1 Common Name

The colloquial name for a tree species, usually in plain English. Common names for a species are often local or regional and each species can have multiple common names.

1.2 Basal Diameter

Diameter above ground basal flare (estimated) Used to calculate the Tree Protection Zone. radius.

1.3 Tree Health

Category	Description
Very Good (VG)	The tree is demonstrating excellent or exceptional growth. The tree exhibits a full canopy of foliage and is free of pest and disease problems.
Good (G)	The tree is demonstrating good or exceptional growth. The tree exhibits a full canopy of foliage and has only minor pest or diseases problems.
Fair (F)	The tree is in reasonable condition and growing well. The tree exhibits an adequate canopy of foliage. There may be some dead wood present in the crown. Some minor snow or wind damage may be evident.
Poor (P)	The tree is not growing to its full capacity; extension growth of the laterals is minimal. The canopy may be thinning or sparse. Large amounts of deadwood may be evident throughout the crown. Significant pest and disease problems may be evident or there may be symptoms of stress indicating tree decline.
Very Poor (VP)	The tree appears to be in a state of decline. The tree is not growing to its full capacity. The canopy may be very thin and sparse. A significant volume of deadwood may be present in the canopy or pest and disease problems may be causing a severe decline in tree health.
Dead (D)	The tree is dead.

1.4 Structure

Category	Description
Good (G)	The tree has a well-defined and balanced crown. Branch unions appear to be sound, with no significant defects evident in the trunk or the branches. Major limbs are well defined. The tree is considered a good example of the species.
Fair (F)	The tree has some minor problems in the structure of the crown. The crown may be slightly out of balance, and some branch unions may be exhibiting minor structural faults. If the tree has a single trunk, it may be on a slight lean or exhibiting minor defects.
Poor (P)	The tree may have a poorly structured crown. The crown may be unbalanced or exhibit large gaps. Major limbs may not be well defined. Branches may be rubbing or crossing over. Branch unions may be poor or faulty at the point of attachment. The tree may have suffered root damage.
Very Poor (VP)	The tree has a poorly structured crown. The crown is unbalanced or exhibits large gaps with possibly large sections of deadwood. Major limbs may not be well defined. Branches may be rubbing or crossing over. Branch unions may be poor or faulty at the point of attachment. Branches may exhibit large cracks that are likely to fail in the future. The tree may have suffered major root damage.
Has Failed (HF)	A section of the tree has failed or is in imminent danger of failure and the tree is no longer a viable specimen.

1.5 Useful Life Expectancy (ULE)

An assessment of useful life expectancy provides an indication of health and tree appropriateness and involves an estimate of how long a tree is likely to remain in the landscape based on species, stage of life (cycle), health, amenity, environmental services contribution, conflicts with adjacent infrastructure and risk to the community.

It is not a measure of the biological life of the tree within the natural range of the species. It is more a measure of the health status and the tree's positive contribution to the urban landscape. It can assist in the management of the tree population and allow planning for the eventual removal and replacement of extant trees.

Useful Life Expectancy (ULE)

Category	Description
40+ years	The tree is in excellent condition and under normal conditions and with appropriate management is expected to continue as a viable landscape component in excess of 40 years.
20 - 40 years	The tree is in good condition and under normal conditions and with appropriate management is expected to continue as a viable landscape component for 20-40 years.
10 - 20 years	The tree is in fair condition and under normal conditions and with appropriate management is expected to continue as a viable landscape component for 10-20 years.
5 - 10 years	The tree is in fair to poor condition, or it is not a long lived species. Removal and replacement may be required within the next 10 years.
1 - 5 years	The tree is in poor condition due to advanced decline or structural defect. Removal and replacement may be required within the next 5 years.
0 years	The tree is dead or is considered hazardous in the location. Removal may be required.

PREVIOUS TABLE FORMATTED TO IDENTIFY THE ULE CATEGORIES

NZUP - Zone 3 Tree Survey	
Useful Life Expectancy (ULE) Table	
Identified on site David Finlin 8/06/2022.	
Updated David Finlin 5/07/2022.	
Total Tree Count: 136	

ULE 0 to 10 years

Tree No:	Name (Common)	Trunk Dia (mm)	Health	Structure	ULE	Retain	Remove	Comments
1.5	Amelanchier	70	F	P	1-5		●	small tree Ht 2m.
2.15	Zelkova	90	P	F	1-5		●	
2.16	Claret Ash	90	P	F	1-5		●	Trunk damaged.
3.4	Laburnum	40-80	P	F	1-5		●	group of 3 small trees 2-3.5m Ht.
3.5	Laburnum	40-80	P	F	1-5		●	group of 3 small trees 2-3.5m Ht.
3.6	Laburnum	40-80	P	F	1-5		●	group of 3 small trees 2-3.5m Ht.
3.9	Douglas Fir	850	G	P	1-5		●	Twin stem codominant stems, poor union at 3m.
3.56	Ornamental Plum	300	F	P	1-5		●	growing through boundary cnr fence.
3.68	Cabbage Tree	150	F	P	1-5		●	Regrowth from old stump.
3.75	Larch	750	F	P	1-5		●	Twin stem codominant stems, poor union at 3m.
4.20	Small Leaf Lime (Tilia sp)	7 x 80	F	P	1-5		●	Sucker regrowth from old stump.
4.22	Lime Tree (Tilia americana)	280	F	P	1-5		●	Multi leader from base.
4.34	Flowering Cherry	100	P	P	1-5	●		Dwarf var. 1.0m ht.
4.11	Ornamental Plum (dark)	180 (basal)	P	P	1-5	●		
4.12	Almond	220	F	P	1-5	●		
4.1	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.2	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.3	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.4	Fraxinus sp. - Ash	80-100	VP	P	1-5	●		needs replacement - QLDC
4.5	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.6	Fraxinus sp. - Ash	80-100	VP	P	1-5	●		needs replacement - QLDC
4.7	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.8	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
2.19	Laburnum sp. - Laburnum	150	F	F	1-5		●	
2.3	Ornamental Dark Plum	120	F	F	5-10		●	
2.9	Ornamental Plum	330 (basal)	F	F	5-10		●	
2.10	Walnut	270	F	P	5-10		●	
2.14	Crab Apple (Malus sp)	160	F	F	5-10		●	Located 1m from Power Pole.
2.18	Pin Oak	280	F	P	5-10	●		Tree confined to small planter box.
3.45	Norway Maple (Acer platanoides)	80	P	P	5-10		●	Damaged/replace
3.53	Red Beech	150	D	VP	0		●	Dead.
3.71	Hoheria (Lacebark)	360	F	P	5-10		●	native.
3.76	Dogwood (evergreen)	4 x 80	F	P	5-10		●	Shrub at 3m Ht.
4.35	Flowering Cherry	150	F	F	5-10	●		
4.36	Flowering Cherry	180	F	F	5-10	●		
4.37	Flowering Cherry	220	F	F	5-10	●		
						9	**27**	

