INFRASTRUCTURE REPORT

B Property Group

Waimarino Development

Bob's Cove, Queenstown

Lot 100 DP 494333 and Part of Section 28 Block V Mid Wakatipu Survey District

July 2021

1.0 EXECUTIVE SUMMARY OF PROPOSAL

B Property Group seeks resource consent to construct and operate a luxury lodge and implement associated 26 lot subdivision at 59 Tui Drive, Mount Creighton, known as **Waimarino**.

The proposal seeks to create 24 individual freehold villas, 1 owner's residence, 1 managers residents, 1 restaurant, 1 yoga studio, 1 spa and 1 gin distillery. The villas, owner's residence and gin distillery will be held in separate registered titles with a management company formed to manage the services associated with the development.

The Waimarino land is located in the south-western corner of Bob's Cove and comprises:

Lot 100 DP494333	1.47 hectares	The BCDL land previously intended for the Wapiti Lodge	Rural Residential – Bob's Cove Zone
Part of Section 28 Block V Mid Wakatipu Survey District	0.4 hectares	The land being swapped with DoC	Rural Residential Zone

The Waimarino proposal is to develop a luxury lodge that comprises:

- 7 Luxury Villas (58m^2)
- 5 Luxury Villas + high decks (77m^2)
- 8 Premium Villas (77.96m^2)
- 4 Premium Villas + high decks (77.96m^2)
- 1 x 4 Bedroom Owner's Residence
- Spa and Yoga Studio
- Guest Lounge
- Micro-distillery
- Manager Residence & Reception

The Lodge is intended as a destination, and guests will be encouraged to stay and relax in a peaceful retreat.

The Lodge would not be open to the public[i] and only guests will be allowed to use the facilities.

Landscaping and Site Layout

The Lodge is designed to have a close affinity with the environment; with each of the villas having a green (living) roof and incorporating sustainability based design-elements throughout. The building design is an elegant contemporary style.

Each of the 24 villas will comprise a one bedroom unit and bathroom. The 12 premium villas also include a living area and small kitchenette. None of the villas will include either a laundry or a standard kitchen.

All meals will be prepared and provided from a central kitchen and dining facility. Room service will be available from the central kitchen. Laundry services will be provided to guests on a daily service basis.

As a requirement for this application, we have investigated the existing and proposed infrastructure availability to the proposed development to confirm what is proposed can be serviced by this infrastructure.

This report will outline the following infrastructure availability;

1. Wastewater
2. Potable Water
3. Stormwater
4. Telecommunications
5. Electricity
6. Access

1.1 Appendices

1. Wastewater documentation
2. Potable water documentation
3. Chorus confirmation
4. Aurora confirmation

2.0 WASTEWATER

2.1 Existing Wastewater Availability

The land Waimarino is being developed on, being Lot 100 DP 494333 currently has an allocated amount of user rights to the existing wastewater treatment plant within Lot 101 DP 538248, with service easements in place to convey and dispose of wastewater to this plant. The existing rights allow 4 additional users to join the system.

This existing system has a maximum design load of 15m³ (15,000litres) per day.

2.2 Proposed Wastewater Treatment

As a result of the current aged wastewater treatment plant further investigations were made into replacing/upgrading the plant that would cater for the existing users and Waimarino.

The existing wastewater treatment plant is currently owned and maintained by GlenTui. Negotiations between B Property Group and GlenTui have been ongoing regarding Waimarino taking over the ownership and maintenance of the new replacement wastewater treatment plant. Given GlenTui have been indicating their support of the development, it is anticipated that they will provide the appropriate affected party approval. Furthermore, it is anticipated that GlenTui are happy to transfer the ownership and maintenance rights.

Based on discussions with multiple wastewater treatment suppliers as to the load required from the Waimarino development, given their layout detailed above, the following was concluded;

- 145Lpp for the Villas with kitchenette
- 115Lpp for Standard Villa

- 165Lpp Manager's Residence
- 200Lpp Owner's Residence
- 60Lpp (30L per customer per meal) Restaurant
- 15Lpp Distillery

Total waste volume is **9848L per day.**

The above load from Waimarino along with the existing users (3 from Fishermans Lane) plus allowing for future activities surrounding Waimarino, a total necessary capacity of 20,000 litres per day would suffice.

Onsite investigations into the suitability of the ground conditions of the existing disposal field have been carried out. This was completed by a local wastewater designer and installer, Railton Construction. Grant Railton completed this investigation and found the ground conditions around the existing disposal field *''to be draining gravels and sands, classed as soil cat 1-2 with a DLR of 50mg per day using secondary treatment".*

The size of the existing disposal bed is approximately 400m².

2.3 Conclusion

Investigations concluded that with the appropriate treatment system, 20,000 litres per day treatment could be achieved. This amount would cater for both existing, future and the Waimarino development.

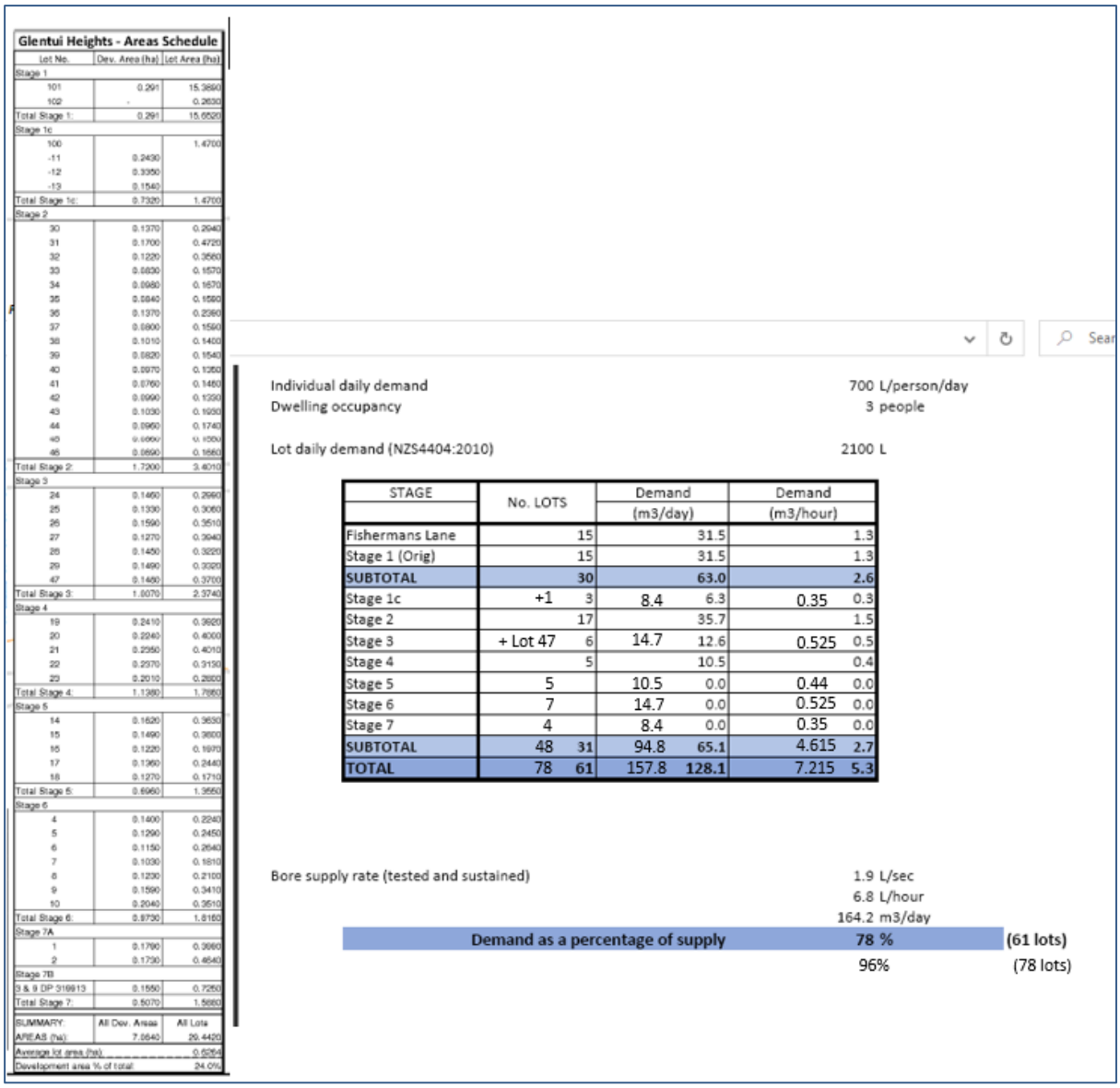
Further detailed design would be required should Waimarino be granted consent.

3.0 POTABALE WATER

3.1 Existing Potable Water Availability

The land Waimarino is being developed on, being Lot 100 DP 494333, currently has an allocated amount of user rights to the existing potable water supply from the GlenTui system, with service easements in place to convey water from the current reticulated network. The existing rights allow 4 additional users to join the supply.

The following table demonstrates the allocation of water across various GHL stages, relative to supply.



Glentui Heights - Areas Schedule

Lot No.	Dev. Area (ha)	Lot Area (ha)
Stage 1		
101	0.291	15.3880
102	-	0.2630
Total Stage 1:	0.291	15.6520
Stage 1c		
100		1.4700
-11	0.2490	
-12	0.3350	
-13	0.1540	
Total Stage 1c:	0.7320	1.4700
Stage 2		
30	0.1370	0.2640
31	0.1700	0.4720
32	0.1220	0.3560
33	0.0830	0.1570
34	0.0980	0.1670
35	0.0840	0.1590
36	0.1370	0.2380
37	0.0800	0.1560
38	0.1010	0.1400
39	0.0820	0.1540
40	0.0970	0.1350
41	0.0760	0.1460
42	0.0990	0.1390
43	0.1030	0.1930
44	0.0960	0.1740
45	0.0690	0.1550
Total Stage 2:	1.7200	3.4010
Stage 3		
24	0.1460	0.2690
25	0.1330	0.3060
26	0.1590	0.3510
27	0.1270	0.3940
28	0.1450	0.3220
29	0.1490	0.3020
47	0.1460	0.3700
Total Stage 3:	1.0070	2.3740
Stage 4		
19	0.2410	0.3920
20	0.2240	0.4000
21	0.2350	0.4010
22	0.2370	0.3150
23	0.2010	0.2800
Total Stage 4:	1.1380	1.7880
Stage 5		
14	0.1620	0.3630
15	0.1490	0.3600
16	0.1220	0.1970
17	0.1360	0.2440
18	0.1270	0.1710
Total Stage 5:	0.6960	1.3550
Stage 6		
4	0.1400	0.2240
5	0.1290	0.2450
6	0.1150	0.2640
7	0.1030	0.1810
8	0.1230	0.2100
9	0.1590	0.3410
10	0.2040	0.3510
Total Stage 6:	0.8730	1.8160
Stage 7A		
1	0.1790	0.3660
2	0.1790	0.4640
Stage 7B		
9 & 9 DP 319913	0.1550	0.7250
Total Stage 7:	0.5070	1.5550
SUMMARY:	All Dev. Areas	All Lots
AREAS (ha)	7.0640	29.4420
Average lot area (ha)		0.5254
Development area % of total		24.0%

Individual daily demand 700 L/person/day
Dwelling occupancy 3 people

Lot daily demand (NZS4404:2010) 2100 L

STAGE	No. LOTS		Demand (m3/day)		Demand (m3/hour)	
Fishermans Lane	15		31.5		1.3	
Stage 1 (Orig)	15		31.5		1.3	
SUBTOTAL	**30**		**63.0**		**2.6**	
Stage 1c	+1	3	8.4	6.3	0.35	0.3
Stage 2	17		35.7		1.5	
Stage 3	+ Lot 47	6	14.7	12.6	0.525	0.5
Stage 4	5		10.5		0.4	
Stage 5	5		10.5	0.0	0.44	0.0
Stage 6	7		14.7	0.0	0.525	0.0
Stage 7	4		8.4	0.0	0.35	0.0
SUBTOTAL	**48**	**31**	**94.8**	**65.1**	**4.615**	**2.7**
TOTAL	**78**	**61**	**157.8**	**128.1**	**7.215**	**5.3**

Bore supply rate (tested and sustained) 1.9 L/sec
6.8 L/hour
164.2 m3/day

Demand as a percentage of supply	**78 %**	**(61 lots)**
	96%	(78 lots)

This table identifies the existing potable water supply is at 96% capacity.

This shows the existing system is unable to supply Waimarino.

3.2 Proposed Potable Water Supply

Given the limited availability from the GlenTui water supply, investigations were made into sourcing water onsite by the means of a bore.

SouthDrill were engaged to complete this works with an appropriate position onsite identified test drilling was successfully undertaken. This test drill showed there was a suitable drinking water source available that was pumping at 1.5 litres per second. Therefore, daily load takes could be;

- 1.5x60secsx60minx24hrs – 129,600 litres/day

As with the wastewater the water supply has been based on a per person (700 litres per day) calculation as opposed to the per the standard residential allotment number of 2100 litres per lot. The below details the calculated water demand.

- 24 villas – 2 people – 700x24x2 – 33,600l/day
- 1 managers residence – 2 people – 700x2 – 1,400l/day
- 1 owners' residence – 8 people – 700x8 – 5,600l/day

Total necessary potable water supply is **40,520L/day**. The restaurant and distillery have not been considered as all residences will be fully catered for, therefore these water allocations will be included in their daily amount.

Within Waimarino, areas have been identified to allow for the storage of the water, being underground tanks located near the entrance to the carpark as shown on the DesignBase Architecture Plans appended to the resource consent application.

3.3 Conclusion

The successful bore drilling showed that a suitable potable water supply and quantity is available to service the demands generated by Waimarino.

Further detailed design and Otago Regional Council water take consent will be required should Waimarino be granted consent.

4.0 STORMWATER

4.1 Existing Stormwater Availability

There is no existing stormwater network within the wider GlenTui development. Treatment of stormwater is by the means of onsite soakage.

Existing consents have allowed development of the Waimarino site. These sites where to treat stormwater onsite.

These consents allowed for the development of four 'development areas' under RM180302 and RM150792.

These development areas have limits as to the size of dwelling that can be constructed on them, being 500m² or 15% of the net site area, whichever one is the minimum.

- Lot 100 DP 494333 (RM150792) – 1.4693ha – 15% - 2203m² or 3 x 500m² - 1500m²
- DoC swap (RM180302) – 3400m² - 15% - 510m² - 500m²

Therefore, total building area consented already on site is 2000m².

Additional to the building there is anticipated access and parking requirements.

- RM180302 has a conditioned sealed access with an average width of 4.5m at a length of 250m – 1125m²
- Average dwelling access and parking – 200m² x 4 – 800m²

Therefore, total access impervious area – 2925m²

This gives a total impervious area of 4925m², subject to further resource consents to allow the construction of the dwellings.

4.2 Proposed Stormwater

Extensive native revegetation and landscaping is proposed throughout the site, to recreate a natural lakeside beech forest setting.

The units are designed at differing elevations so that each unit enjoys views to the Lake, whilst maintaining privacy between occupants.

Waimarino is designed to have a close affinity with the environment; with each of the villas having a green (living) roof and incorporating sustainability-based designelements throughout.

Online investigations have identified that green roofs can significantly reduce stormwater runoff with 40-60% of the rainwater retained and runoff time of the remainder is greatly extended.

The main build area of Waimarino is 2,681m², as detailed within the architectural drawing set.

Access within Waimarino is proposed to consist of a gravel surface with widths kept to a minimum, with the main route to the restaurant enough for a fire appliance to negotiate, 3.5-4.0m wide, while the tees off to the villas enough for a golf cart, 2.0m wide.

All up the access and parking area comes to 2,294m².

Based on the consented development vs proposed development we have allowed for the following;

- Consented developed runoff coefficients(building code)
    - Fully roofed and or sealed surfaces – 0.9
- Proposed developed runoff coefficients(building code)
    - Unsealed road – 0.5
    - Green roof – 40% of a normal roof(0.9) – 0.54

Therefore, using the rational method to calculate the runoff – Q=2.78 CiA (i – intensity, will be the same, for this exercise we will use 20mm) we have;

- Consented – 2.78 x 0.9 x 20 x 0.4925 – 25l/sec
- Proposed – 2.78 x 0.52 x 20 x 0.4975 – 14l/sec

4.3 Conclusion

Calculations have concluded that the proposed development will reduce the stormwater runoffs when comparing against the already consented development. Given this, without detailing further designs stormwater will be dealt with via onsite soakage pits or alternatively individual tanks hidden within each villa.