ULE 10 to 20 years

Tree No:	Name (Common)	Trunk Dia (mm)	Health	Structure	ULE	Retain	Remove	Comments
1.3	Chamaecyparis sp.	600	F	F	10-20		●	
1.4	Cupressus sp. - Cypress	1200	F	P	10-20	●		
1.6	Dogwood (Cornus sp)	110	F	F	10-20		●	small tree/shrub Ht 3-4m.
2.1	Dogwood (Cornus sp)	100	F	F	10-20		●	small tree/shrub Ht 3-4m.
2.2	Dogwood (Cornus sp)	90	F	F	10-20		●	small tree/shrub Ht 3-4m.
2.4	Irish Strawberry Tree	2x400 (basal)	G	G	10-20	●		
2.5	Irish Strawberry Tree	5x 200 (basal)	G	G	10-20		●	
2.6	Irish Strawberry Tree	5x 300 (basal)	G	G	10-20		●	
2.7	Ornamental Flowering Cherry	90	F	F	10-20		●	
2.8	Crab Apple (Malus sp)	280	F	F	10-20		●	
2.13	Zelkova	180	F	F	10-20		●	
2.17	Zelkova	110	F	F	10-20		●	
3.2	Larch tree	450 x 2	F	P	10-20		●	Twin leader codominant, poor union at base.
3.3	Larch tree	450	F	P	10-20		●	Single leader
3.10	Claret Ash	90	F	F	10-20		●	
3.43	Larch	690	F	F	10-20		●	
3.46	Larch	540	G	F	10-20		●	
3.51	Larch	600	F	F	10-20		●	
3.52	Silver Birch	300	F	F	10-20		●	
3.54	Larch	650	F	F	10-20		●	
3.55	Thuja pyramidalis	300	F	F	10-20		●	
3.58	Silver Birch	280	F	F	10-20		●	
3.59	Thuja pyramidalis	300	F	F	10-20		●	
3.60	Almond (fruit tree)	330	F	F	10-20		●	
3.61	Thuja pyramidalis	300	F	F	10-20		●	
3.62	Kowhai	3x150	F	F	10-20	●		Native.
3.67	Larch	610	F	F	10-20		●	
3.69	Mountain Beech	380	G	F	10-20		●	native.
3.70	Red Beech	320	F	F	10-20		●	

3.72	Larch	560	G	F	10-20		●	
3.73	Turkey Oak	240	F	P	10-20		●	Canopy suppressed proximity to Larch
3.74	Larch	790	F	F	10-20		●	
3.80	Larch	740	F	F	10-20		●	Codominant side branch.
4.9	Douglas Fir	800	F	P	10-20	●		Trees been topped
4.10	Douglas Fir	750	F	P	10-20	●		Trees been topped
4.13	Cypress (Blue Ice)	270	G	F	10-20		●	Not Blue Cedar QLDC
4.14	Cypress (Blue Ice)	270	G	F	10-20	●		Not Blue Cedar QLDC
4.15	Cypress (Blue Ice)	270	G	F	10-20	●		Not Blue Cedar QLDC
4.19	Small Leaf Lime (Tilia sp)	300	G	F	10-20		●	
4.28	Chaemcyparis law. (golden)	280	F	F	10-20		●	500mm from edge of pathway.
4.17	Quercus palustris - Pin Oak	150	G	F	10-20	●		
						8	**33**	

ULE 20 to 40 plus years

Tree No:	Name (Common)	Trunk Dia (mm)	Health	Structure	ULE	Retain	Remove	Comments
3.1	Douglas Fir	800	F	G	20-40		●	
3.7	Norway Maple	140	G	F	20-40		●	Trees 4m apart.
3.8	Norway Maple	70	G	F	20-40		●	Trees 4m apart.
3.11	Chaemcyparis law. (golden)	250	F	G	20-40	●		
3.13	Douglas Fir	800	G	G	20-40	●		
3.14	Douglas Fir	810	G	F	20-40		●	
3.15	Douglas Fir	810	G	F	20-40		●	
3.16	Douglas Fir	440- 880	F	F	20-40		●	
3.17	Douglas Fir	440- 880	F	F	20-40	●		
3.18	Douglas Fir	440- 880	F	F	20-40	●		
3.19	Douglas Fir	440- 880	F	F	20-40	●		
3.20	Douglas Fir	440- 880	F	F	20-40	●		
3.21	Douglas Fir	440- 880	F	F	20-40	●		
3.22	Douglas Fir	440- 880	F	F	20-40	●		
3.23	Douglas Fir	440- 880	F	F	20-40		●	
3.24	Douglas Fir	440- 880	F	F	20-40	●		
3.25	Douglas Fir	440- 880	F	F	20-40		●	
3.26	Douglas Fir	440- 880	F	F	20-40	●		
3.27	Douglas Fir	440- 880	F	F	20-40	●		
3.28	Douglas Fir	440- 880	F	F	20-40		●	
3.29	Douglas Fir	440- 880	F	F	20-40	●		
3.30	Douglas Fir	440- 880	F	F	20-40	●		
3.31	Douglas Fir	440- 880	F	F	20-40		●	
3.32	Douglas Fir	440- 880	F	F	20-40	●		
3.33	Douglas Fir	440- 880	F	F	20-40		●	
3.34	Douglas Fir	440- 880	F	F	20-40		●	
3.35	Douglas Fir	440- 880	F	F	20-40	●		
3.36	Douglas Fir	440- 880	F	F	20-40	●		
3.42	Douglas Fir	760	F	F	20-40		●	
1.1	Fraxinus sp. - Ash	400	G	G	40+		●	
1.2	Acer davidii - Snake Bark Maple	180	G	G	40+		●	
2.12	Cuppressus sp var. (blue ice)	800	G	F	20-40		●	
3.44	Norway Maple (Acer platanoides)	100	F	F	20-40		●	
3.47	Gum Tree (Eucalyptus sp.)	1120	G	F	20-40		●	Some deadwood present in canopy.
3.63	Red Beech	410	G	G	20-40	●		
3.64	Red Beech	410	G	G	20-40		●	
3.65	Red Beech	410	G	G	20-40		●	
3.66	Red Beech	410	G	G	20-40		●	
3.77	Turkey Oak	580	G	G	40+		●	
3.81	Turkey Oak	510	G	G	40+		●	
3.83	Silver Birch	590	G	G	20-40		●	
3.84	Silver Birch	370	G	G	20-40		●	
3.85	Silver Birch	490	G	G	20-40		●	
3.86	Chaemcyparis law. (golden)	260	G	G	40+		●	
3.87	English Oak	520	G	G	40+		●	
3.88	Chaemcyparis law.	450	F	G	20-40		●	
4.16	Quercus palustris - Pin Oak	300	G	G	40+		●	
4.18	Chaemcyparis law.	450	F	F	20-40		●	
4.21	Small Leaf Lime (Tilia sp)	350	G	G	40+		●	
4.23	Lime Tree (Tilia americana)	320	F	F	20-40	●		
4.24	English Oak	400	G	G	40+	●		
4.25	Turkey Oak	250	G	G	40+	●		
4.26	Turkey Oak	430	G	G	40+	●		
4.27	Turkey Oak	380	G	F	40+	●		
4.29	English Oak	420	G	G	40+	●		
4.30	English Oak	380	G	G	40+	●		
4.31	Turkey Oak	490	G	F	40+	●		
4.32	Turkey Oak	490	G	F	40+	●		
4.33	Turkey Oak	410	G	F	40+	●		
						27	**32**	

RETAIN **REMOVE**

44 **92** **TOTAL 136**

State Highway 6 -Kawarau NZUP Zone 3 works Trees/shrubbery removals.

This tree report was prepared during the preliminary design phase, tree removal references have changed, this report should be used to confirm species and condition.

Total trees marked for removal in zone 3 Frankton main -124 (106 of which are on QLDC administered land)

There are 113 specimen and street trees proposed as replacement trees within the project extents and 99 trees proposed outside of the project extents as offset mitigation planting. Refer to opportunities plan for further information.

State Highway 6 -Kawarau NZUP Zone 3 works Trees/shrubbery removals.

Attention:	Jesse Byrne NZUP Landscape Architect
Property Address	Whakatipu Transport Alliance
Postal Address:	67 Gorge Road Queenstown. 9300.
Dated:	18.07.2022
Prepared by:	New Zealand Tree Care Ltd P.O. Box 2353 Wakatipu 9349
Consultant:	David Finlin Tel: 0274-334-845
Status	REV A
Our Ref:	SH 6 (Kawarau Zone 3 Trees) R22.06.001

PLEASE NOTE: New Zealand Tree Care Ltd has taken every effort to ensure that all statements in this report are accurate and correct at the time of the assessment. However, trees are a natural, dynamic living entity and as such it is not possible to fully guarantee growth characteristics etc. This report is supplied as guide to the management of the tree. All inspections have taken place from ground level and no samples have been taken. No internal decay diagnostic equipment was used.
All dimensions have been estimated, tree locations and numbers surveyed.

Brief: As part of the SH 6 Kawarau Road corridor improvements Zone 3 programme several trees along the east and western verge have been identified as requiring removal to facilitate the upgraded works.
The report has been prepared to identify those trees proposed for removal and retention.

Introduction:

There is somewhat limited scope for the retention of trees within the physical alignment of the roading corridor upgrade however, the alignment of service roads and the sheared pathways has been designed to consider retaining as many of the better-quality amenity trees as practical.

The grouping of semi mature trees along the southwestern side of the corridor.

General comment on Trees

The trees are a mixed range of predominantly northern hemisphere ornamental deciduous and conifer species.
A small number of (native) Pittosporum shrubbery, Red and Mountain Beech trees have been established around the present Bus hub as part of previous upgrade work over the last 20 years.

The prominent tree species along the eastern side of the corridor (golf course side) are:
Douglas Fir
European Larch
Cypress.

Additionally in more recent years (5-20) various deciduous ornamentals have been planted such as.
Dogwoods
Norway Maple
Zelkova
Flowering cherry
Claret & Common Ash

The prominent tree species along the western side of the corridor (bus hub side) are:
European Larch
Silver Birch
English and Turkey Oak
Cypress.

Additionally in more recent years (5-20) various deciduous ornamentals have been planted such as.
Small Leaf Lime
Red & Mountain Beech
Kowhai
Flowering cherry
Common Ash

Prominent trees are generally considered those that have reach a level of maturity where they are highly visible within the surrounding landscape because of their size and scale.

a. The European Larch and Douglas Fir located along both sides of the corridor are the prominent species and at the time of planting last century were considered a practical, hardy, and appropriate species.

   Community attitudes toward exotic conifers particularly these species that are broadly grouped as Wilding tree species has significantly changed, to favouring New Zealand native species and ornamental trees both deciduous and coniferous that don't contribute to further seed dispersal and Wilding tree problems.

b. The Oaks, Silver Birch, and various Cypress species are also prominent trees within the landscape and have reached a semi-mature age class.
Most of these trees are generally showing a fair to good level of general health and structure and have the capacity to provide ongoing amenity for many years.

c. The trees that are identified as less prominent within the landscape are those that have been planted in more recent years and have not yet reached a size and scale of maturing within the landscape.
There are a few smaller specimen trees that appear to be establishing quite well however, many of the recent plantings are in poor health and stature due to a combination of site conditions, lack of establishment irrigation and ongoing maintenance.

Summary of trees to be retained /removed.

Refer appendix C for detailed schedule of trees to be retained / removed.

Total trees surveyed	**136**
Total trees to removed	**92**
Total trees to retained	**44**

Table: Summary of trees to be retained /removed.

	NZUP -Zone 3 Tree Survey							
		Identified on site David Finlin 8/06/2022.						
		Updated Jesse Byrne 26/06/2022						
		Updated David Finlin 14/07/2022.						
		Total Tree Count: 136						
1.7 Fraxinus sp. - Ash							* additional tree added	
Tree No:	**Name (Common)**	**Trunk (mm)**	**Health**	**Structure**	**ULE**	**Retain**	**Remove**	**Comments**
1.1	**Fraxinus sp. - Ash**	**400**	**G**	**G**	**40+**		●	
1.2	**Snake Bark Maple**	**180**	**G**	**G**	**40+**		●	
1.3	**Chamaecyparis sp.**	**600**	**F**	**F**	**10-20**		●	
1.4	**Cypress Cupressus**	**1200**	**F**	**P**	**10-20**	●		
1.5	**Amelanchier**	**70**	**F**	**P**	**1-5**		●	**small tree Ht 2m.**
1.6	**Dogwood (Cornus sp)**	**110**	**F**	**F**	**10-20**		●	**small tree/shrub Ht 3-4m.**
2.1	**Dogwood (Cornus sp)**	**100**	**F**	**F**	**10-20**		●	**small tree/shrub Ht 3-4m.**
2.2	**Dogwood (Cornus sp)**	**90**	**F**	**F**	**10-20**		●	**small tree/shrub Ht 3-4m.**
2.3	**Ornamental Dark Plum**	**120**	**F**	**F**	**5-10**		●	
2.4	**Irish Strawberry Tree**	**2x400 (basal)**	**G**	**G**	**10-20**	●		
2.5	**Irish Strawberry Tree**	**5x 200 (basal)**	**G**	**G**	**10-20**		●	
2.6	**Irish Strawberry Tree**	**5x 300 (basal)**	**G**	**G**	**10-20**		●	
2.7	**Flowering Cherry**	**90**	**F**	**F**	**10-20**		●	
2.8	**Crab Apple (Malus sp)**	**280**	**F**	**F**	**10-20**		●	