Further detailed design would be required should Waimarino be granted consent.

5.0 TELECOMMUNICATIONS & ELECTRICITY

5.1 Existing Telecommunication & Electricity

RM180302 developed Lot 100 DP 494333 into the 4 consented development areas. As part of this construction telecommunications and electricity infrastructure has been installed.

5.2 Proposed Development Telecommunications Supply

Confirmation form Chorus NZ Ltd and Aurora Energy have confirmed Waimarino can be serviced by the existing infrastructure.

6.0 ACCESS

6.1 Existing Access

Right of way easement rights exist over Tui Drive, which traverses from Glenorchy – Queenstown Road to the development. Within the easement documents the Waimarino land has capacity for 4 users. Additional users can be added subject to negotiations between GlenTui and Waimarino.

Tui Drive is constructed to a E3 standard within the QLDC Code of Practice, being 5.5-5.7m formed width. This allows access to 1-150 dwelling equivalents.

The GlenTui development plan has 28 consented allotments, therefore the existing formed access has capacity for an additional 122 dwellings under E3.

RM180302 consented a 250m long access way on Lot 100 of 3.5-5.5 metres wide with rock lined swales and a maximum gradient of 16%. At the time consent was granted a condition was imposed to seal this access due to the 16% grade.

6.2 Proposed Access

Waimarino's intent is that traffic movements will be minimised wherever possible through the use of shared-ride and quiet electric courtesy vehicles.

No larger vehicles, excluding fire appliances will be permitted beyond the carparking area within site. Guests will be shuttled to their accommodation via golf carts.

The main access down the development will be constructed to meet the requirements of a fire appliance, this will be 3.5-4.0m in width with a maximum gradient of 15%. The tees to the villas' will be approximately 2.0m in width.

The pavement throughout the development will be compacted gravels to a depth and compaction suitable for a fire appliance, with vegetated and rock lined swales.

Given the limited occurrence of a fire appliance it a gravel pavement at 15% is considered appropriate for the environment.

6.3 Conclusion

Access to the boundary of the Waimarino development is constructed to a standard to meet the additional users.

The intended traffic movements will be minimised due to the nature of the development and will result in traffic movements not to dissimilar to the consent development.

Further detailed design would be required should Waimarino be granted consent.

7.0 CONCLUSION

This infrastructure report demonstrates that the proposed Waimarino development can be serviced through the existing available services in addition to establishing onsite water source and relevant upgrades where required.

Should consent be granted the appropriate conditions can be imposed to ensure further detailed design of the infrastructure is completed prior to construction commencing.

GRANT RAILTON

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WASTEWATER DESIGN PROPOSAL

Waimarino development – Queenstown

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31/05/2021

RE: Waimarino development – Queenstown

Hi Craig,

We completed site visit on 10 May 2021 and dug test pits in the existing disposal area.

The ground conditions under the silt and soil layer are free draining gravels and sands, classed as soil cat 1-2 with a DLR of 50mg per day using secondary treatment.

The size of the new disposal bed would be approximately 400 m2 in the area of the existing disposal bed which is approximately 1000 m2.

The new bed would incorporate a 600 mm sand layer to slow infiltration down.

We would be looking at using the Aubin Environmental sewage treatment plant which is a containerised plug and go unit (as attached specs)
A standard unit is 20 m3 per day.

Parts of the existing water cycle treatment plant would be utilised in this system.

A full design for the system will follow if you decide to go ahead.

Grant Railton

3.0 Description of the Treatment Plant and Discharge System

3.1 Design basis

Plant Type: Recirculating Granular-media Biofilter

Treated Effluent Quality:
15 g/m^3 BOD_5; 20 g/m^3 TSS on average, and
30 g/m^3 BOD_5; 40 g/m^3 TSS maximum

Design Flows/loads:

Design load: domestic-type sewage from six homes and 15 visitor accommodation units

Raw Sewage characteristics:
BOD_5 and Suspended Solids both 200 - 450 g/m^3
Total Nitrogen less than 80 g N/m^3

Design Flows:

max. daily flow	15 m^3/day
avg daily flow	10.4 m^3/day
peak hourly flow	1.8 m^3/hour

(note: inflow balancing is provided by the transfer pumpwell from which sewage is loaded to the plant.)

3.2 The treatment plant components and equipment

Underground Tanks

Primary Treatment Tank:
Single tank, 22.5 m^3, 3.5 m^3 diameter x 2.6 m deep, equipped with two coarse-particle outlet filters. Tank manufactured by Burford Tanks, Winton

Recirculation Tank:
11 m^3 tank, 2.8 m diameter x 1.8 m deep. Tank manufactured by Burford Tanks, Winton

Biofilter Loading Pumpwell:
1.8 m^3 tank, 1.6 m dia. x 1.7 m H, Tank manufactured by Burford Tanks, Winton. Contains two biofilter loading pumps

Recycle/Discharge Splitter Sump:

PVC device (300 mm dia.) supplied by WEB Environmental. Directs return flow from biofilter to recycle through the recirculation tank or to the discharge pumpwell

Treated Effluent Discharge Pumpwell:

11 m^3 tank, 2.8 m diameter x 1.8 m deep. Tank manufactured by Burford Tanks, Winton

Pumps

Biofilter Loading Pumps (in Biofilter Loading Pumpwell):

- 2nr, ASB MF404D submersible pumps, each loading effluent to one-half of the biofilter. Pumps are timer controlled.

Effluent Discharge Pumps (in Discharge Pumpwell):

- Two ABS 334-D submersible pumps, controlled by level sensor (float switch).

Granular-media Biofilter and Distribution Pipes

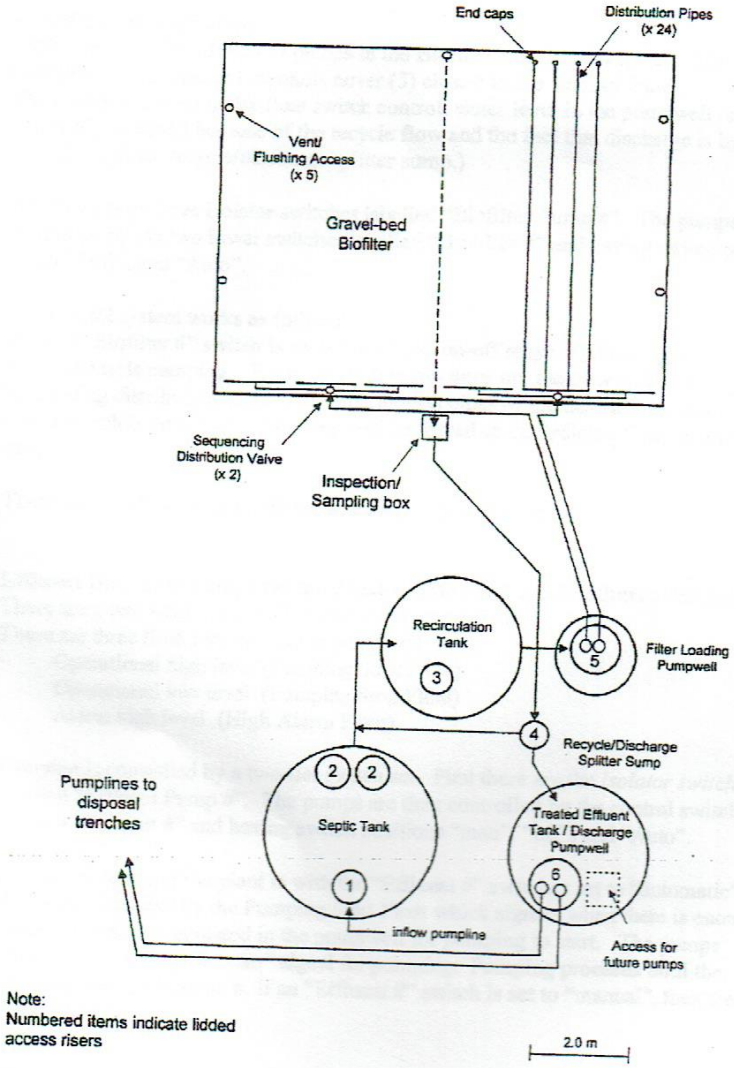
The sand filter is constructed at ground level as a post and plank, 65 m^2 open-top box of dimensions 9.0 metres x 7.2 metres x 1.2 metre deep. The walls and floor are lined with a polythene membrane.

The filter material is a 650 mm deep bed of 3-5 mm sand/gravel, free of fines. Drainage from the bottom of the bed is provided by 200 mm under-layer of 10-15 mm gravel containing a slotted, 100 mm DN drain pipe, on a sloping floor.

For loading effluent to the biofilter bed, there are 24 Distribution Pipes (pipes are DN 25 mm Class D PVC) arranged in two zones (corresponding to the two pumps) with each zone having three sectors of four distribution pipes per sector. Sectors are loaded one at a time, cyclically.

The pipes are buried in a 250 mm deep bed of 10 mm gravel lying on top of the biofilter bed. The pipes have 3.5 mm discharge holes at 375 mm centres. The holes are protected by hole shields. The ends of the pipes are turned up and capped with sealing, removable screw-caps, providing access for cleaning the pipes.

Plant Layout



Bore Construction Report

SOUTHDRILL EXPLORATION & PILING

OFFICE USE ONLY		
Date received	Accession number	Signed
Bore number	Entered IRIS date	Invoice date

GENERAL DETAILS								
Client/Consent holders name	**Bobs Cove**					**Consent number**	RM 21.200	
Location/Address	**Bobs cove development**							
Grid reference	E.1247008		N.4999245	GPS ■		Other ☐	Cell #	
Sketch plan attached	Yes ☐	No ■	**Photos**	Yes ■		No ☐	Home #	

DRILLING DETAILS			
Drilling company	**SouthDrill LTD**	**Driller**	Russell davy
Machine/Rig	**Schramm**	**Fleet**	2101
Drill method	Air Rotary		

BORE CONSTRUCTION DETAILS					
Start date	**5-05-21**		**Finish date**	10-05-21	
Bore diameter	**150**	mm	**Casing material**	Steel	
Screen material	Stainless steel				
Screen diameter	Inside 130	mm		Outside 142	mm
Screen slots	1.5	mm		Sump diameter	mm
Overdrilled	Yes ■	No ☐	BackFilled		

PUMPING/WATER DETAILS								
Dry bore	Yes ☐	No ■	**If dry, was casing retrieved?**	Yes ☐	No ☐	**Bore filled in**	Yes ☐	No ☐
Development period	**9**	hours	**Development method**	Air				
Yield/Test pumping	Airlifted ☐		Pumped ■	**Test pump period**	4 hours			
Test pump rate	1.5	litres/second	**Method of measuring rate**	Volumetric Test				
Comments	SWL 22.5							
Pumped water level	24.02	metres						

WATER QUALITY ETC						
Bacterial water test	Yes ■	No ☐	**Chemical water Test**	Yes ■	No ☐	
Casing top sealed	Yes ■	No ☐	**Impervious seal at ground**	Yes ■	No ☐	

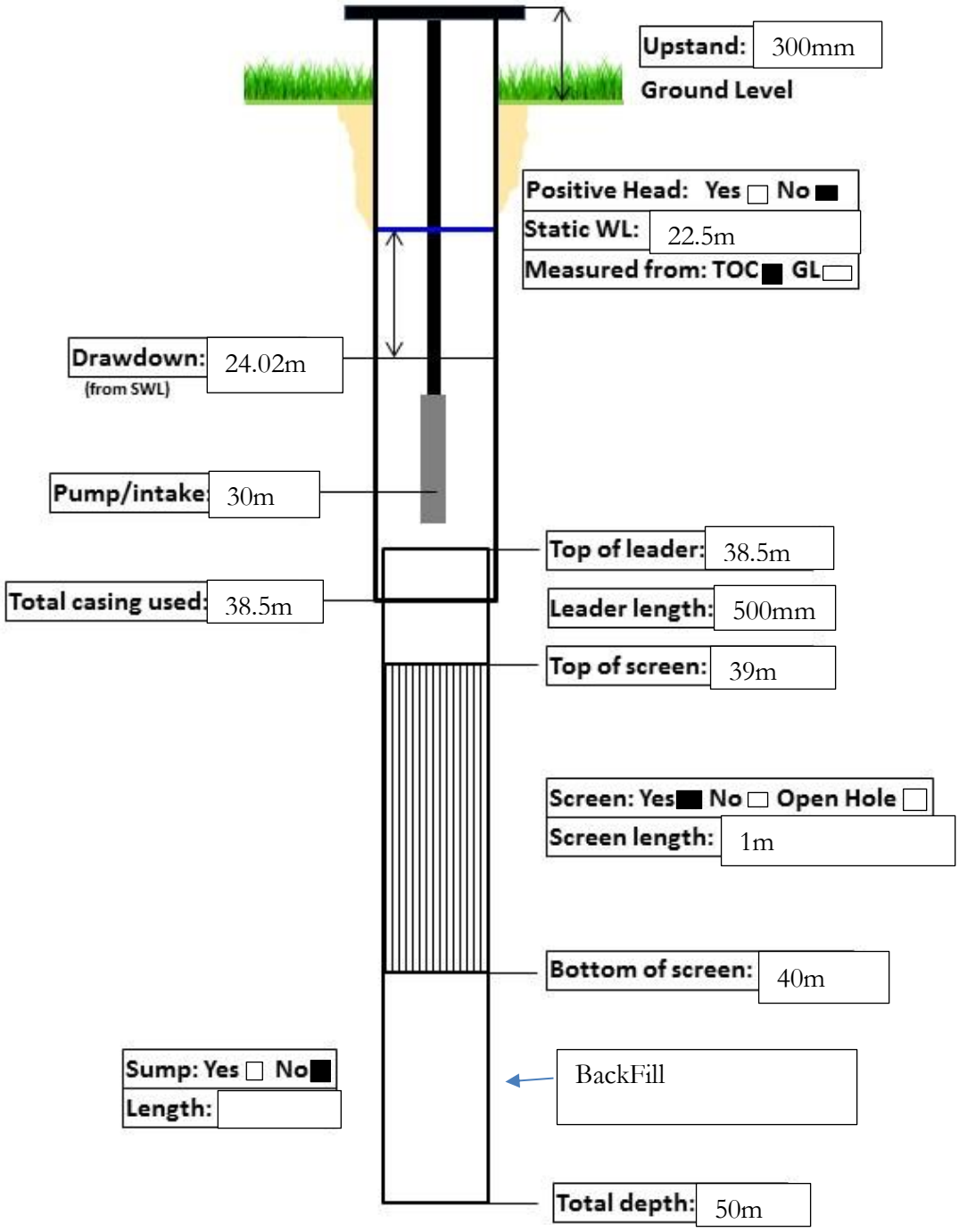
Comments

BORE LOG (METRES BELOW REFERENCE POINT)
0.0m-40m Silty gravels
40m-50m Silts

Do you intend to drill more bores under this Land Use Consent number? Yes ☐ No ☐

If yes, number of bores drilled ..... ***of*** _____ ***Bores drilled*** ***Number bore logs provided*** .....

PTO for bore diagram



Hill Laboratories
TRIED, TESTED AND TRUSTED

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Certificate of Analysis

Client:	SouthDrill Limited	**Lab No:**	2608417	DWAPv1
Contact:	SouthDrill Limited C/- SouthRoads Limited PO Box 968 Invercargill 9840	**Date Received:**	11-May-2021	
		Date Reported:	19-May-2021	
		Quote No:	102422	
		Order No:	2115.015	
		Client Reference:	Bore water	
		Submitted By:	SouthDrill Limited	

Sample Type: Aqueous

		Sample Name:	Bobs Cove 10-May-2021 2:00 pm	**Guideline Value**	**Maximum Acceptable Values (MAV)**
		Lab Number:	2608417.1		
Individual Tests					
Total Cadmium	g/m³		< 0.000053	-	0.004
Total Chromium	g/m³		0.00138	-	0.05
Fluoride	g/m³		0.13	-	1.5
Routine Water + E.coli profile Kit					
Escherichia coli	MPN / 100mL		< 1	-	< 1
Routine Water Profile					
Turbidity	NTU		1.84	< 2.5	-
pH	pH Units		7.3	7.0 - 8.5	-
Total Alkalinity	g/m³ as $CaCO_3$		39	-	-
Free Carbon Dioxide	g/m³ at 25°C		3.9	-	-
Total Hardness	g/m³ as $CaCO_3$		34	< 200	-
Electrical Conductivity (EC)	mS/m		8.2	-	-
Electrical Conductivity (EC)	µS/cm		82	-	-
Approx Total Dissolved Salts	g/m³		55	< 1000	-
Total Arsenic	g/m³		< 0.0011	-	0.01
Total Boron	g/m³		0.0067	-	1.4
Total Calcium	g/m³		9.5	-	-
Total Copper	g/m³		0.00124	< 1	2
Total Iron	g/m³		0.185	< 0.2	-
Total Lead	g/m³		0.00058	-	0.01
Total Magnesium	g/m³		2.4	-	-
Total Manganese	g/m³		0.0037	< 0.04 (Staining) < 0.10 (Taste)	0.4
Total Potassium	g/m³		0.77	-	-
Total Sodium	g/m³		4.2	< 200	-
Total Zinc	g/m³		0.0073	< 1.5	-
Chloride	g/m³		0.8	< 250	-
Nitrate-N	g/m³		0.25	-	11.3
Sulphate	g/m³		1.7	< 250	-

Note: The Guideline Values and Maximum Acceptable Values (MAV) are taken from the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2018)', Ministry of Health. Copies of this publication are available from https://www.health.govt.nz/publication/drinking-water-standards-new-zealand-2005-revised-2018

The Maximum Acceptable Values (MAVs) have been defined by the Ministry of Health for parameters of health significance and should not be exceeded. The Guideline Values are the limits for aesthetic determinands that, if exceeded, may render the water unattractive to consumers.

Note that the units g/m³ are the same as mg/L and ppm.

Routine Water Assessment for Sample No 2608417.1 - Bobs Cove 10-May-2021 2:00 pm

pH/Alkalinity and Corrosiveness Assessment
The pH of a water sample is a measure of its acidity or basicity. Waters with a low pH can be corrosive and those with a high pH can promote scale formation in pipes and hot water cylinders.
The guideline level for pH in drinking water is 7.0-8.5. Below this range the water will be corrosive and may cause problems with disinfection if such treatment is used.

The alkalinity of a water is a measure of its acid neutralising capacity and is usually related to the concentration of carbonate, bicarbonate and hydroxide. Low alkalinities (25 g/m^3) promote corrosion and high alkalinities can cause problems with scale formation in metal pipes and tanks.

The pH of this water is within the NZ Drinking Water Guidelines, the ideal range being 7.0 to 8.0.
With the pH and alkalinity levels found, it is unlikely this water will be corrosive towards metal piping and fixtures.

Hardness/Total Dissolved Salts Assessment
The water contains a very low amount of dissolved solids and would be regarded as being soft.

Nitrate Assessment
Nitrate-nitrogen at elevated levels is considered undesirable in natural waters as this element can cause a health disorder called methaemaglobinaemia. Very young infants (less than six months old) are especially vulnerable. The Drinking-water Standards for New Zealand 2005 (Revised 2018) suggests a maximum permissible level of 11.3 g/m^3 as Nitrate-nitrogen (50 g/m^3 as Nitrate).

Nitrate-nitrogen was detected in this water but at such a low level to not be of concern.

Boron Assessment
Boron may be present in natural waters and if present at high concentrations can be toxic to plants.
Boron was found at a low level in this water but would not give any cause for concern.

Metals Assessment
Iron and manganese are two problem elements that commonly occur in natural waters. These elements may cause unsightly stains and produce a brown/black precipitate. Iron is not toxic but manganese, at concentrations above 0.5 g/m^3, may adversely affect health. At concentrations below this it may cause stains on clothing and sanitary ware.

Iron was found in this water at a low level.
Manganese was found in this water at a low level.
Treatment to remove iron and/or manganese should not be necessary.

Bacteriological Tests
The NZ Drinking Water Standards state that there should be no Escherichia coli (E coli) in water used for human consumption. The presence of these organisms would indicate that other pathogens of faecal origin may be present. Results obtained for Total Coliforms are only significant if the sample has not also been tested for E coli.

Escherichia coli was not detected in this sample.

Final Assessment
All parameters tested for meet the guidelines laid down in the publication 'Drinking-water Standards for New Zealand 2005 (Revised 2018)' published by the Ministry of Health for water which is suitable for drinking purposes.

Summary of Methods

The following table(s) gives a brief description of the methods used to conduct the analyses for this job. The detection limits given below are those attainable in a relatively simple matrix. Detection limits may be higher for individual samples should insufficient sample be available, or if the matrix requires that dilutions be performed during analysis. A detection limit range indicates the lowest and highest detection limits in the associated suite of analytes. A full listing of compounds and detection limits are available from the laboratory upon request.
Unless otherwise indicated, analyses were performed at Hill Laboratories, 28 Duke Street, Frankton, Hamilton 3204.

Sample Type: Aqueous

Test	Method Description	Default Detection Limit	Sample No
Routine Water Profile		-	1
Filtration, Unpreserved	Sample filtration through 0.45µm membrane filter. Performed at Hill Laboratories - Chemistry; 101c Waterloo Road, Christchurch.	-	1
Total Digestion	Nitric acid digestion. APHA 3030 E (modified) 23rd ed. 2017.	-	1
Turbidity	Analysis using a Hach 2100 Turbidity meter. Analysed at Hill Laboratories - Chemistry; 101c Waterloo Road, Christchurch. APHA 2130 B 23rd ed. 2017 (modified).	0.05 NTU	1
pH	pH meter. Analysed at Hill Laboratories - Chemistry; 101c Waterloo Road, Christchurch. APHA 4500-H^+ B 23rd ed. 2017. Note: It is not possible to achieve the APHA Maximum Storage Recommendation for this test (15 min) when samples are analysed upon receipt at the laboratory, and not in the field. Samples and Standards are analysed at an equivalent laboratory temperature (typically 18 to 22 °C). Temperature compensation is used.	0.1 pH Units	1
Total Alkalinity	Titration to pH 4.5 (M-alkalinity), autotitrator. Analysed at Hill Laboratories - Chemistry; 101c Waterloo Road, Christchurch. APHA 2320 B (modified for Alkalinity <20) 23rd ed. 2017.	1.0 g/m^3 as $CaCO_3$	1
Free Carbon Dioxide	Calculation: from alkalinity and pH, valid where TDS is not >500 mg/L and alkalinity is almost entirely due to hydroxides, carbonates or bicarbonates. APHA 4500-CO_2 D 23rd ed. 2017.	1.0 g/m^3 at 25°C	1
Total Hardness	Calculation from Calcium and Magnesium. APHA 2340 B 23rd ed. 2017.	1.0 g/m^3 as $CaCO_3$	1
Electrical Conductivity (EC)	Conductivity meter, 25°C. Analysed at Hill Laboratories - Chemistry; 101c Waterloo Road, Christchurch. APHA 2510 B 23rd ed. 2017.	0.1 mS/m	1
Electrical Conductivity (EC)	Conductivity meter, 25°C. APHA 2510 B 23rd ed. 2017.	1 µS/cm	1
Approx Total Dissolved Salts	Calculation: from Electrical Conductivity.	2 g/m^3	1
Total Arsenic	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017 / US EPA 200.8.	0.0011 g/m^3	1
Total Boron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.0053 g/m^3	1
Total Cadmium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017 / US EPA 200.8.	0.000053 g/m^3	1
Total Calcium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.053 g/m^3	1
Total Chromium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017 / US EPA 200.8.	0.00053 g/m^3	1
Total Copper	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017 / US EPA 200.8.	0.00053 g/m^3	1
Total Iron	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.021 g/m^3	1
Total Lead	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017 / US EPA 200.8.	0.00011 g/m^3	1
Total Magnesium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.021 g/m^3	1
Total Manganese	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017 / US EPA 200.8.	0.00053 g/m^3	1
Total Potassium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.053 g/m^3	1
Total Sodium	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017.	0.021 g/m^3	1
Total Zinc	Nitric acid digestion, ICP-MS, trace level. APHA 3125 B 23rd ed. 2017 / US EPA 200.8.	0.0011 g/m^3	1
Chloride	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) 23rd ed. 2017.	0.5 g/m^3	1
Fluoride	Direct measurement, ion selective electrode. APHA 4500-F^- C 23rd ed. 2017.	0.05 g/m^3	1
Nitrate-N	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) 23rd ed. 2017.	0.05 g/m^3	1
Sulphate	Filtered sample from Christchurch. Ion Chromatography. APHA 4110 B (modified) 23rd ed. 2017.	0.5 g/m^3	1

Document Set ID: 6937569
Version: 1, Version Date: 12/07/2021

Sample Type: Aqueous			
Test	**Method Description**	**Default Detection Limit**	**Sample No**
Escherichia coli	MPN count using Colilert 18 (Incubated at 35°C for 18 hours) and 97 wells. Analysed at Hill Laboratories - Microbiology; 101c Waterloo Road, Hornby, Christchurch. APHA 9223 B 23rd ed. 2017.	1 MPN / 100mL	1

These samples were collected by yourselves (or your agent) and analysed as received at the laboratory.

Testing was completed between 12-May-2021 and 18-May-2021. For completion dates of individual analyses please contact the laboratory.

Samples are held at the laboratory after reporting for a length of time based on the stability of the samples and analytes being tested (considering any preservation used), and the storage space available. Once the storage period is completed, the samples are discarded unless otherwise agreed with the customer. Extended storage times may incur additional charges.

Martin Cowell - BSc
Client Services Manager - Environmental

Document Set ID: 6937569
Version: 1, Version Date: 12/07/2021

Craig Woodcock

From: Chorus Property Developments <develop@chorus.co.nz>
Sent: Friday, 19 February 2021 11:20 am
To: Craig Woodcock
Subject: Simple Estimate: QST62697 - 59 Tui Drive, Queenstown. 26 Residential Lots & 4 Commercial Lots - Simple Estimate

Hi Craig,

Thank you for providing an indication of your development plans in this area. I can confirm that we have infrastructure in the general land area that you are proposing to develop. Chorus will be able to extend our network to provide connection availability. However, please note that this undertaking would of course be subject to Chorus understanding the final total property connections that we would be providing, roll-out of property releases/dates and what investment may or may not be required from yourselves and Chorus to deliver the infrastructure to and throughout the site in as seamless and practical way as possible.

The cost involved would be a minimum of our current standard fee of $1600 per lot excluding GST. This cost can only be finalised at the time that you are ready to proceed.

Chorus is happy to work with you on this project as the network infrastructure provider of choice. What this ultimately means is that the end customers (business and home owners) will have their choice of any retail service providers to take their end use services from once we work with you to provide the physical infrastructure.

Please reapply with a detailed site plan when you are ready to proceed.

Thanks

Geordie Rumbles
Property Development Coordinator

T 0800 782 386 opt 1
E Develop@chorus.co.nz

PO Box 9405
Hamilton
www.chorus.co.nz

AURORA ENERGY LIMITED
PO Box 5140, Dunedin 9058
PH 0800 22 00 05
WEB www.auroraenergy.co.nz

15 December 2020

Craig Woodcock
JE&A Developers

Sent via email only: craig.woodcock@jea.co.nz

Dear Craig,

ELECTRICITY SUPPLY AVAILABILITY FOR A PROPOSED RESORT STYLE DEVELOPMENT.
59 TUI DRIVE, BOBS COVE, QUEENSTOWN. LOT 100 DP 494333, ROT735197.

Thank you for your inquiry outlining the above proposed development.

Subject to technical, legal and commercial requirements, Aurora Energy can make a Point of Supply[1] (PoS) available for this development.

Disclaimer

This letter confirms that a PoS **can** be made available. This letter **does not** imply that a PoS is available now, or that Aurora Energy will make a PoS available at its cost.

Next Steps

To arrange an electricity connection to the Aurora Energy network, a connection application will be required. General and technical requirements for electricity connections are contained in Aurora Energy's Network Connection Standard. Connection application forms and the Network Connection Standard are available from www.auroraenergy.co.nz.

Yours sincerely

Niel Frear
CUSTOMER INITIATED WORKS MANAGER

[1] Point of Supply is defined in section 2(3) of the Electricity Act 1993.

Hayley Mahon
John Edmonds & Associates
Level 2, 36 Shotover Street
PO Box 95
Queenstown 9300

8 July 2021

Archaeological Evaluation of proposed development of Lot 100 DP 494333, Bob's Cove

This archaeological evaluation has been prepared for Hayley Mahon of John Edmonds & Associates as part of the proposed development of Lot 100 DP 494333, Bob's Cove.

An archaeological site is determined under the Heritage New Zealand Pouhere Taonga Act 2014 as a site which has evidence of pre-1900 human activity.

Origin Consultants have previously provided advice related for Lot 100 DP 494333 around the creation of new roading and proposed housing. Updated plans provided by Design Base Architecture dated 7 June 2021 were used to determine site coverage and the area walked over for an archaeological survey (Figure 1). This included the land identified as Part of Section 28 Blk V Mid Wakatipu SD which is designated reserve., but approved for subdivision (RM180302).

Previous archaeological work has included an archaeological assessment by Shar Briden in 2006. An archaeological authority was issued as part of vegetation clearance and earthworks associated with a housing development of the site (2015/1011).

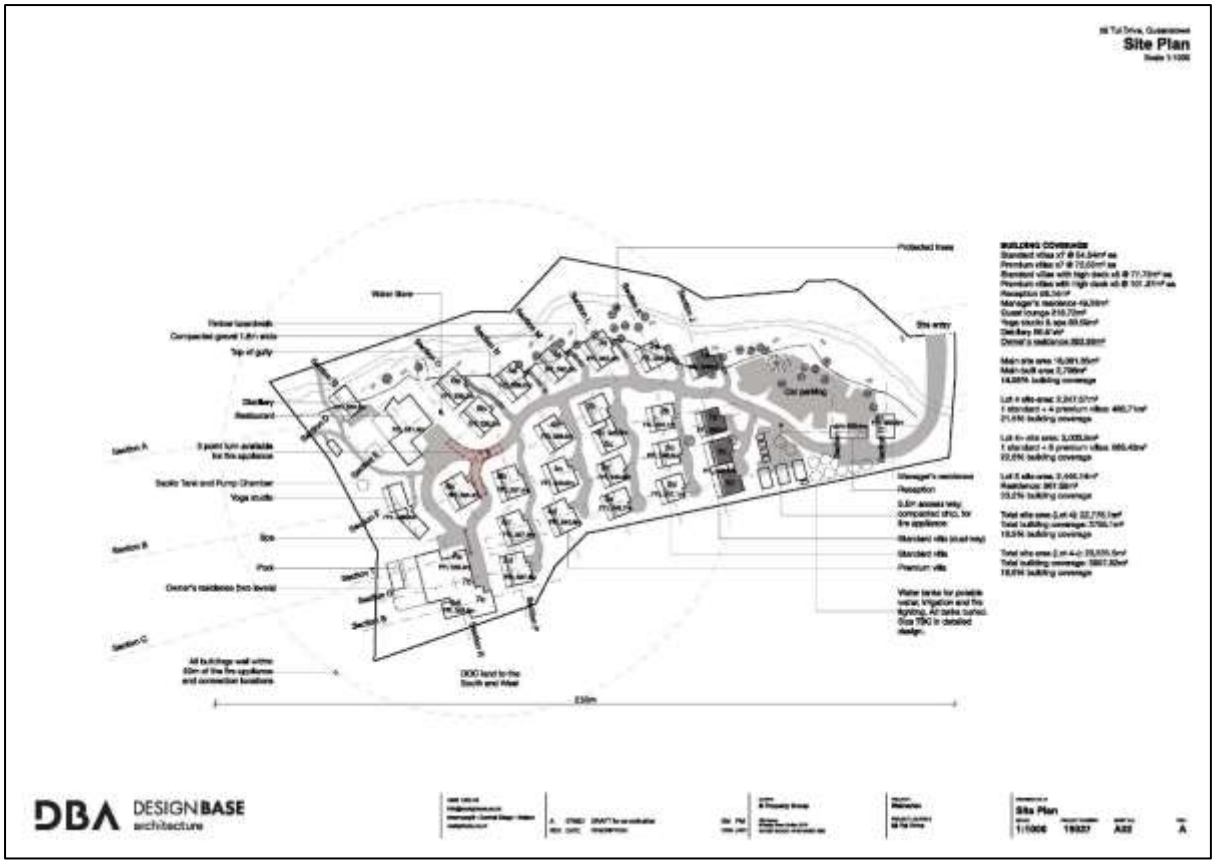

Figure 1. Proposed plans from Design Based Architecture June 2021.