2.9	Ornamental Plum	330 (basal)	F	F	5-10		●	
2.10	Walnut	270	F	P	5-10		●	
2.12	Cupressus sp var. (blue ice)	800	G	F	20-40		●	
2.13	Zelkova	180	F	F	10-20		●	
2.14	Crab Apple (Malus sp)	160	F	F	5-10		●	Located 1m Power Pole.
2.15	Zelkova	90	P	F	1-5		●	
2.16	Claret Ash	90	P	F	1-5		●	Trunk damaged.
2.17	Zelkova	110	F	F	10-20		●	
2.18	Pin Oak	280	F	P	5-10	●		Confined to planter box.
2.19	Laburnum sp.	150	F	F	1-5		●	
SHEET LD 0003								
3.1	Douglas Fir	800	F	G	20-40		●	
3.2	Larch tree	450 x 2	F	P	10-20		●	Twin leader codominant, poor union at base.
3.3	Larch tree	450	F	P	10-20		●	Single leader
3.4	Laburnum	40-80	P	F	1-5		●	3 x small trees 2-3.5m Ht.
3.5	Laburnum	40-80	P	F	1-5		●	3 x small trees 2-3.5m Ht.
3.6	Laburnum	40-80	P	F	1-5		●	3 x small trees 2-3.5m Ht.
3.7	Norway Maple	70 + 140	G	F	20-40		●	Trees 4m apart.
3.8	Norway Maple	70 + 140	G	F	20-40		●	Trees 4m apart.
3.9	Douglas Fir	850	G	P	1-5		●	Twin stem codominant stems, poor union at 3m.
3.10	Claret Ash	90	F	F	10-20		●	
3.11	Chaemcyparis law. (golden)	250	F	G	20-40	●		
3.13	Douglas Fir	800	G	G	20-40	●		
3.14	Douglas Fir	810 + 810	G	F	20-40		●	
3.15	Douglas Fir	810 + 810	G	F	20-40		●	
3.16	Douglas Fir	440- 880	F	F	20-40		●	
3.17	Douglas Fir	440- 880	F	F	20-40	●		
3.18	Douglas Fir	440- 880	F	F	20-40	●		
3.19	Douglas Fir	440- 880	F	F	20-40	●		
3.20	Douglas Fir	440- 880	F	F	20-40	●		
3.21	Douglas Fir	440- 880	F	F	20-40	●		
3.22	Douglas Fir	440- 880	F	F	20-40	●		
3.23	Douglas Fir	440- 880	F	F	20-40		●	
3.24	Douglas Fir	440- 880	F	F	20-40	●		
3.25	Douglas Fir	440- 880	F	F	20-40		●	
3.26	Douglas Fir	440- 880	F	F	20-40	●		
3.27	Douglas Fir	440- 880	F	F	20-40	●		
3.28	Douglas Fir	440- 880	F	F	20-40		●	
3.29	Douglas Fir	440- 880	F	F	20-40	●		
3.30	Douglas Fir	440- 880	F	F	20-40	●		
3.31	Douglas Fir	440- 880	F	F	20-40		●	

3.32	Douglas Fir	440- 880	F	F	20-40	●		
3.33	Douglas Fir	440- 880	F	F	20-40		●	
3.34	Douglas Fir	440- 880	F	F	20-40		●	
3.35	Douglas Fir	440- 880	F	F	20-40	●		
3.36	Douglas Fir	440- 880	F	F	20-40	●		
3.42	Douglas Fir	760	F	F	20-40		●	
3.43	Larch	690	F	F	10-20		●	
3.44	Norway Maple (Acer platanoides)	100	F	F	20-40		●	
3.45	Norway Maple (Acer platanoides)	80	P	P	10-20		●	Damaged/replace
3.46	Larch	540	G	F	10-20		●	
3.47	Gum Tree (Eucalyptus sp.)	1120	G	F	20-40		●	Some d/w present in canopy.
3.51	Larch	600	F	F	10-20		●	
3.53	Red Beech	150	D	VP	0		●	Dead.
3.53	Silver Birch	300	F	F	10-20		●	
3.54	Larch	650	F	F	10-20		●	
3.55	Thuja pyramidalis	300	F	F	10-20		●	
3.56	Ornamental Plum	300	F	P	1-5		●	growing through boundary cnr fence.
3.58	Silver Birch	280	F	F	10-20		●	
3.59	Thuja pyramidalis	300	F	F	10-20		●	
3.60	Almond (fruit tree)	330	F	F	10-20		●	
3.61	Thuja pyramidalis	300	F	F	10-20		●	
3.62	Kowhai	3x150	F	F	10-20	●		Native.
3.63	Red Beech	410	G	G	20-40	●		
3.64	Red Beech	410	G	G	20-40		●	
3.65	Red Beech	410	G	G	20-40		●	
3.66	Red Beech	410	G	G	20-40		●	
3.67	Larch	610	F	F	10-20		●	
3.68	Cabbage Tree	150	F	P	1-5		●	Regrowth from old stump.
3.69	Mountain Beech	380	G	F	10-20		●	native.
3.70	Red Beech	320	F	F	10-20		●	
3.71	Hoheria (Lacebark)	360	F	P	5-10		●	native.
3.72	Larch	560	G	F	10-20		●	
3.73	Turkey Oak	240	F	P	10-20		●	Canopy suppressed proximity to Larch
3.74	Larch	560-790	F	F	10-20		●	
3.75	Larch	750	F	P	1-5		●	Twin stem codominant stems, poor union at 3m.
3.76	Dogwood (evergreen)	4 x 80	F	P	5-10		●	Shrub at 3m Ht.
3.77	Turkey Oak	580	G	G	40+		●	
3.80	Larch	740	F	F	10-20		●	Codominant side branch.
3.81	Turkey Oak	510	G	G	40+		●	
3.83	Silver Birch	590	G	G	20-40		●	
3.84	Silver Birch	370	G	G	20-40		●	

3.85	Silver Birch	490	G	G	20-40		●	
3.86	Chaemcyparis law. (golden)	260	G	G	40+		●	
3.87	English Oak	520	G	G	40+		●	
3.88	Chaemcyparis law.	450	F	G	20-40		●	
SHEET LD 0004								
4.1	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.2	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.3	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.4	Fraxinus sp. - Ash	80-100	VP	P	1-5	●		needs replacement - QLDC
4.5	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.6	Fraxinus sp. - Ash	80-100	VP	P	1-5	●		needs replacement - QLDC
4.7	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.8	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.9	Douglas Fir	800	F	P	10-20	●		Trees been topped
4.10	Douglas Fir	750	F	P	10-20	●		Trees been topped
4.11	Ornamental Plum (dark)	180 (basal)	P	P	1-5	●		
4.12	Almond	220	F	P	1-5	●		
4.13	Cypress (Blue Ice)	270	G	F	10-20		●	
4.14	Cypress (Blue Ice)	270	G	F	10-20	●		
4.15	Cypress (Blue Ice)	270	G	F	10-20	●		
4.16	Quercus palustris - Pin Oak	300	G	G	40+		●	
4.17	Quercus palustris - Pin Oak	150	G	F	10-20	●		
4.18	Chaemcyparis law.	450	F	F	20-40		●	
4.19	Small Leaf Lime (Tilia sp)	300	G	F	10-20		●	
4.20	Small Leaf Lime (Tilia sp)	7 x 80	F	P	1-5		●	Sucker regrowth from old stump.
4.21	Small Leaf Lime (Tilia sp)	350	G	G	40+		●	
4.22	Lime Tree (Tilia americana)	280	F	P	1-5		●	Multi leader from base.
4.23	Lime Tree (Tilia americana)	320	F	F	20-40	●		
4.24	English Oak	400	G	G	40+	●		
4.25	Turkey Oak	250	G	G	40+	●		
4.26	Turkey Oak	430	G	G	40+	●		
4.27	Turkey Oak	380	G	F	40+	●		
4.28	Chaemcyparis law. (golden)	280	F	F	10-20		●	500mm from edge of pathway.
4.29	English Oak	420	G	G	40+	●		
4.30	English Oak	380	G	G	40+	●		
4.31	Turkey Oak	490	G	F	40+	●		
4.32	Turkey Oak	490	G	F	40+	●		