Historical occupation and chronology

"Lake Wakatipu (Whakatipu-wai-māori) has been held as a Statutory Acknowledgement area significant to Māori as both a place name and as an area of nohaoka, seasonal camps for the procurement of resources (Schedule 75:cited in Kāi Tahu ki Otago 2005:189). Resources would have included the sourcing of pounamu, eeling, fishing, and birding. Bob's Cove was located on the pounamu trail leading to the head of Lake Wakatipu (Whakatipu-wai-māori) and on to the Routeburn Valley and Slip Stream area in the Dart Valley**.** The area would have held spiritual significance to Māori. Beattie (1994:29) had noted that the Māori name for Bob's Cove, Puna-tapu, as meaning sacred spring, with the surrounding hills, Puke-tapu, meaning sacred hill. Bob's Cove would have provided a calm place to wait out bad weather and strong winds that were prevalent in the northern arm of Lake Wakatipu (Ellison 2006: pers comm.)."[1]

There is a single recorded potential Māori oven site nearby which has previously been surveyed by the author (E41/14). This feature is outside the proposed development area.

Bob's Cove has been utilised since the early settlement of Queenstown as a sheltered bay for William Gilbert Rees' sailboat, operated and maintained by Bob Fortune. It was also the site of pastoral farming and a short-lived lime burning industry. As a result, there are multiple archaeological sites recorded in the area, largely along the shoreline of Lake Wakatipu. Most are connected to the limestone industry. A number are recorded on ArchSite along the shoreline.

Historic aerials from 1954 and 1976 were inspected (Figure 2 and Figure 3). These did not show any indication of archaeological features present in relation to landscape scale features.

A site visit was undertaken on 5 July 2021 to ascertain the condition of the site and whether there were any visible features. The site slopes down towards Lake Wakatipu. A gravel road runs along the southern edge of the site and a steep gully, covered in thick native bush, runs along the northern edge of the site. During the site

[1] Taken from Shar Briden's 2006 Archaeological Assessment for Bob's Cove.

visit, the boundary pegs were noted. No archaeological features were observed during the survey. The terrain and bush cover limited surface visibility and access into all areas of the site.

Figure 2. 1954 aerial of Bob's Cove (Retrolens, cropped, SN842).

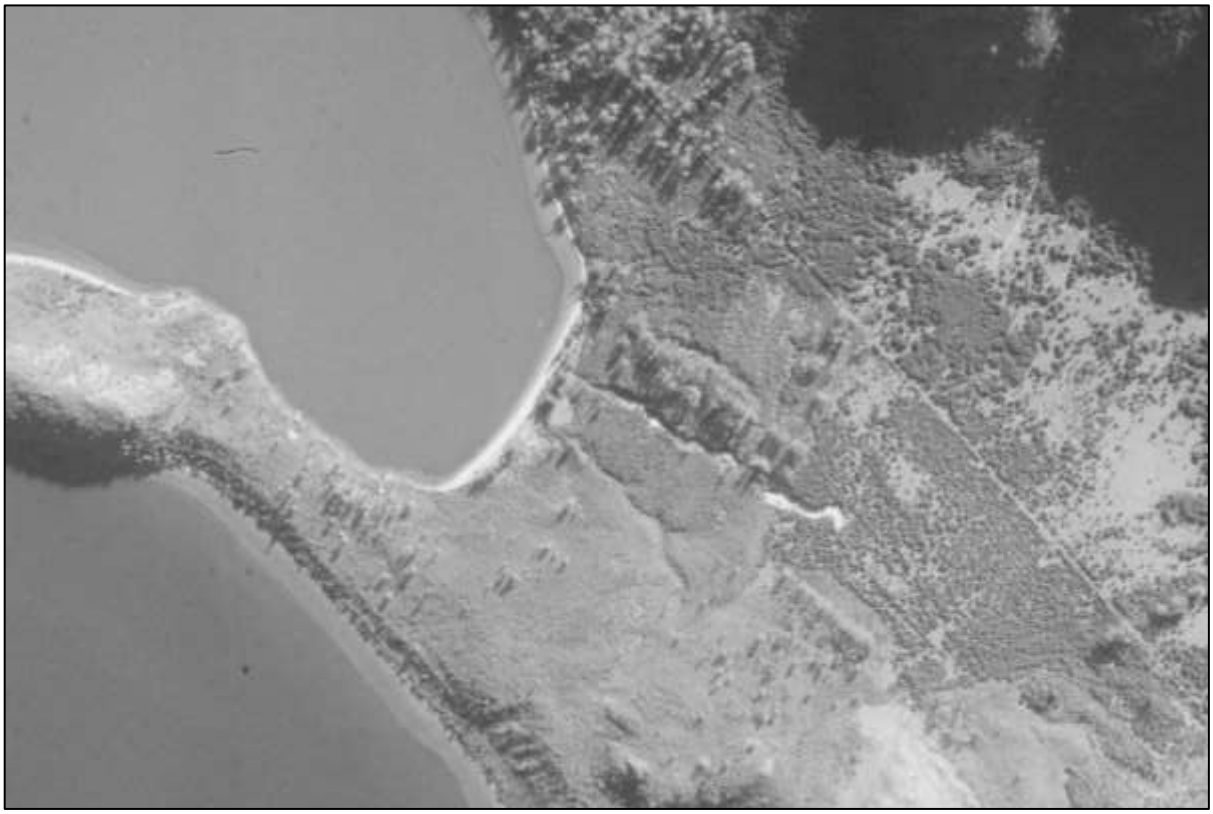

Figure 3. 1976 aerial of Bob's Cove (Retrolens, cropped, SN3857).

Conclusion

Based on the proposed plans to develop the site for a new lodge, it is recommended that an Accidental Discovery Protocol (ADP) be followed during any further vegetation clearance and general earthworks. The likelihood of encountering archaeological material has been assessed as very low due to extensive modification of the site by vegetation growth and 20th century pastoral activity.

Benjamin Teele
Principal Archaeologist
For and on behalf of Origin Consultants Ltd

PO Box 213, Queenstown 9348
ben@originteam.co.nz
www.originteam.co.nz

Assessment of Ecological Values and Measures for the Protection of Trees at Waimarino, Bobs Cove

Date: 4 July 2021

Contract Report: NS 7/21

Prepared for: Waimarino, Bobs Cove

Prepared by: Natural Solutions for Nature Ltd

Use and reliance:
This report has been prepared by Natural Solutions for Nature Limited ("NSN") on the basis of information available to the author at the time of preparation. Where information has been obtained from other trusted external sources it has been assumed that it is accurate, without independent verification, unless otherwise indicated. No responsibility is accepted by NSN for any errors or omissions by external sources.

Field work and reporting undertaken by:
Dawn Palmer
Principal Ecologist, Natural Solutions for Nature Ltd

Identification of fungi provided by:
Dr Jerry Cooper
Mycologist at Landcare Research

1 Introduction

Natural Solutions for Nature Ltd (NSN) has been engaged by John Edmonds and Associates to undertake a targeted assessment of the ecological values of the proposed Waimarino development in Bobs Cove ("the site").

The brief of services included:

- To identify and comment on trees to be protected.
- To provide an assessment of the values in the gully along the north margin of the proposed development.
- To report on the values associated with the gully and any riparian habitats with consideration to the effects of stormwater discharge.
- To identify threats to the values identified and make recommendations to avoid, minimise or mitigate those.
- To collaborate with Landscape Designers in relation to integrating the site's ecology with the proposed landscape designs.

1.1 Report Structure

- Site overview
- Description of methods used to undertake the assessment
- Identification of values and discussion of their significance
- Description of actual and potential effects
- Recommendations to manage actual and potential effects
- Opportunities for enhancement

Figures, Tables, Photographic Plates and Appendices are provided at the back of the report.

Figures

1. Context of Waimarino in relation to the surrounding Public Conservation Land
2. Location of Proposed Protected Tree Areas in relation to existing vegetation and the proposed development – NSN mapped areas and gully waypoints
3. Bobs Cove – Waimarino Existing Site Vegetation – Attachment D of Baxter Design Plans; with NSN notable vegetation references referred to in Table 2
4. Bobs Cove – Waimarino Existing Vegetation to be Retained and Removed – Attachment I of Baxter Design Plans

Tables

Table 1 – Estimated Age of trees based on Diameter at Breast Height
Table 2 – Schedule of Trees actually or potentially affected by the development
Table 3 – Bird Species Recorded during the site visits
Table 4 – Plants and Fungi Recorded during the site visits

Photographic Plates

Photos illustrating the values recorded at the site

Appendices

Appendix 1 – Fungi recorded at Waimarino
Appendix 2 - Plant Recommendations for Landscape Planting

1.2 Overview of the site and Proposal

The Waimarino project site is located at 59 Tui Drive, Mount Creighton, Queenstown 9371 on Lot 100 DP 49433 and Section 28 Blk V Mid Wakatipu SD highlighted in yellow below. The total land parcel is 1.469 hectares. A land exchange area between the Department of Conservation and Bobs Cove Development Limited involves a 0.34 hectare land parcel that extended the south-west corner of the proposal area. This area includes residential units and the landowners residence as part of this proposal. The total land area therefore included in the Waimarino proposal is 1.809 hectares.

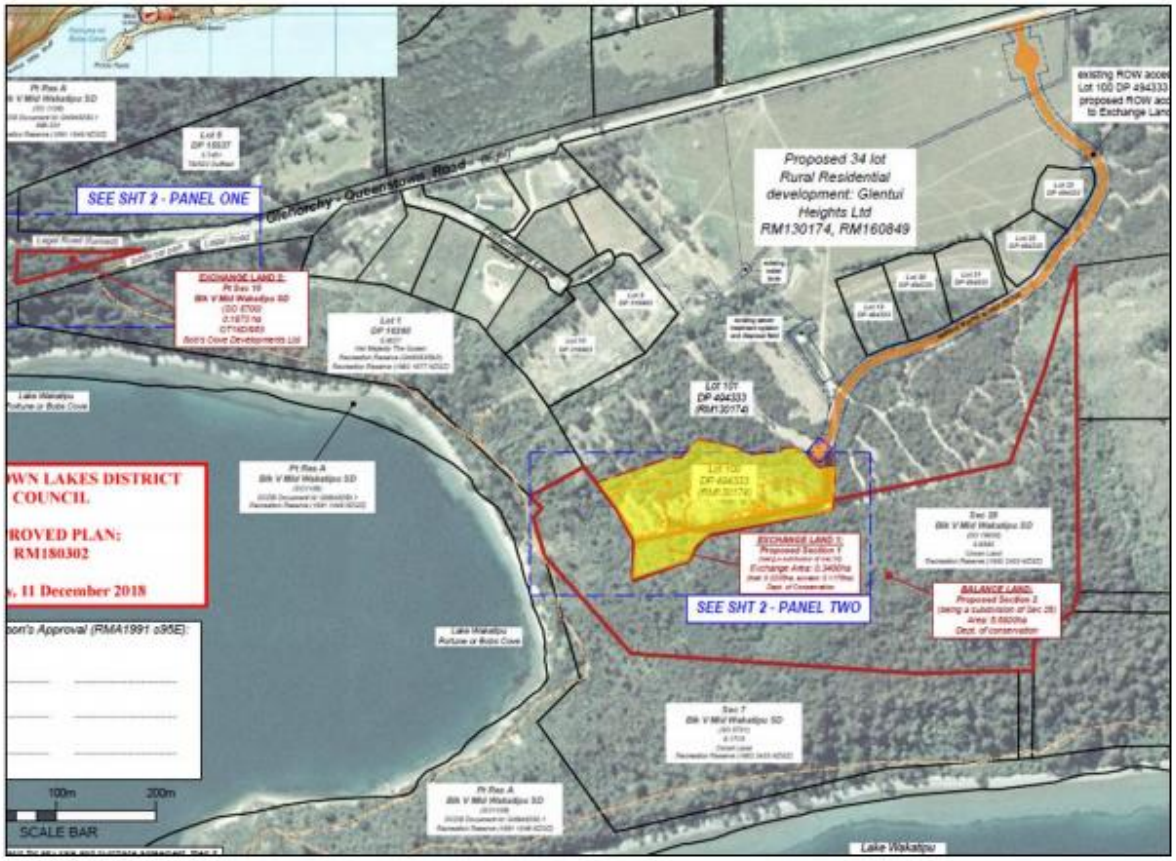

Figure 1: Location of sites subject to subdivision consent RM180302 shaded in yellow. Image Source: Patterson Pitts Group Q6007-14 Sheet 1, Revision H approved as part of RM180302

NSN is familiar with the property having prepared management plans, ecological assessments and advice for the current owner of the property in relation to the land exchange between the owner and the Department of Conservation. NSN prepared ecological reports for this property in 2005 and 2016.

2 Methods

2.1 Assessment of the actual and potential effect on the environment of proposed activity

The following plans have been provided to NSN for this assessment:

- 3020-SK05 - Bobs Cove - Glentui Heights Subdivision - 21 Jul 2020 + PPG Boundaries + Embankment + Protected Trees; provided by Baxter Design
- 3020 – Bobs Cove – Landscape Attachments – 1 July 2021
- 210524_19037_Site&Sections Plan No. A 240521 DRAFT for co-ordination prepared by Design Base, Invercargill
- Appendix C: Landscape Maintenance and Management Plan: Baxter Design
- Waimarino Lodge_Architectural_RC Set_300621
- Waimarino Lodge_Architectural_RC Set_300621 – Section D, J, K, L, M, N, O, Q

NSN has reviewed the proposed plans and undertaken site visits to identify the effects of the proposal on the gully vegetation, ecological values and beech forest fragments and margins. Site visits were conducted on 13, 15 and 16 May and 5 June 2021.

A desktop review of the site's values has also relied on web-based resources, maps and databases including:

- The Proposed District Plan – Maps for Designations and zoning and
- The Proposed District Plan – Part 5, Chapter 33 Indigenous Vegetation and Biodiversity
- Department of Conservation public GIS website
- Queenstown Lakes District Council public ArcGIS website and edocs
- Land Environment New Zealand classification – Ministry for the Environment
- Draft National Policy Statement for Indigenous Biodiversity, November 2019
- Other sources and references are cited where relied upon

Detailed discussion of the legal planning framework was not required by the scope of works for this assessment therefore, while the requirements of the District Plan (Proposed) have been considered as background to the work, the report only addresses the District Plan rules (Chapter 33) relating to biodiversity.

The map (.kml) files for the Protected Tree Areas (PTA) were provided by John Edmonds and Associates. These were saved into the Google Earth Pro project file.

NSN undertook a survey of the forest margins between the development area and the gully to the north with particular attention to the areas of protected trees and the areas around the surveyed pegs for residential units, the restaurant and distillery.

Individual trees, fragments of beech forest actually or potentially affected by the proposal building pegs, and terrace and gully photo and specimen collection points were recorded using a handheld Garmin Xtrex 20 GPS. These were downloaded into a mapping program (Map

Toaster) then mapped into Google Earth Pro. The tree locations shown in **Figures 2** and **3** were adjusted to the improved clarity provided by the 2018 Google Imagery.

JEA and Baxter Design compared the NSN .kml files with their drone photography to clarify the location of identified trees to be protected, retained and or removed in their plans (these are provided here as **Figure 3 and 4**).

This assessment looked at the trees and vegetation within and south of the gully to obtain an understanding of the comparative value of the proposed tree protection. Diameter at breast height (DBH - 1.4m above ground) was measured for the trees assessed as most likely to be affected by the proposal. The summary data is provided as Table 2; the trees and notable vegetation are listed in Table 2, they correlate to the NSN mapped vegetation in Figures 2 and 3.

Hurst et.al (2007) modelled growth rates of indigenous beech trees in unmanaged forests using the nationally important resource of the National Vegetation Survey Databank[1] and found red beech in Otago to have a mean annual diameter growth of 2.4 mm (mm/yr +/- Standard Error of Measurement: 0.2 mm) and 1.6 (+/- 0.09 mm SEM) for mountain beech. **Table 1** provided at the back of this report relies on these modelled growth rates to estimate the age of the trees affected by the proposal based on their DBH measurements.

The gully was surveyed for evidence of surface flows. The primary brief was to identify any instream values that may be affected by the development. However, the gully was dry with no evidence of recent overland flows despite the first site visit being undertaken a week after the area received the most significant rainfall in 7 months (about 32 mm in a single weather front). Refer to the **Plates 1, 3, 6, 7, 12 – 14** and **18** at the back of this report for an illustration of the gully habitat and evidence of historic flows.

During the survey of the gully habitat, NSN recorded an abundance of fruiting fungi due to the coincidence of recent rain, and mild Autumnal weather with the timing of the survey. Samples were collected, photographs taken and a mycologist from Landcare Research was consulted for identification.

Appendix 1 provides a list of the species identified along with photos of the species recorded. Discussion is provided with respect to the well documented relationship between the fungal diversity and beech forest [*Nothofagus/ Fuscospora]* and manuka [*Leptospermum*] vegetation associations.

[1] https://nvs.landcareresearch.co.nz/

3 Identification of Values

3.1 Site Context

The site sits with the Shotover Ecological District; the land is classified by the Land Environment of New Zealand systems as Q2.2b, historically vegetated with mountain, red and silver beech (*Fuscospora cliffortioides, F. fusca* and *Lophozonia menziesii*). More than 30 percent of the indigenous vegetation historically associated with this Land Environment remains but less than 10 percent of the land is protected.

Locally however there is extensive protection for mountain and red beech forest and the regenerating hardwood forest ecosystems within the Bobs Cove Recreation Reserve (331 hectares) immediately adjoining the site to the south and west.

The Mount Crichton Scenic Reserve north of the Glenorchy- Queenstown Road protects a further 2597 hectares of mountain and red beech forest, manuka shrubland and tussock grassland above the treeline. Combined, these Reserves protect an entire altitudinal sequence of indigenous vegetation from lake foreshore (308 masl) to Mount Crichton at 1871 masl. Refer to **Figure 1.**

Map 12 – Mid Wakatipu of the Decisions Version of the Proposed District Plan zones the land as Rural Residential – Bobs Cove Sub-Zone. The Maps do not identify protected trees within the Waimarino proposal area, nor does it identify the area as being within a Significant Natural Area. The adjacent and nearby Bobs Cove Recreation Reserve and Mount Creighton Scenic Reserve are however designated as Significant Natural Areas.

The creation of the Bobs Cove Sub-Zone under the Operative District Plan provided for the subdivision and development of a residential enclave over land that had previously been farmed and grazed by cattle and sheep (personal observation, mid-1990s).

3.2 Ecological values

3.2.1 Beech Forest Fragments

The footprint of the development area is generally within the site's clearing with pasture grass, introduced broom (*Cytisus scoparius*) and in places tree lupin (*Lupinus arboreus)* along with indigenous shrubs and bracken under the canopy of beech clusters near the existing access and caravan, refer **Plates 19, 20, 22** and **23**.

A search of Retrolens reveals the presences of regenerating seral stage shrubland on the land dating back to the 1950s with openings across the terrace east of Bobs Cove visible in the 1970s. Google Earth images show the site has been substantially cleared since 2008 with the same pattern of mountain and red beech scattered along the northern half of the Waimarino site. The property was more densely vegetated with broom and regenerating manuka shrubland in 2005.

Manuka remains at the site except in the most open areas described above, refer Photo 1C below.

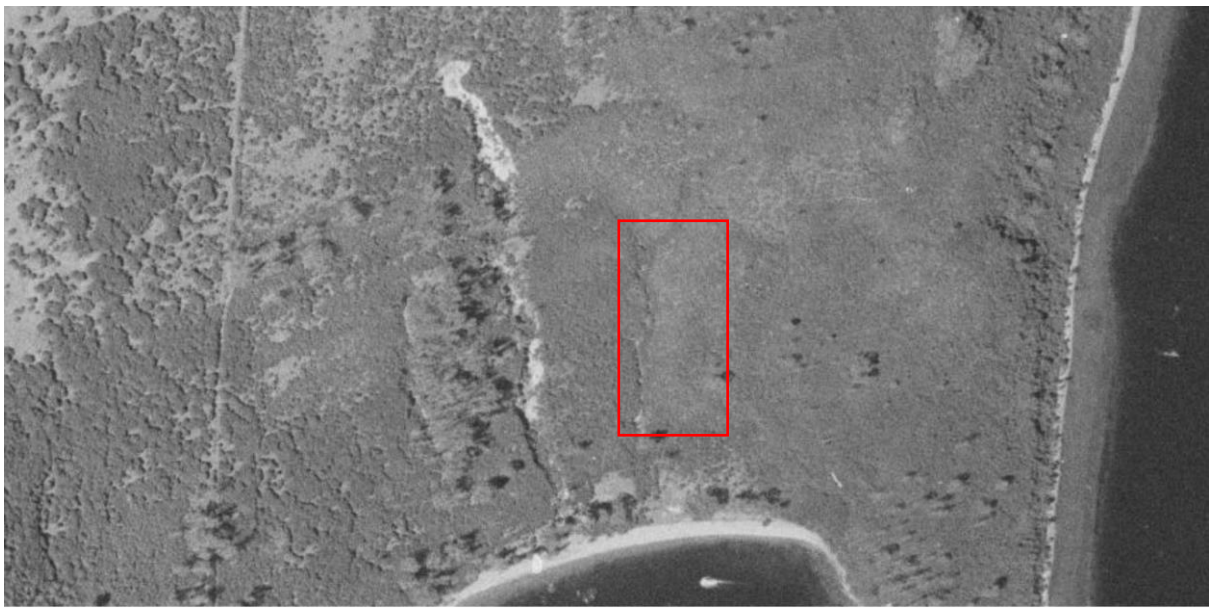

Photo 1A - Approximate location of the Waimarino site and indication of shrubland landcover 62 years ago
Source: Retrolens image Crown_1219_2824_3 dated - 18-2-1959
https://retrolens.nz/map/#/BOBS%20COVE

Photo 1B - Approximate location of the Waimarino site and indication of shrubland landcover 45 years ago; note substantial clearance to the north (left) and east of the site
Source: Retrolens image Crown_3857_E_5 - 17-2-1976
https://retrolens.nz/map/#/BOBS%20COVE

Photo 1C - The Waimarino site is in the centre of this view at the end of the Tui Lane cul-de-sac – recent imagery c. 2018
Source: Retrolens

Mature lancewoods (*Pseudopanax crassifolius)* and younger, regenerating lancewoods are also scattered throughout. One patch of lancewoods present in Area 20, **Figure 4** has retained 11 lancewoods, the largest with a diameter at breast height (DBH at about 1.4 m above the ground) of 172 mm. Refer also to **Plate 23**. Area 31 has also retained a large, multi-stemmed lancewood marked with hazard tape.

Individual trees and clusters of beech trees have been retained in the more open footprint of the proposed development. In addition to lancewoods these clusters also include shrub species *Coprosma lucida* (shining karamu), *Leptecophylla juniperina* (prickly mingimingi), *Pittosporum tenuifolium* kohuhu), *Coprosma propinqua* (minigimingi), *Coprosma rhamnoides, Corokia cotoneaster,* an occasional *Gaultheria antipoda* (bush snow berry), at least one *Dracophyllum longifolium* (inaka) along with Eucalypts and *Pteridium esculentum (*bracken). These are all species commonly associated with beech forest margin communities and found within the adjacent Bobs Cove Recreation Reserve and the Mount Crichton Scenic Reserve. These species are also present throughout the dry gully along the northern boundary of the site.

Mountain beech can live to about 300 years with growth rates varying depending on altitude, soil fertility and depth, and whether the tree is within a dense stand or in an open site. Stand competition in natural forests can severely reduce growth rates. Trees in canopy gaps and along margins are able to achieve higher growth rates. Smale et.al. (2012) report that red beech is the fastest growing beech with mountain beech achieving intermediate rates.

Table 1 at the back of this report relies on the modelled growth rates of Hurst et.al. (2012) to estimate the age of the trees potentially affected by the proposal. The average diameter of the 125 mountain beech measured was 218 mm; about 135 years old. The average age of the thirteen (13) red beech in the development area is about 70 years old (DBH 179mm).

3.2.2 Protected Tree Areas

Some of the larger trees in the development area have been marked with green plastic triangles. The trees have grown since being marked and in most instances have begun to absorb the screw

and triangle into the bark. Others have been marked with pink surveyor's string and most recently, pink flagging or hazard tape. This indicates a previous and continuing recognition of the value in protecting individual trees and beech forest fragments. Their retention to date has enabled continued consideration for this option in the context of this development proposal.

Protected Tree Areas were identified on the previous title (RM130174), these are identified in Figure 2 along with areas of notable beech trees and lancewoods identified by NSN.

The beech trees in Protected Tree Area 1 – PT1 in **Figure 2**, were not measured as they were identified for protection and were thought to be outside the footprint of proposed activity, a comparison with Figure 4 supports this assumption.

The largest red beech stem[2] measured was 439 mm in Area 17 (**Figure 3**) and is estimated to be about 170 years old. It was located north of the footprint of the restaurant development and is identified in **Figure 4** as a tree to be retained.

The two smallest red beech trees were in area 24 (**Figure 3**) between Unit 2B, 3A and 3B (**Figure 4**) are less than 10 years old.

The largest mountain beech stem measured at 409 mm in Area 16 (refer to **Figure 4**) is likely to be about 255 years old (refer to **Table 1**). It also sits north of the footprint of the restaurant development, between the clearing and the edge of the escarpment near the largest red beech discussed above, also identified as a tree to be retained.

Protected Tree Area 2 (PT2) on **Figure 2** is the largest, it surrounds the proposed Carpark area and extends towards Unit 1A. The .kml file provided by John Edmonds and Associates (mapped as PT2), identifies a conflict with Unit 1A. The Baxter Design plan shows three (3) beech trees in red within the Unit 1A footprint. NSN also mapped beech trees that stand within the Unit 1A pegs. Retention of most of the trees appears to be consistent with the intentions of the proposal. However, it seems likely that the loss of a few trees from NSN areas 2, 3, 4, 5 and 6 would occur, refer to **Table 2** and **Figure 4**.

Protected Tree Area 3 (PT3) is offset to the north of Units 2A and 3A. The Baxter Design Plan (Attachment I), **Figure 4** in this Report show the trees in this cluster. The trees assessed, based on the plans available at the time of survey, to be safe from the impacts of development, their diameters were therefore not measured. NSN Area 7, the isolated tree in Area 8 and NSN Area 24 are within the footprint of development for Units 2A and 3A (**Figure 3** and **4**). Area 24 has 7 trees between 68 and 357 mm in diameter, three trees are less than 100 mm, three are between 200 and 300 mm. NSN Area 7 has one (1) tree marked with surveyor's string stretched tightly around it, a previously protected tree.

Protected Tree Area 4 (PT4) mapped in **Figure 2** is shown as trees at or within the northern construction margin of Units 4A and 5A. NSN has mapped this area as Areas 9 and 11. Area 9 contains a single large double-stemmed lancewood set within an area of *Pittosporum tenuifolium, Leptecophylla juniperina* (prickly mingimingi) a species with edible pink and white berries, *Coprosma lucida* and *Eucalyptus*.

[2] Where a tree had more than one stem the largest was used for the estimated averages at the site

NSN Area 11 (**Figure 3**) has 8 mountain beech trees ranging from 41 to 293 mm in diameter (30 to 180 years old). These trees are located between the edge of the existing clearing and the gully margin. Units 4A and 5A extend over the descending ground at the gully margin with poles raising them about 1.6 to 2.5 metres above the ground (referring Sections M and N of the Architectural RC Set of Plans prepared by Design Base). This provides an opportunity to plant ferns and low shrubs under the Units and potentially incorporate small ferns and clubmosses into the green roof planting.

Mountain beech in NSN Area 33 (**Figure 4**) appear to have damage to their roots, the crowns have thinned, and the trees appear to be dying; these trees could be removed.

3.2.3 Scale Insects and Sooty mould

Sooty mould affects manuka throughout the site and the manuka within the adjacent Bobs Cove Recreation Reserve to the south. This is the result of an infestation by sap sucking scale insects. They excrete sap sugars as fine droplets known as honeydew when feeding. Sap lodging on stems and foliage supports the growth of soot fungus which blackens the infested plants. The sooty cover can be a few millimetres thick and can blight other plants growing under or near the infested plants. Coprosma also seem to be affected by the blight (pers. observations). Plant stress is believed to result from sap loss rather than the reduction in photosynthesis caused by the sooty coating. [3] Refer to **Plates 3, 4, 6 and 7**.

There are native scale insects which also produce honeydew with the consequent growth of soot fungus, usually *Capnodium elegans.* Recent research into the "companion biota" of *Leptospermum scoparium* has revealed that the introduced Australian (eriococcid) scale insect species *Acanthococcus leptospermi* is the more prevalent species infesting manuka. They are not known to kill manuka but may diminish it.[2, 4] Searches for the scale insect *Acanthococcus orariensis*, a species introduced into New Zealand to control manuka in about 1937, and which did result in manuka dieback and death, have revealed that Ac. *orariensis* has become much less prevalent compared to *Acanthococcus campbelli* and *Acanthococcus leptospermi*[4] . *Ac. orariensis*, appears to have been controlled by a fungus, *Myriangium thwaitesii* [5].

3.2.4 Gully Vegetation

The gully community has an overstory dominated by a mixture of mountain beech (*Fuscospora cliffortioides*), and blue gum (*Eucalyptus globulus)* with some red beech (*Fuscospora fusca).* Hawthorn (*Crataegus monogyna)* is also dense in places within the gully north of the proposed development. Manuka (*Leptospermum scoparium)* dominates the understory and canopy where there are gaps in the beech and Eucalypt canopies. Refer to **Plates 5** and **11**.

A large *Pinus radiata* has been felled into the gully at waypoint 8 (refer **Figure 2**). Refer to **Plate 10**.

[3] https://www.nzffa.org.nz/farm-forestry-model/the-essentials/forest-health-pests-and-diseases/Pests/Manuka-blight/manuka-blight-eriococcus-orariensis/; article compiled 1977.

[4] van Epenhuijsen, K.C. W. (2000)

[5] Bohórquez, J. (2018)

The understory vegetation in the gully is reasonably diverse and included the species identified above as well as the small trees and shrubs, wineberry (*Aristotelia serrata),* putaputaweta (*Carpodetus serratus*), fuchsia (*Fuchsia excorticata*), kapuka/ broadleaf (Griselinia *littoralis),* mahoe *(Melicytus ramiflorus*), tutu (*Coriaria sarmentosa*), inaka (*Dracophyllum longifolium*), *Gaultheria antipoda* (bush snow berry), red matipo (*Myrsine australis*), three-finger (*Pseudopanax colensoi* var *ternatus*), koromiko (*Veronica salicifolia*), two species of bush lawyer, and bidibid (*Acaena anserinifolia*), a ground spreading herb. Two species of bush lawyer climb over the shrubs and small trees creating a dense tangle in places. Refer to **Plates 1, 8, 12 – 14,** and **18**.

The gully's denser canopy cover provides a more shaded habitat that also supports bush lily (*Astelia fragrans)*, native jasmine (*Parsonsia heterophylla*), ferns, clubmoss and fungi.