4.33	**Turkey Oak**	**410**	**G**	**F**	**40+**	**●**		
4.34	**Flowering Cherry**	**100**	**P**	**P**	**1-5**	**●**		**Dwarf var. 1.0m ht.**
4.35	**Flowering Cherry**	**150**	**F**	**F**	**5-10**	**●**		
4.36	**Flowering Cherry**	**180**	**F**	**F**	**5-10**	**●**		
4.37	**Flowering Cherry**	**220**	**F**	**F**	**5-10**	**●**		
						44	**92**	

Summary of trees Useful Life Expectancy (ULE)

Useful Life Expectancy (ULE) 0-10 years.

Total trees with ULE of 0-10 years to be removed:	**27**
Total trees with ULE of 0-10 years to be retained:	**9**
Total trees:	**36**

Useful Life Expectancy (ULE) 10-20 years.

Total trees with ULE of 10-20 years to be removed:	**33**
Total trees with ULE of 10-20 years to be retained:	**8**
Total trees:	**41**

Useful Life Expectancy (ULE) 20-40+ years.

Total trees with ULE of 20-40+ years to be removed:	**32**
Total trees with ULE of 20-40+ years to be retained:	**27**
Total trees:	**59**

Total trees:	**136**

Appendices A **-Site/Tree Plan**

Appendices B **-Site Photos**

Appendices C **-Data Collection Description and Definitions and ULE Tree Table**

Appendices A -Site/Tree Plan

300 mm
200
100
50
0 10 mm

LD0001

PLAN
SCALE 1:250

TREE TO BE REMOVED

TREE TO BE RETAINED

PLAN