Fern species recorded include little hard fern (*Austroblechnum penna-marina*), korokio (*Cranfillia deltoides*), kiwakiwa (*Cranfillia fluviatilis*), mountain kiokio (*Parablechnum montanum*), shield fern (*Polystichum neozelandicum* subsp. *zerophyllum),* Punui/ prickly shield fern (*Polystichum vestitum*), rarauhe/ bracken fern (*Pteridium esculentum*). Refer to **Plates 4, 5, 8,** and **13 -17**.

Four species of clubmoss were also recorded, they were alpine clubmoss (*Lycopodium fastigiatum*), creeping clubmoss (*Lycopodium scariosum*), climbing clubmoss (*Lycopodium volubile*) and clubmoss (*Phlegmariurus varius*). Refer to **Plates 2, 9** and **17**.

A full list of plant species recorded is provided in **Table 4.**

3.2.5 Fungi

Dr Cooper (Mycologist at Landcare Research) advised that "*the diversity of fungal species in an area shows a very strong correlation with the diversity of plant species. A conservative and widely used global estimate indicates there are at least six fungal species for every vascular plant species on earth. In New Zealand the vascular plants are relatively well-known, and we have about 2,200 indigenous species. Using this 6:1 ration we can therefore estimate there are at least 13,000 species of indigenous fungi. In addition, the number of introduced fungi is also likely to be substantial…….*

We have an estimated 4,000 species of larger fungi that people are likely to see and photograph in natural habitats. 2,000 of those species have names and another 1,000 are known but undescribed." [6]

Beech and teatree species (*Leptospermum* and *Kunzea*) of New Zealand share a mutually beneficial relationship with ectomycorrhizal fungi. Fungal mycorrhizae form a sheath of fungal hyphae[7] around the root systems of plants assisting with the transfer of nutrients between the species and the soil[8]; the mushrooms seen above ground are the fruiting bodies of the delicate web like filaments of ectomycorrhizal fungi within the soil. McKenzie, Buchanan and Johnston

[6] Dr Jerry Cooper, Mycologist, Landcare Research, personal communication 26/5/2021; https://inaturalist.nz/journal/cooperj/35101-identifying-fungi-in-new-zealand

[7] Smale (2012)

[8] Dr David Orlovich, (Associate Professor, Otago University and President of the Fungal Network of New Zealand) 18/9/2018: Presentation at the Landscape Scale Native Vegetation Restoration Projects Workshop, Cromwell.

(2000) describe 906 taxa (taxonomic groups) of fungi and slime moulds that form associations with the five New Zealand beech species of the Fagaceae family. More species are associated with woody debris, twigs and litter in beech forests. Fagaceae is one of the few plant families in the world that form ectomycorrhizal associations with fungi.

Leptospermum scoparium (manuka) also has a rich diversity of mutually beneficial fungal associations with ectomychorrhizal (EcM) families[9]. Interest in the role of EcM fungi inoculants in ecosystem restoration is increasing with the Otago University Botany Department[10] leading some of the Research regarding the role of fungal inoculum in landscape restoration in New Zealand.

Twenty (20) fungi recorded at Waimarino were identified to generic level[11], fifteen (15) of these were to species level.

Fifteen (15) of the specimens identified to at least Genus were in the Agaricales order which includes gilled mushrooms with distinct caps that separate easily and completely from their stems, they produce an abundance of fruit (mushrooms) in the autumn[12]. Of these fifteen, nine (9) form ectomychorrizal associations with southern beeches (*Fuscospora)* and manuka (*Leptospermum*).

Three (3) species form ectomychorrizal associations with beech and conifers.

Seven (7) species are saprobic (decomposers) in soil, leaves and or wood or woody litter. Four are found in association with beech forests, one of which is also found in association with *Eucalypts*.

Two (2) specimens were from the Boletales order; *Chalciporus piperatus* and *Chalciporus cardinalis* (the later identification is likely based on photographed specimens provided to Landcare Research). Boletale mushrooms have pores rather than gills. The latter species forms ectomychorrizal associations with southern beeches (*Fuscospora)* and the former with conifers.

Two (2) species – *Chalciporus piperatus* and *Amanita muscaria* are regarded as fungal invaders[13]. *Amanita* ectomycorrhizae with *Pinus* and *Eucalyptus* species, which is where this species was found at the Bobs Cove site.

A list of the fungi identified by Dr Cooper is provided in **Table 4**. The species found are for the most part, species naturally associated with the soil biota of beech forest, manuka shrubland and Eucalypts.

None of the species or genera identified were considered noteworthy as a result of being recorded at the Bobs Cove site. They do however provide an indication that the diversity of soil biota is somewhat of a reflection of the terrestrial diversity. Both represent a suite of indigenous, endemic and introduced species known to form symbiotic associations in climates and habitats comparable to the Waimarino site.

[9] Bohórquez, J. (2018)
[10] Janice Lord, Botany Department, University of Otago
[11] Dr Jerry Cooper, (25/5/2021): Personal communication
[12] McKenzie et.al. (2000).
[13] McKenzie et.al. (2000).

Appendix 1 provides a photographic summary of the fungi identified at the site.

3.2.6 The Gully

There was no surface water in the dry gully which traversed east to west across the northern boundary of the site. There was and no evidence of recent overland flows despite the first site visit being undertaken a week after the area received the most significant rainfall in 7 months (about 32 mm in a single weather front).

The gully floor is covered in a dense layer of leaf and twig litter and woody debris from the species identified in **Section 3.2.4** above.

The cul-de-sac at the end of Tui Drive has a formed provision (gravel armouring of a deepened swale) for the discharge of runoff into the gully. However, with the exception of this armouring there is no formed water course or swale between the riprap and the natural gully below, refer **Plate 1.**

Storm water similarly discharges from underneath the Waimarino driveway entrance into a natural gully at waypoint 2, refer **Figure 2** and **Plate 3** which illustrates the overgrown dry gully vegetation between waypoints 2 and 3.

Plates 6 and 7 provide a view up and down the gully from waypoint 5 north or Protected Tree Area 2 (PT2), refer to **Figure 2**. If stormwater were to be discharged from the carpark between the reception area and Unit 1A, it would also affect (potentially erode or discharge sediment) into this portion of the gully environment.

Plate 13 identifies a step in the gully at waypoint 10 (refer to **Figure 2**), there is another similar step in the gully at waypoint 11.

3.2.7 Avifauna

The birds seen or heard during the site visits are recorded in **Table 3** at the back of this report. Native or endemic species heard included tui, bellbird, kakariki, grey warbler, fantail and tomtit. Other species that may be present in the surrounding Recreation and Scenic Reserves and may therefore pass through the site include falcon, kereru, morepork, brown creeper as well as a suite of exotic passerines known to inhabit the area. Blackbirds, song thrush and starlings may be attracted to hawthorn berries in autumn which they eat and spread into the surrounding Reserves.

4 Summary of Values and their Significance

4.1 Representativeness

The site is not within a Significant Natural Area although it adjoins one.

Historically the LENZ Q2.2b site within the Shotover Ecological District would have been vegetation with beech forest as seen at the site and in the adjacent Recreation and Scenic Reserves. Despite the age of the some of the trees, they are surrounded by equally or more mature specimens within the Reserves.

The vegetation, birds and fungi on the site support a reasonably mature and diverse (substantially more than three species) community as a buffering element to a much more intact ecosystem protected within the nearby and adjoining Reserves.

The open portions of the Waimarino site are infested with exotic pasture grass, tree lupins, introduced broom. The open portion of the site has been managed as an open area since approximately 2008 with regenerating manuka, exotic broom, hawthorns, Eucalypts and conifers substantially removed over the intervening years.

Hawthorns, conifers and Eucalypts are also present within the forest fringe and gully. Species such as foxglove (*Digitalis purpurea)* were also recorded in the gully. **Section 3** and **Table 4** provide details of the species recorded on the site.

Assessment of Representativeness:

The site meets the criteria for being representative although naturalness is diminished by the presence of exotic co-dominant species. Given the site's relationship to the surrounding Reserves and the presence of exotic species through out the shrubland and forested areas, the criteria is met at a moderate level.

4.2 Rarity

The indigenous vegetation and habitats are not within originally rare ecosystems.

No threatened vegetation or bird species have been identified at the site.

A NZ falcon may hold a territory in the vicinity of Bobs Cove, however this species has a threat classification of At-Risk and recovering. Falcon habitat in the surrounding landscape provides excellent support for local populations.

The site is within a Land Environment with more than 30% of the associated indigenous vegetation remaining (Q2.2b). This vegetation is well protected locally.

Assessmenet of Rarity:

The criteria for rarity has not been met.

4.3 Diversity and Pattern

The Waimarino site has retained fragments of indigenous mixed mountain and red beech forest. Remaining patches support a diverse shrubland comprising common beech forest associates. Ferns, clubmoss and lianes are also found within the shelter of the shady gully.

The indigenous vegetation of the site is surrounded by a vastly more extensive and intact mixed mountain and red beech forest protected within Recreation and Scenic Reserves. These Reserves combine to protect an entire altitudinal sequence between Lake Wakatipu and Mount Crichton. This sequence spans lake foreshore vegetation, beech forest, snow tussock and schistose mountain tops. The site does not contribute substantially to this sequence and provides a limited area to buffer the Reserve boundary compared to the site of the Reserves.

The soil contains a suite of fungi commonly associated with beech forest and manuka shrubland. The mycological diversity included introduced and invasive, refer to **Section 3.2.5** above.

Assessment of Diversity and Pattern

The site meets the criteria for supporting significant ecological patterns at the low level given the context of its setting and condition.

The site does meet the significance criteria for supporting diverse indigenous taxa.

4.4 Distinctiveness

The site does not support indigenous species at their distributional limit.

The site does not support species endemic to the Otago region.

The site does not support species that are restricted, distinctive, or unique to the area.

Assessment of Distinctiveness

The site does not meet the criteria for Distinctiveness

4.5 Ecological Context

Refer to comments made in respect of the altitudinal sequence protected in the surrounding Recreation and Scenic Reserves in Section 4.3 above.

The gully traversing the northern boundary of the site supports a diverse mix of indigenous beech forest/ manuka shrubland and Eucalyptus forest/ Hawthorn woodland. The gully has a step features indicative of historical erosion caused by water flow but the catchment is small and well vegetated. There is no evidence of sedimentation or recent surface flows. The dry gully potentially provides a buffering influence between the subdivision uphill, and the Reserve bordering Lake Wakatipu below this proposed development.

Assessment of Ecological Context

The site weakly meets criteria for providing connectivity along the northern boundary where the density of indigenous vegetation is greatest. The site's gully habitat provides a buffering function between the catchment and the Recreation Reserve below.

The site's remaining fragmented forest provides a small and localised buffer to the extensive area of habitat in the Reserve network surrounding Waimarino. The site provides habitat for indigenous fauna but only very weakly meets the criteria for being important to indigenous fauna given the intact and extensive nature of the adjacent Reserves.

4.6 Summary of Significance

The site meets the criteria for significance at a low to moderate level; this assessment is balanced against the zoning of the land, its location as a fragment of indigenous forest and outlying trees on the margin of a very large area of protected beech forest neighbouring the site.

No rare or threatened species were found to be present.

The site supports a reasonably diverse indigenous flora, fauna and fungi.

The gully environment provides a buffer between the development in the small catchment and the gully environment of the adjoining Reserve and Lake Wakatipu.

Overall the site is assessed as having a moderately low level of ecological significance.

5 Assessment of effects on the environment

5.1 Actual or potential adverse effects on the environment

5.1.1 Earthworks and Structures

Site and Section Plans dated 24 May 2021 show present (PGL)and new (NGL) ground levels and the placement of poles under units.

John Edmonds and Associates have advised NSN that

"The only encroachment of structures in the gully is on the upper eastern slopes where some supports (poles) for some of the units are proposed."

Email Hayley Mahon to Dawn Palmer 24/5/2021

Comparing this information to the Site and Structure Plan, NSN assesses that the footprint of earthworks and construction impact will be in establishing foundation piles with localised displacement of soil from the holes.

Regrading of the site contours may result in more significant impacts on the site's soil and vegetation.

The Baxter Design Plans dated 4/6/2021 identify the formation of paths through the gully and between the gully and the carpark, Units 1, 5 and 6. No information regarding the standard of formation has been provided.

This assessment establishes that the site has a good mychorrhizae biota within the soil. Soil from the top 30 – 50 cm of any excavations under beech and or manuka vegetation should be reserved

and spread around the completed earthworks and over the top of the subsoil layers under the units.

Soil excavated to construct accommodation units, tracks, paths, carparks and garden beds should also re-incorporate the topsoil and the upper soil horizons of the area.

An environmental management plan can be prepared by earthworks contractors to ensure that no sedimentation of the gully environment occurs as a result of site excavations.

If these measures are incorporated into the project development and construction plans then the effect of localised earthworks on the soil biota will be less than minor.

5.1.2 Vegetation Clearance

Many of the beech trees and clusters mapped and described in **Figures 2** and **3** and described in **Table 2** below would need to be removed to enable construction of the proposed development to proceed. **Table 2** colour codes the areas in a manner that correlates to the legend colours in **Figure 4** illustrating trees to be protected, retained and removed, Attachment I of the Baxter Design Plans.

Section 3.2.1 provides a detailed description of the relationship between the beech trees and the footprint of development with an indication of potential loss and opportunities for retention.

One hundred and twenty-five (125) mountain beech are within or at the margins of the footprint of construction. Ten (10) red beech and 20 lancewoods (*Pseudopanax crassifolius*) may also be actually or potentially affected. The only areas *without* one or two beech trees with a DBH (diameter at breast height) of 300 mm or more (120 - 190 years old) are Area 3, 7, 11, 14, 15, 18, 19 and 21. These areas along with others supporting more mature trees have one or more beech trees with DBH measurements between 200 and 300 mm (80 – 190 years old); refer to **Tables 1 and 2**.

Additionally, there is a very large multi-stemmed lancewood in Area 31 that has been marked with hazard tape. NSN recommends that where isolated trees can be practically retained and or incorporated into the landscape plans for the site, they should be.

The units closest to the gully will require some vegetation clearance. The opportunity to salvage shrub seedlings, ferns and clubmosses that can be translocated into planted areas and green roof designs should be taken. An on site holding nursery could be considered.

Development (excavation or compaction) within the drip line of beech trees, stockpiling or spreading soil around the root zone of beech trees will adversely affect the health and vigour of the trees and may lead to death, e.g. two trees at the eastern site of cluster 33, refer **Figure 3**.

Beech trees do not tolerate disturbance to root structures, or burial of root well. The root plates of beech trees are usually interlocked with root grafting common within the interlocked root plate in mountain beech forests and occasionally in red beech forests[14]. Beech tree roots tend to be shallow making them unstable in wind; the interlocked root systems may add stability.[15] Trees

[14] Wardle (1984)
[15] Smale, (2012)

isolated by clearance with root systems damaged by earthworks or construction may therefore be more prone to windthrow.

The affected site is already substantially cleared, in open areas it carries a weed burden of introduced broom. Areas with denser canopy cover are dominated by a mixture of beech trees, manuka, Eucalypts and hawthorn. The understory is open in places with regenerating broadleaved trees and shrubs in others. Ferns, clubmoss and at least one bush lily are present in the gully habitat which also contains some herbaceous weeds. The opportunity to remove and replace exotic vegetation with beech trees, broadleaf trees and shrubs and fern exists in the context of the proposal. This includes the incorporation of ferns and broadleaf species in the immediate vicinity of the units on the gully boundary. The additional benefit of this approach would be to reduce the risk of fire from resinous Leptospermum and Eucalypts at the doorstep of the accommodation.

Much of the manuka shrubland is affected by sooty blight. Although this is unlikely to kill the manuka, it also affects other species in the sub-canopy where sap has supported the growth of the sooty fungus. Bohórquez (2018) investigated the effectiveness of insecticide on the control of scale insects within the context of informing apicultural interests and found that scale insects could be reduced but not eliminated. She cautioned that the use of insecticides also impacts on indigenous pollinators and sap sucking species and so requires careful consideration of the efficacy prior to use.

The Baxter Design Plan – Attachement I identifies 5 previously protected trees and 40 identified trees in the notabale vegetation areas to be removed.

NSN estimates from **Table 2** and **Figures 3** (BD Attachment D) and **4** (BD Attachment I) that 106 beech trees (mostly mountain beech) will be removed but two trees in Area 33 that are dying would be retained, but should probably be removed; and 18 lancewoods including some very large multi-stemmed specimens would be removed.

Given the context of the site in relation to the public conservation land the clearance of up to **126** beech trees and lancewoods (refer to Attachment I of the Baxter Design Plans, copied as **Figure 4**) and associated shrubland vegetation will be a regrettable loss to this buffering margin.

However, the retention of as many trees as can be achieved within the develop context will assist in blending the development with its surrounds. The removal of 108 beech trees in the particular context of this site will in the opinion of the author have a less than minor ecological effect given the opportunity to balance the loss in the context of the development.

The effects of clearing some of the beech trees and associated shrubland in the footprint of the development can be balanced by the progressive removal and replacement of exotic species in the gully habitat with native species in NSN Appendix 2 or Appendix B of the Landscape Maintenance and Management Plan prepared by Baxter Design. This work should target species listed under the Otago Regional Pest Management Plan as Organisms of Interest: hawthorn, blackberry, tree lupin, willows and rowan (if present).

The net effect of this would result in an enhancement of the remaining indigenous vegetation of the site, and provide a balance for the proposed removal of mature beech and lancewood trees.

This assessment is balanced against the zoning of the land, its location as a fragment of indigenous forest on the margin of a very large area of protected forest neighbouring the site.

5.1.3 Stormwater

John Edmonds and Associates have advised NSN that

"Stormwater is going to be largely collected by the green roofs but any excess is going to be collected in tanks under the decks of the units and could be used for irrigation."

Email Hayley Mahon to Dawn Palmer 1/7/2021

There is no permanent water flow supporting instream invertebrate fauna within the site.

Measures to ensure stormwater from Tui Drive does not cause erosion or sedimentation may need further review in consultation with the Glen Tui residential development and Council. However, management of stormwater within the Waimarino site should ensure no flushes of sediment enter the gully environment in such as way that causes erosion or regular deposition of sediments that may adversely affect the ecosystem of the ephemeral but generally dry gully.

The portion of the gully within the Waimarino site provides a buffer between uphill development, this development and the Bobs Cove Recreation Reserve downhill. Protecting the site from erosion or sedimentation events will also protect the gully environment.

On this basis the effect of stormwater management on the dry ephemeral gully will be less than minor provided sedimentation and erosion of the gully can be avoided.

5.2 Assessment in terms of the PDP

Assessment in relation to the Queenstown Lakes District Council Proposed District Plan, Decisions Version April 2021

Part 5: Chapter 33: Table 2
Rule: 33.5.1 The indigenous vegetation remaining on the site is more than 15 years old[16].
Rule: 33.5.2 The indigenous vegetation is not in a Land Environment with less than 20% of the indigenous vegetation remaining.
Rule: 33.5.3 b. The indigenous vegetation is regenerating forest greater than 3 metres high.
Rule: 33.5.3 e. There are more than three or more indigenous shrubs and or vines.

6 Recommendations

1. NSN recommends Appendix C: Landscape Maintenance and Management Plan prepared by Baxter Design is adopted as a condition of consent.

2. NSN recommends that beech and lancewood trees should be retained where ever they can be practically retained and or incorporated into the landscape plans for the site. This will help integrate the proposed development more sympathetically into the surrounding vegetation.

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3. The opportunity to salvage vegetation such as shrub seedlings, ferns and clubmosses that can be translocated into planted areas and green roof designs should be taken. An on site holding nursery could be established to facilitate this.

4. The excavation of soil should be minimised where possible and particularly under the canopy of beech an manuka dominate vegetation in order to retain the symbiotic relationships between fungal mycorrhizae and forest/ shrubland communities. Where proposed changes in ground level approximate existing ground levels, consideration should be given to avoiding disturbance.

5. Where excavation is required, the topsoil under beech forest and manuka shrubland should be removed to a depth of about 200 mm and retained separately. This soil should be reinstated over the finished levels, and or used in areas where these communities are going to be planted as part of the Landscape Design.

6. Wherever clearance of vegetation within the gully or gully/ terrace margins occurs for the purpose of earthworks, construction, or removing exotic species ground cover must be reinstated with natives to minimise or prevent erosion or sedimentation of the dry gully habitat.

7. Stormwater attenuation at the Tui Drive cul-de-sac and the collection and use of stormwater within the Waimarino development will ensure that discharge into the dry, ephemeral gully will be avoided or minimised.

8. The effects of clearing some of the beech trees and associated shrubland in the footprint of the development can be balanced by the progressive removal and replacement of exotic species in the gully habitat with native species in NSN **Appendix 2** or Appendix B of the Landscape Maintenance and Management Plan prepared by Baxter Design. This work should target species listed under the Otago Regional Pest Management Plan as Organisms of Interest: hawthorn, blackberry, tree lupin, willows and rowan (if present). Eucalypts have a historical relevance to the Bobs Cove area, they support nectar feeding species and may be retained unless their removal is considered prudent for the management of fire risk.

9. The disturbed and cleared areas within the gully and gully margins could be revegetated with ferns, *Pittosporum tenuifolium, Coprosma lucida, Aristotelia serrata, Carpodetus serratus, Griselinia littoralis, Coprosmas, Gaultheria, Leptecophylla juniperina, Fuscospora fusca, Fuscospora cliffortioides* to reduce the amount of manuka on the immediate periphery of the development in order to diminish the extent of sooty mould adjacent to the development and manage fire risk to structures, if only marginally given the site context.

   The net effect of a progressive replacement of exotic species with native within the context of the development would result in an improved balance for the proposed removal of mature beech and lancewood trees.

10. It is recommended that revegetation following construction incorporates ferns, shrubs and faster growing red beech into the gully habitats with mountain and or red beech planted into largest canopy gaps.

11. Ferns and low shrubs associated with sub-canopy/ understory vegetation can be incorporated into the landscaping surrounding the Units. Bidibid (*Acaena anserinifolia*) a creeping ground herb and little hard fern (*Austroblechnum penna-marina*) and kiwakiwa (*Cranfillia fluviatilis*) would be appropriate for incorporation into green roof designs subject to consideration by and approval of the architects. Similarly clubmosses, refer to **Table 4** for a list of species present on the property.

12. Indigenous plants incorporated into landscape designs should be eco-sourced from the Lakes Ecological Region. This is particularly important given the proximity to the public conservation land.

13. Where beech trees and or manuka are required to be felled to facilitate the development or where they have been felled and stockpiled, the wood could be retained for carvings and local or on site art installations or chipped and used in landscaped areas, this will support some of the existing saprobic (decomposer) fungal diversity present in the soil.

7 Opportunities for enhancement

1. Reduce the large, felled *Pinus radiata* to hasten its decomposition and facilitate planting of natives between Units 1A and 2A. Refer **Plate 11.**

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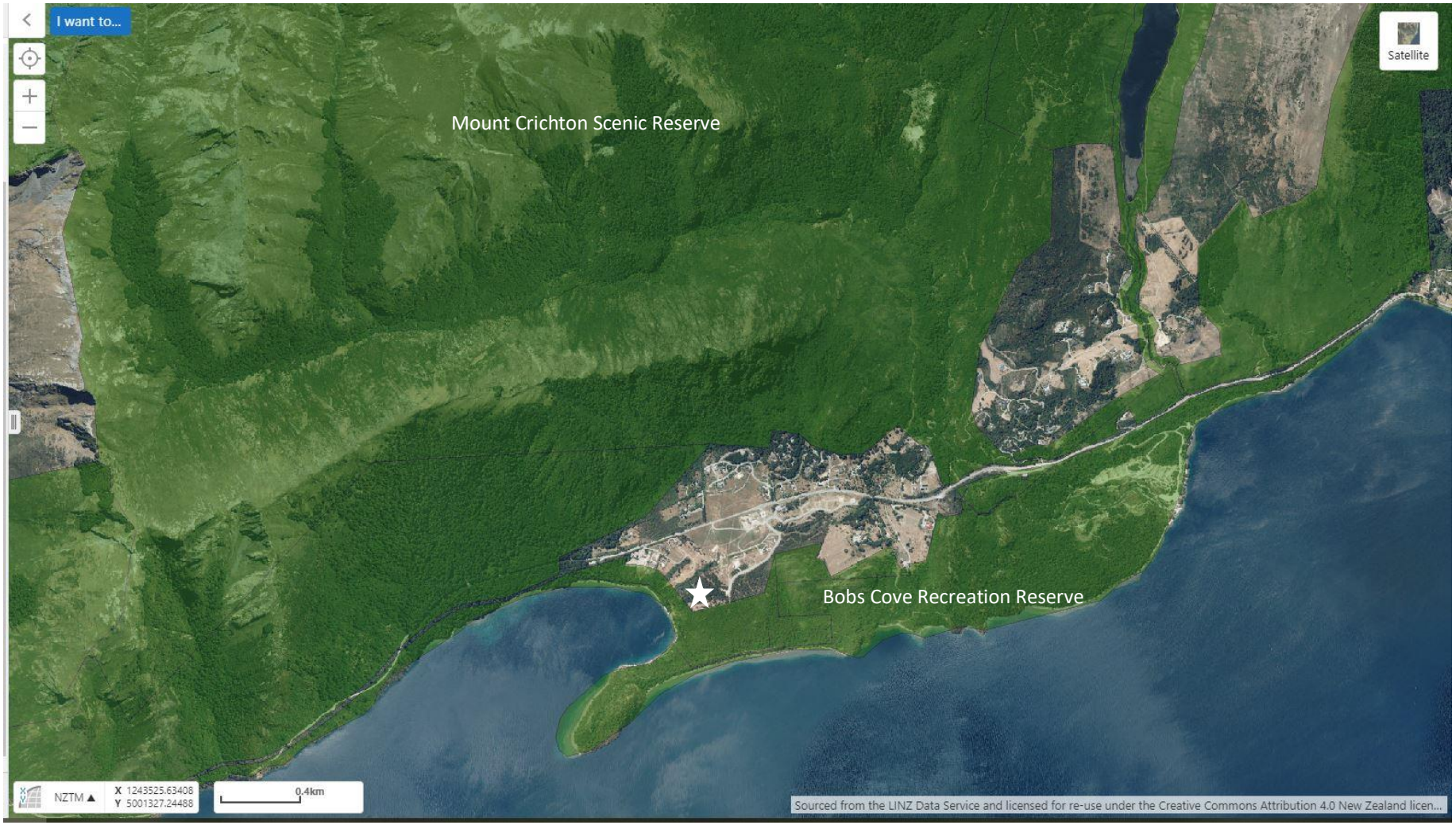

Source: https://maps.doc.govt.nz/externalmaps/index.html?viewer=docmaps

Figure 1: Bobs Cove Recreation Reserve immediately adjoining the site to the south and west – 330.63 hectares of forest and regenerating hardwood forest along the lake foreshore. Mount Crichton Scenic Reserve north of the Glenorchy- Queenstown Road – 2597.31 hectares of mountain and red beech forest, manuka shrubland and tussock grassland above the treeline. Combined, these Reserves constitute an entire altitudinal sequence of indigenous vegetation from lake foreshore (308 mals) to Mount Crichton at 1871 masl.

Figure 2: Protected Tree Areas identified on a previous title (RM130174): PT 1 to 5; NSN identified beech trees and lancewoods that are potentially affected as part of the ecological assessment of the proposal. Refer to **Figure 3** and **Table 1** and **2** for details of trees recorded.
Source: Google Earth Pro

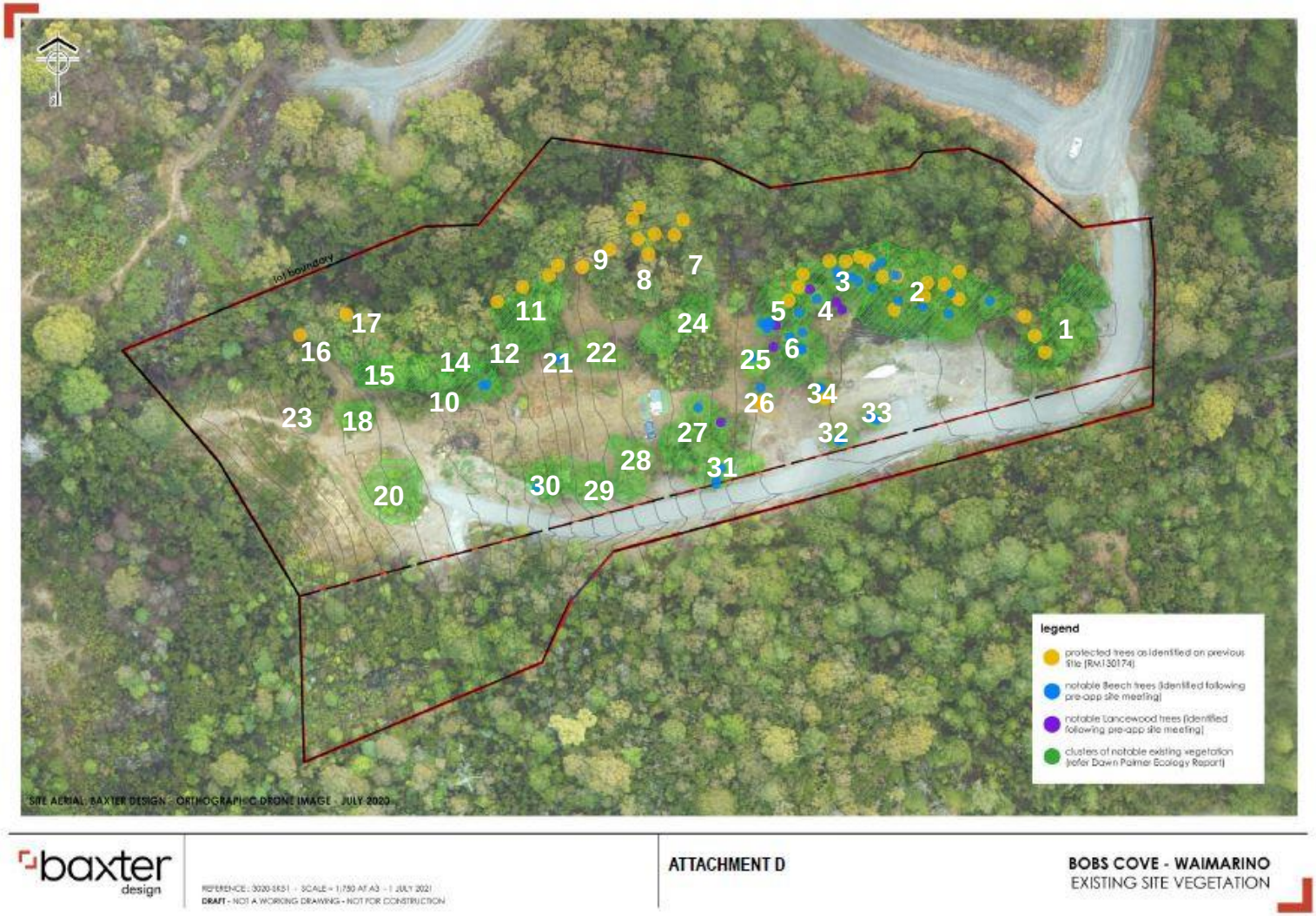

Figure 3: Existing Vegetation with NSN notable existing vegetation actually or potentially affected by the Waimarino Proposal; refer to **Table 2** for a summary of the vegetation clusters