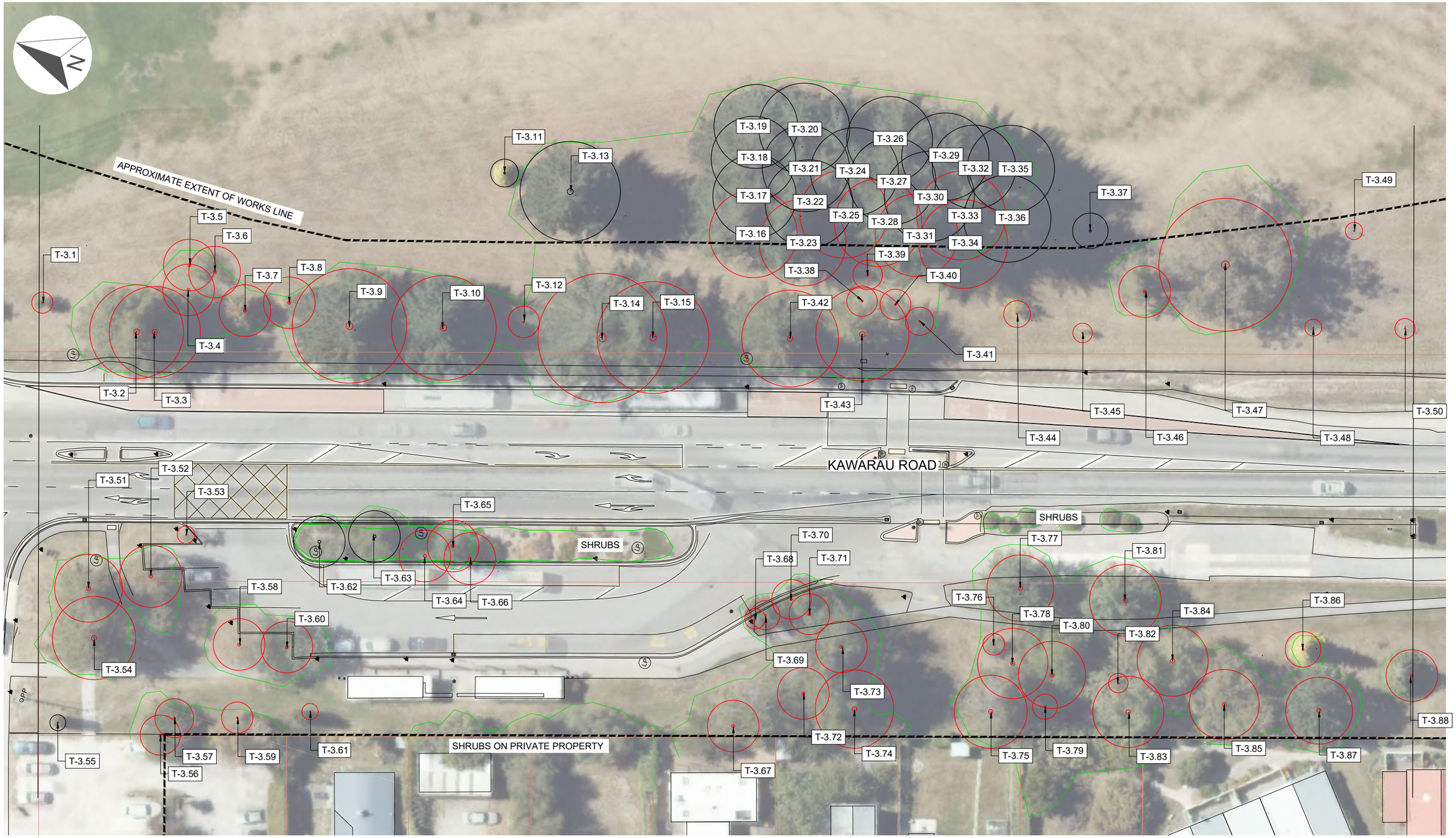
SCALE 1:250

LD0002

TREE TO BE REMOVED

TREE TO BE RETAINED

300 mm
200
100
50
0 10 mm



300 mm
200
100
50
0 10 mm

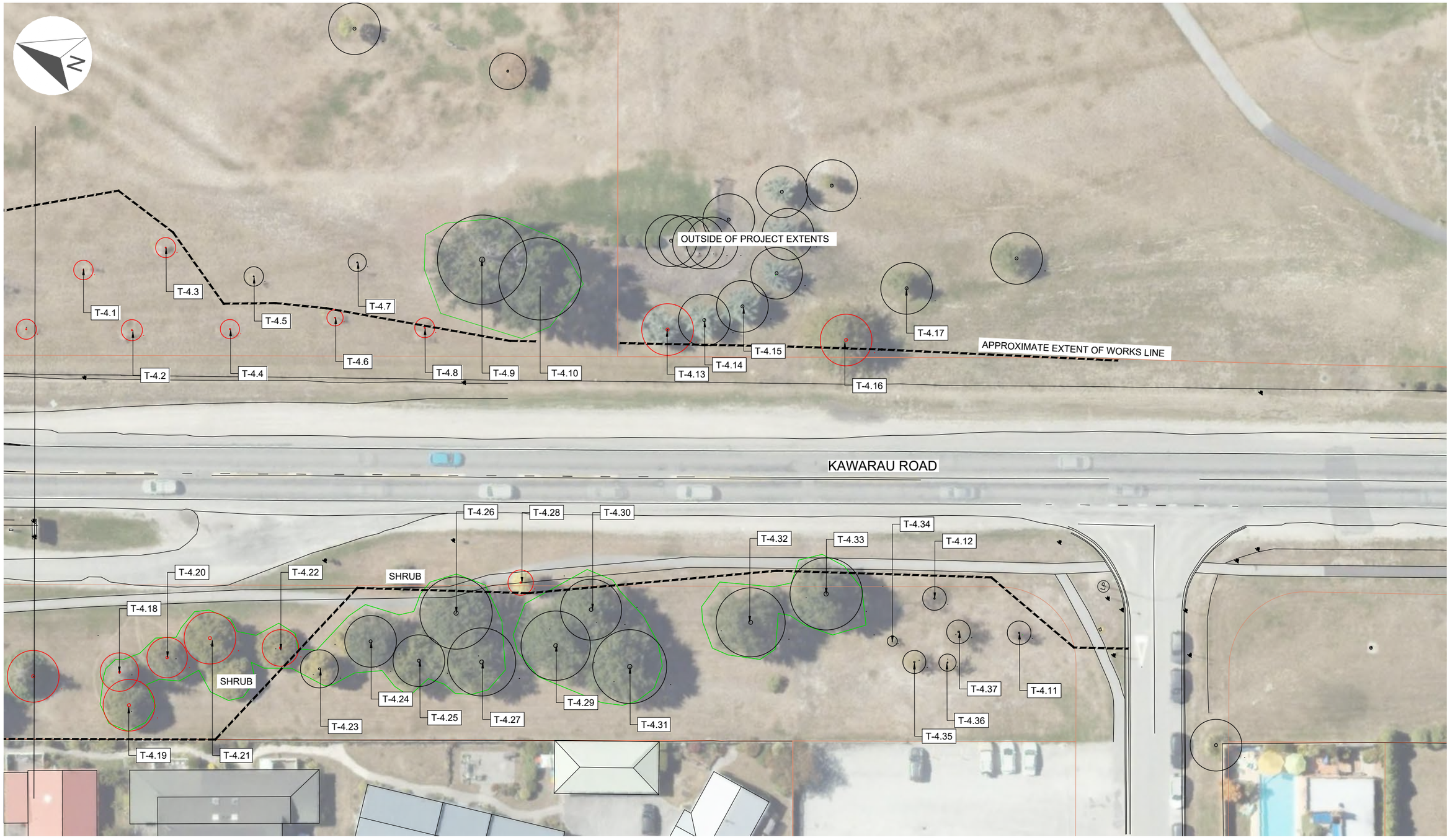
LD0003

PLAN

SCALE 1:250

TREE TO BE REMOVED

TREE TO BE RETAINED



300 mm
200
100
50
0 10 mm

LD0004

PLAN

SCALE 1:250

TREE TO BE REMOVED

TREE TO BE RETAINED

Appendices B -Site Photos

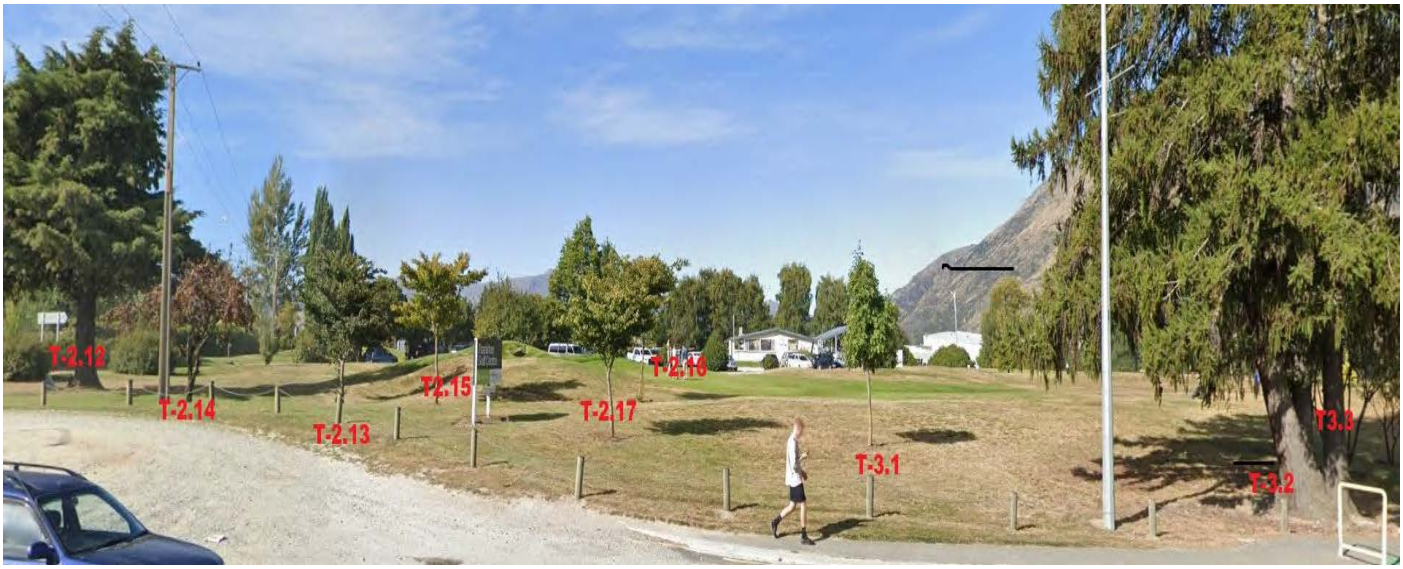


Photo – Frankton Golf course entrance.

Photo – Frankton Golf course/reserve.

Photo – Frankton Golf course/reserve.

Photo – corner of SH6 and Gray St.

Photo – Parking area bus hub.

Photo – Native vegetation island bus hub.

Photo – Southern entrance to bus hub western side of SH6.

Photo – western side of SH6.

Photo – western side of SH6.

Photo – western side of SH6.

Photo – western side of SH6 corner with Ross St.

Appendices C -Data Collection Description and Definitions

Data Collection Description and Definitions

1.1 Common Name

The colloquial name for a tree species, usually in plain English. Common names for a species are often local or regional and each species can have multiple common names.

1.2 Basal Diameter

Diameter above ground basal flare (estimated) Used to calculate the Tree Protection Zone. radius.

1.3 Tree Health

Category	Description
Very Good (VG)	The tree is demonstrating excellent or exceptional growth. The tree exhibits a full canopy of foliage and is free of pest and disease problems.
Good (G)	The tree is demonstrating good or exceptional growth. The tree exhibits a full canopy of foliage and has only minor pest or diseases problems.
Fair (F)	The tree is in reasonable condition and growing well. The tree exhibits an adequate canopy of foliage. There may be some dead wood present in the crown. Some minor snow or wind damage may be evident.
Poor (P)	The tree is not growing to its full capacity; extension growth of the laterals is minimal. The canopy may be thinning or sparse. Large amounts of deadwood may be evident throughout the crown. Significant pest and disease problems may be evident or there may be symptoms of stress indicating tree decline.
Very Poor (VP)	The tree appears to be in a state of decline. The tree is not growing to its full capacity. The canopy may be very thin and sparse. A significant volume of deadwood may be present in the canopy or pest and disease problems may be causing a severe decline in tree health.
Dead (D)	The tree is dead.

1.4 Structure

Category	Description
Good (G)	The tree has a well-defined and balanced crown. Branch unions appear to be sound, with no significant defects evident in the trunk or the branches. Major limbs are well defined. The tree is considered a good example of the species.
Fair (F)	The tree has some minor problems in the structure of the crown. The crown may be slightly out of balance, and some branch unions may be exhibiting minor structural faults. If the tree has a single trunk, it may be on a slight lean or exhibiting minor defects.
Poor (P)	The tree may have a poorly structured crown. The crown may be unbalanced or exhibit large gaps. Major limbs may not be well defined. Branches may be rubbing or crossing over. Branch unions may be poor or faulty at the point of attachment. The tree may have suffered root damage.
Very Poor (VP)	The tree has a poorly structured crown. The crown is unbalanced or exhibits large gaps with possibly large sections of deadwood. Major limbs may not be well defined. Branches may be rubbing or crossing over. Branch unions may be poor or faulty at the point of attachment. Branches may exhibit large cracks that are likely to fail in the future. The tree may have suffered major root damage.
Has Failed (HF)	A section of the tree has failed or is in imminent danger of failure and the tree is no longer a viable specimen.

1.5 Useful Life Expectancy (ULE)

An assessment of useful life expectancy provides an indication of health and tree appropriateness and involves an estimate of how long a tree is likely to remain in the landscape based on species, stage of life (cycle), health, amenity, environmental services contribution, conflicts with adjacent infrastructure and risk to the community.

It is not a measure of the biological life of the tree within the natural range of the species. It is more a measure of the health status and the tree's positive contribution to the urban landscape. It can assist in the management of the tree population and allow planning for the eventual removal and replacement of extant trees.

Useful Life Expectancy (ULE)

Category	Description
40+ years	The tree is in excellent condition and under normal conditions and with appropriate management is expected to continue as a viable landscape component in excess of 40 years.
20 - 40 years	The tree is in good condition and under normal conditions and with appropriate management is expected to continue as a viable landscape component for 20-40 years.
10 - 20 years	The tree is in fair condition and under normal conditions and with appropriate management is expected to continue as a viable landscape component for 10-20 years.
5 - 10 years	The tree is in fair to poor condition, or it is not a long lived species. Removal and replacement may be required within the next 10 years.
1 - 5 years	The tree is in poor condition due to advanced decline or structural defect. Removal and replacement may be required within the next 5 years.
0 years	The tree is dead or is considered hazardous in the location. Removal may be required.

PREVIOUS TABLE FORMATTED TO IDENTIFY THE ULE CATEGORIES

NZUP - Zone 3 Tree Survey	
Useful Life Expectancy (ULE) Table	
Identified on site David Finlin 8/06/2022.	
Updated David Finlin 5/07/2022.	
Total Tree Count: 136	

ULE 0 to 10 years

Tree No:	Name (Common)	Trunk Dia (mm)	Health	Structure	ULE	Retain	Remove	Comments
1.5	Amelanchier	70	F	P	1-5		●	small tree Ht 2m.
2.15	Zelkova	90	P	F	1-5		●	
2.16	Claret Ash	90	P	F	1-5		●	Trunk damaged.
3.4	Laburnum	40-80	P	F	1-5		●	group of 3 small trees 2-3.5m Ht.
3.5	Laburnum	40-80	P	F	1-5		●	group of 3 small trees 2-3.5m Ht.
3.6	Laburnum	40-80	P	F	1-5		●	group of 3 small trees 2-3.5m Ht.
3.9	Douglas Fir	850	G	P	1-5		●	Twin stem codominant stems, poor union at 3m.
3.56	Ornamental Plum	300	F	P	1-5		●	growing through boundary cnr fence.
3.68	Cabbage Tree	150	F	P	1-5		●	Regrowth from old stump.
3.75	Larch	750	F	P	1-5		●	Twin stem codominant stems, poor union at 3m.
4.20	Small Leaf Lime (Tilia sp)	7 x 80	F	P	1-5		●	Sucker regrowth from old stump.
4.22	Lime Tree (Tilia americana)	280	F	P	1-5		●	Multi leader from base.
4.34	Flowering Cherry	100	P	P	1-5	●		Dwarf var. 1.0m ht.
4.11	Ornamental Plum (dark)	180 (basal)	P	P	1-5	●		
4.12	Almond	220	F	P	1-5	●		
4.1	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.2	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.3	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.4	Fraxinus sp. - Ash	80-100	VP	P	1-5	●		needs replacement - QLDC
4.5	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.6	Fraxinus sp. - Ash	80-100	VP	P	1-5	●		needs replacement - QLDC
4.7	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
4.8	Fraxinus sp. - Ash	80-100	VP	P	1-5		●	needs replacement - QLDC
2.19	Laburnum sp. - Laburnum	150	F	F	1-5		●	
2.3	Ornamental Dark Plum	120	F	F	5-10		●	
2.9	Ornamental Plum	330 (basal)	F	F	5-10		●	
2.10	Walnut	270	F	P	5-10		●	
2.14	Crab Apple (Malus sp)	160	F	F	5-10		●	Located 1m from Power Pole.
2.18	Pin Oak	280	F	P	5-10	●		Tree confined to small planter box.
3.45	Norway Maple (Acer platanoides)	80	P	P	5-10		●	Damaged/replace
3.53	Red Beech	150	D	VP	0		●	Dead.
3.71	Hoheria (Lacebark)	360	F	P	5-10		●	native.
3.76	Dogwood (evergreen)	4 x 80	F	P	5-10		●	Shrub at 3m Ht.
4.35	Flowering Cherry	150	F	F	5-10	●		
4.36	Flowering Cherry	180	F	F	5-10	●		
4.37	Flowering Cherry	220	F	F	5-10	●		
						9	**27**	

ULE 10 to 20 years

Tree No:	Name (Common)	Trunk Dia (mm)	Health	Structure	ULE	Retain	Remove	Comments
1.3	Chamaecyparis sp.	600	F	F	10-20		●	
1.4	Cupressus sp. - Cypress	1200	F	P	10-20	●		
1.6	Dogwood (Cornus sp)	110	F	F	10-20		●	small tree/shrub Ht 3-4m.
2.1	Dogwood (Cornus sp)	100	F	F	10-20		●	small tree/shrub Ht 3-4m.
2.2	Dogwood (Cornus sp)	90	F	F	10-20		●	small tree/shrub Ht 3-4m.
2.4	Irish Strawberry Tree	2x400 (basal)	G	G	10-20	●		
2.5	Irish Strawberry Tree	5x 200 (basal)	G	G	10-20		●	
2.6	Irish Strawberry Tree	5x 300 (basal)	G	G	10-20		●	
2.7	Ornamental Flowering Cherry	90	F	F	10-20		●	
2.8	Crab Apple (Malus sp)	280	F	F	10-20		●	
2.13	Zelkova	180	F	F	10-20		●	
2.17	Zelkova	110	F	F	10-20		●	
3.2	Larch tree	450 x 2	F	P	10-20		●	Twin leader codominant, poor union at base.
3.3	Larch tree	450	F	P	10-20		●	Single leader
3.10	Claret Ash	90	F	F	10-20		●	
3.43	Larch	690	F	F	10-20		●	
3.46	Larch	540	G	F	10-20		●	
3.51	Larch	600	F	F	10-20		●	
3.52	Silver Birch	300	F	F	10-20		●	
3.54	Larch	650	F	F	10-20		●	
3.55	Thuja pyramidalis	300	F	F	10-20		●	
3.58	Silver Birch	280	F	F	10-20		●	
3.59	Thuja pyramidalis	300	F	F	10-20		●	
3.60	Almond (fruit tree)	330	F	F	10-20		●	
3.61	Thuja pyramidalis	300	F	F	10-20		●	
3.62	Kowhai	3x150	F	F	10-20	●		Native.
3.67	Larch	610	F	F	10-20		●	
3.69	Mountain Beech	380	G	F	10-20		●	native.
3.70	Red Beech	320	F	F	10-20		●	

3.72	Larch	560	G	F	10-20		●	
3.73	Turkey Oak	240	F	P	10-20		●	Canopy suppressed proximity to Larch
3.74	Larch	790	F	F	10-20		●	
3.80	Larch	740	F	F	10-20		●	Codominant side branch.
4.9	Douglas Fir	800	F	P	10-20	●		Trees been topped
4.10	Douglas Fir	750	F	P	10-20	●		Trees been topped
4.13	Cypress (Blue Ice)	270	G	F	10-20		●	Not Blue Cedar QLDC
4.14	Cypress (Blue Ice)	270	G	F	10-20	●		Not Blue Cedar QLDC
4.15	Cypress (Blue Ice)	270	G	F	10-20	●		Not Blue Cedar QLDC
4.19	Small Leaf Lime (Tilia sp)	300	G	F	10-20		●	
4.28	Chaemcyparis law. (golden)	280	F	F	10-20		●	500mm from edge of pathway.
4.17	Quercus palustris - Pin Oak	150	G	F	10-20	●		
						8	**33**	

ULE 20 to 40 plus years

Tree No:	Name (Common)	Trunk Dia (mm)	Health	Structure	ULE	Retain	Remove	Comments
3.1	Douglas Fir	800	F	G	20-40		●	
3.7	Norway Maple	140	G	F	20-40		●	Trees 4m apart.
3.8	Norway Maple	70	G	F	20-40		●	Trees 4m apart.
3.11	Chaemcyparis law. (golden)	250	F	G	20-40	●		
3.13	Douglas Fir	800	G	G	20-40	●		
3.14	Douglas Fir	810	G	F	20-40		●	
3.15	Douglas Fir	810	G	F	20-40		●	
3.16	Douglas Fir	440- 880	F	F	20-40		●	
3.17	Douglas Fir	440- 880	F	F	20-40	●		
3.18	Douglas Fir	440- 880	F	F	20-40	●		
3.19	Douglas Fir	440- 880	F	F	20-40	●		
3.20	Douglas Fir	440- 880	F	F	20-40	●		
3.21	Douglas Fir	440- 880	F	F	20-40	●		
3.22	Douglas Fir	440- 880	F	F	20-40	●		
3.23	Douglas Fir	440- 880	F	F	20-40		●	
3.24	Douglas Fir	440- 880	F	F	20-40	●		
3.25	Douglas Fir	440- 880	F	F	20-40		●	
3.26	Douglas Fir	440- 880	F	F	20-40	●		
3.27	Douglas Fir	440- 880	F	F	20-40	●		
3.28	Douglas Fir	440- 880	F	F	20-40		●	
3.29	Douglas Fir	440- 880	F	F	20-40	●		
3.30	Douglas Fir	440- 880	F	F	20-40	●		
3.31	Douglas Fir	440- 880	F	F	20-40		●	
3.32	Douglas Fir	440- 880	F	F	20-40	●		
3.33	Douglas Fir	440- 880	F	F	20-40		●	
3.34	Douglas Fir	440- 880	F	F	20-40		●	
3.35	Douglas Fir	440- 880	F	F	20-40	●		
3.36	Douglas Fir	440- 880	F	F	20-40	●		
3.42	Douglas Fir	760	F	F	20-40		●	
1.1	Fraxinus sp. - Ash	400	G	G	40+		●	
1.2	Acer davidii - Snake Bark Maple	180	G	G	40+		●	
2.12	Cuppressus sp var. (blue ice)	800	G	F	20-40		●	
3.44	Norway Maple (Acer platanoides)	100	F	F	20-40		●	
3.47	Gum Tree (Eucalyptus sp.)	1120	G	F	20-40		●	Some deadwood present in canopy.
3.63	Red Beech	410	G	G	20-40	●		
3.64	Red Beech	410	G	G	20-40		●	
3.65	Red Beech	410	G	G	20-40		●	
3.66	Red Beech	410	G	G	20-40		●	
3.77	Turkey Oak	580	G	G	40+		●	
3.81	Turkey Oak	510	G	G	40+		●	
3.83	Silver Birch	590	G	G	20-40		●	
3.84	Silver Birch	370	G	G	20-40		●	
3.85	Silver Birch	490	G	G	20-40		●	
3.86	Chaemcyparis law. (golden)	260	G	G	40+		●	
3.87	English Oak	520	G	G	40+		●	
3.88	Chaemcyparis law.	450	F	G	20-40		●	
4.16	Quercus palustris - Pin Oak	300	G	G	40+		●	
4.18	Chaemcyparis law.	450	F	F	20-40		●	
4.21	Small Leaf Lime (Tilia sp)	350	G	G	40+		●	
4.23	Lime Tree (Tilia americana)	320	F	F	20-40	●		
4.24	English Oak	400	G	G	40+	●		
4.25	Turkey Oak	250	G	G	40+	●		
4.26	Turkey Oak	430	G	G	40+	●		
4.27	Turkey Oak	380	G	F	40+	●		
4.29	English Oak	420	G	G	40+	●		
4.30	English Oak	380	G	G	40+	●		
4.31	Turkey Oak	490	G	F	40+	●		
4.32	Turkey Oak	490	G	F	40+	●		
4.33	Turkey Oak	410	G	F	40+	●		
						27	**32**	

RETAIN **REMOVE**

44 **92** **TOTAL 136**