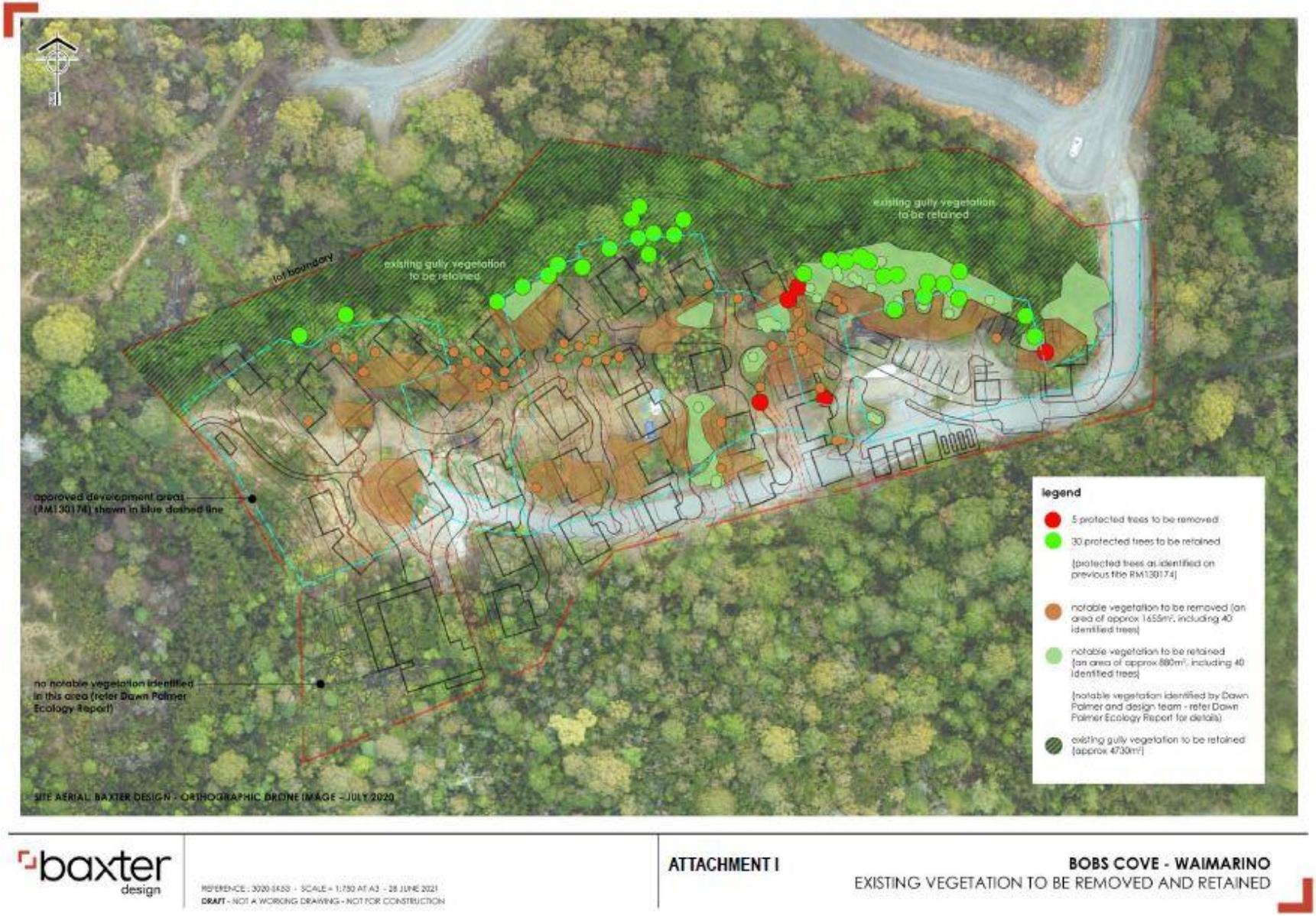

Figure 4: Existing vegetation to be removed and retained

Table 1 – Estimated Age of trees based on Diameter at Breast Height measurements.

DBH (diameter (mm) at breast height measured at 1.4m above ground).

The Hurst et.al. (2007) Otago data are used to estimate age from mean annual DBH growth based on DBH measurements taken from potentially affected trees and trees identified in proposed Protected Tree Areas

Hurst et.al (2007) modelled growth rates of indigenous beech trees in unmanaged forests using the nationally important resource of the National Vegetation Survey Databank[17] and found red beech in Otago to have a mean annual diameter growth of 2.4 mm (mm/yr +/- Standard Error of Measurement: 0.2 mm) and 1.6 (+/- 0.09 mm SEM) for mountain beech.

Age (yrs)	DBH (mm) at 10 year increments (mm/yr x number of years = DBH)	
Species	Mountain beech (MB) 1.6 x number of years = mm DBH	Red beech (RB) 2.4 x number of years = mm DBH
10	16	24
20	32	48
30	48	72
40	64	96
50	80	120
60	96	144
70	112	**168**
80	128	**192**
90	144	216
100	160	240
110	176	264
120	192	288
130	**208**	312
140	224	336
150	240	360
160	256	384
170	272	408
180	288	**432**
190	304	456
200	320	480
210	336	504
220	352	528
230	368	552
240	384	576
250	**400**	600
260	416	624

[17] https://nvs.landcareresearch.co.nz/

Table 2 – Schedule of Trees actually or potentially affected by the development

DBH – Diameter at Breast Height (1.4 m above the ground); colour coding for each tree cluster correlates to the colours used on Baxter Design Plan - Attachment I copied in this Report as **Figure 4**.

Tree Cluster Number	Tree Species	Number present	Average DBH (mm)	Largest DBH (mm)	Smallest DBH(mm)	Notes
1	Mountain (Mt) beech	11	167	350	84	Road margin **largest previously protected tree to be removed; trees to east towards gully to be retained**
	Red beech	2	194	229	159	**Possibly to be retained**
2	Mt beech	15	217	396	16	Includes Protected tree area; **2 previously protected trees to be removed; some losses of trees along carpark boundary**; most are protected/ retained
3	Mt beech	6	231	295	182	2 trees (DBH 295mm and 271 mm) have previously been marked with green triangles; **to be retained**
	Red beech	2	170	196	143	Green triangle on 196 mm DBH tree
4	Mt beech	1	309			Green triangle marks tree near 1A Cnr peg; **previously protected tree to be removed**
5	Mt beech	7	200	268	102	A green triangle marked 3 trees (264, 268 and 229 mm DBH) near the 1A Cnr peg; **all to be removed**
	Lancewood	1	127			**all to be removed**
6	Mt beech	8	197	309	99	A multi-stemmed lancewood and *Dracophyllum longifolium* is present it this beech cluster; Unit 1B and access lane; **all to be removed**
	Lancewood	2				**all to be removed**
7	Mt beech	1	271			

						Edge of terrace, marked with surveyors string, between top and bottom pegs for 3A. Coprosmas, manuka, Pittosporum, prickly mingimingi and Eucalypts also present between the pegs. **All to be removed**
	Lancewood	1	153			
Between 6 & 7	Red beech	1	231			Isolated red beech between Unit 1A and 2A and access lane; refer Photo Plate 26; **to be removed**
8	Mt beech	1	323			Between 3A top peg and trapping track along top of gully; **to be removed**
9	Lancewood	1	73			A double -stemmed tree within the footprint of Unit 4A.near profile pole in Lepsco, Lepjun, regen Pitten, Copluc, some Eucalypts, on gully side of pole btw 3A Bot Cnr and 4A Cnr top; **to be retained**
10	Mt beech	3	266	363	194	A large double stemmed tree (363 + 186 mm) marked with both a green triangle and surveyor's string, next to a large boulder with 2 large lancewoods (96 mm and a double stemmed tree 108 + 76 mm); 2 additional mountain beech in this cluster. These trees are in the footprint of Unit 6B; **all to be removed**
	Lancewood	2	102	108	96	Near boulder and top of beech cluster; **all to be removed**
11	Mt beech	8	143	293	41	Between clearing and trapline above gully margin; likely that at Units 4A and 5A least partially within the protected tree polygon at the margin of the gully and trees in this area and lancewoods in Area 9 will be within the footprint of Unit 4A construction. ; **most to be removed**

	Red beech	2	166	236	97	One large 4 stemmed red beech ; **most to be removed**
12	Mt beech	5	179	379	10	In the footprint of Unit 5A; **all to be removed**
	Lancewood	1	8.3			Just outside pegs; **all to be removed**
13						Trees amalgamated with Area 10; **to be removed**
14	Mt beech	5	206	232	185	In the footprint between Unit 5A and 6B; **all to be removed**
15	Mt beech	3	231	256	191	Within the construction footprint between the Restaurant and Unit 6A; **all to be removed**
16	Mt beech	1	409			Surveyors string marks this tree; between Unit 6A and the Distillery; **to be retained**
17	Mt beech	3	263	331	213	Surveyors string marks this tree; between Unit 6A and the Distillery; a very large multi stemmed mt beech tree in this cluster; surveyor's string marks the largest red beech; **to be retained**
	Red beech	2	334	439	229	
18	Mt beech	2	126	188	64	In the footprint of the north-east corner of the Restaurant; **all to be removed**
19	Mt beech	2	202	283	121	Adjacent to the peg assumed to be the southern yoga centre pole. ; **all to be removed**
20	Lancewood	11		172		A grove of 11 lancewoods (*Pseudopanax crassifolius);* located between the Restaurant, Yoga centre and Unit 6C; **all to be removed; *try to retain a few if possible***
21	Mt beech	7	184	357	68	Trees in the footprint of the access road to the restaurant and units near Units 3B and 4A; **all to be removed**
22	Mt beech	5	266	379	146	Trees in the footprint of the access road to the restaurant and units near Units 4A and 3B; **all to be removed**
	Red beech	1	256			

23	Mt beech	1	347			Within the footprint of the restaurant; **to be removed**
24	Mt beech	7	184	357	68	Within the footprint of the access road through the development south of Units 2A and 3A. ; **largest to be removed; eastern trees to be retained**
	Red beech	2	330	480	190	
25	Mt beech	1	408			Isolated tree in the footprint between Unit 1B and 2B; **to be retained**
26	Mt beech	1	338			Isolated tree in the footprint of Unit 2C and the path between Unit 2C and 1B marked with pink flagging tape; **to be removed**
27	Mt beech	4	289	318	237	Between Units 2C and 3D; one large multi-stemmed tree is marked with a green triangle; **most to be removed; 1 large beech to be retained**
28	Mt beech	7	188	306	62	Between Units 3D and 4C; pink flagging tape marks these trees; **all to be removed**
29	Mt beech	5	226	325	193	In the footprint of 4C; **all to be removed**
30	Mt beech	3	154	338	37	Between Unit 4C and 5D; **all to be removed**
31	Mt beech	4	237	354	135	Between Units 2C and 2D; **2 to be retained**
	Lancewood	1				A large multi-stemmed tree with hazard tape around it; **to be removed**
32	Mt beech	2	384	382	376	Two trees on the western side of the cluster between Unit 1C and 1D; **all to be removed**
33	Mt beech	2	279	314	245	Two trees on the eastern side of the cluster between Unit 1D and Entrance area with root damage and poor canopy condition; likely to have been impacted by previous road construction; **to be retained but dying and should be removed**
34	Mt beech	1	350			Pink flagging; Reception area/ carpark; **to be removed**
Total	**Tree Species**	**Number present**	**Average DBH (mm)**	**Largest DBH (mm)**	**Smallest DBH(mm)**	**Notes**

	Mt beech	125	218	409	96	
	Red beech	10	179	439	19	Ave. age: 105 yers; oldest: 231 yrs; youngest: 13 yrs
	Lancewood	21	149	363	73	unknown

Plant abbreviations use the first three letters of the genus and first three letters of the species names, e.g. Lepsco is *Leptospermum scoparium*.

Table 3 – Waimarino - Bird Species present during the site inspections

Scientific name	Common name	Bio Status
Anthornis melanura	Korimako/ Bellbird	endemic
Cyanoramphus auriceps	Kakariki/ Yellow-crowned parakeet	endemic
Fringilla coelebs	Chaffinch	introduced
Gerygone igata	Riroriro/ Grey Warbler	endemic
Petroica macrocephala	Ngiru-ngiru/ Yellow-breasted Tomtit	endemic
Prosthemadera novaeseelandiae	Tui	endemic
Rhipidura fuliginosa	Piwakawaka/ Fantail	native
Turdus philomelos	Song Thrush	introduced

All bird species present are classified as Not Threatened.

Table 4 – Plants and fungi species etected during the site inspections

Species name	common name	Biostatus	form
Trees & Shrubs			
Aristotelia serrata	Wineberry	endemic	Tree
Carpodetus serratus	Putaputaweta	endemic	tree
Carpodetus serratus	Putaputaweta	endemic	tree
Eucalyptus globulus	blue gum	introduced	tree
Fuchsia excorticata	kotukutuku, tree Fuchsia	endemic	tree
Fuscospora cliffortioides	Mountain beech	endemic	tree
Fuscospora fusca	Red beech	endemic	tree
Griselinia littoralis	broadleaf, kapuka, papauma	endemic	tree
Melicytus ramiflorus	Mahoe	endemic	tree
Pittosporum tenuifolium	kohuhu / black matipo	endemic	tree
Pseudopanax crassifolius	Lancewood	endemic	tree
Coprosma dumosa		endemic	shrub
Coprosma lucida	shining karamu	endemic	shrub
Coprosma propinqua	Mingimingi	endemic	shrub
Coprosma rhamnoides		endemic	shrub
Coprosma rigida		endemic	shrub
Coriaria sarmentosa	tutu	endemic	shrub
Corokia cotoneaster	Korokio	endemic	shrub
Dracophyllum longifolium	inaka	endemic	shrub
Gaultheria antipoda	bush snow berry, fool's beech	endemic	shrub
Leptecophylla juniperina	Prickly mingimingi	endemic	shrub
Leptospermum scoparium	manuka	native	shrub
Myrsine australis	red matipo	endemic	shrub
Pseudopanax colensoi var ternatus	Three-finger	endemic	Tree
Veronica salicifolia	koromiko	endemic	shrub

Lianes			
Parsonsia heterophylla	New Zealand jasmine	endemic	liane
Rubus cissoides	Tataramoa, bush lawyer	endemic	liane
Rubus schmidelioides	Tataramoa, bush lawyer	endemic	liane
Clubmosses			
Lycopodium fastigiatum	alpine clubmoss, mountain clubmoss	native	clubmoss
Lycopodium scariosum	Creeping clubmoss	native	clubmoss
Lycopodium volubile	climbing clubmoss, waewaekoukou	native	clubmoss
Phlegmariurus varius	clubmoss	native	clubmoss
Ferns			
Austroblechnum penna-marina	little hard fern, alpine hard fern	native	fern
Cranfillia deltoides	korokio, mountain hard fern	native	fern
Cranfillia fluviatilis	kiwakiwa	native	fern
Parablechnum minus	swamp kiokio	native	fern
Parablechnum montanum	mountain kiokio	endemic	fern
Polystichum neozelandicum subsp. zerophyllum	shield fern	endemic	fern
Polystichum vestitum	Punui, prickly shield fern	endemic	fern
Pteridium esculentum	bracken, rarauhe, bracken fern	native	fern
Sedges			
Uncinia species	Hook sedges		sedge
Herbs Monocot			
Astelia fragrans	Bush Lily	endemic	tussock
Herbs Dicot			
Acaena anserinifolia	bidibid	endemic	herb
Lagenophora strangulata	parani	endemic	herb
Fungi			
Aleuria aurantia	orange peel fungus	introduced	
Amanita muscaria	Fly agaric	introduced	
Chalciporus cardinalis (?)		unknnown	
Chalciporus piperatus	Peppery Bolete	introduced	
Clavulina sp.	Icicle fungi	unknown	
Cortinarius cardinalis		endemic	
Cortinarius phaeomyxa		endemic	
Cortinarius saturniorum (?)		endemic	
Cortinarius sp. - several species		unknown	
Crinipellis sp.		endemic	
Entoloma sp		unknown	
Gallacea scleroderma	Violet potato fungus	endemic	
Hypholoma australianum	Redhead	native	
Laccaria masonii		endemic	

Laccaria sp.		endemic	
Marasmius gelatinosipes		endemic	
Mycena austrofilopes		native	
Mycena subviscosa		endemic	
Psathyloma leucocarpa		unknnown	
Tricholoma sp		native	

Introduced

Crataegus monogyna	hawthorn	Introduced	tree
Pseudotsuga menziesii	Douglas fir	Introduced	tree
Cytisus scoparius	wild broom	Introduced	shrub
Digitalis purpurea	foxglove	Introduced	herb
Lupinus arboreus	tree lupin	Introduced	shrub
Ulex europaeus	gorse	Introduced	shrub
Rosa rubiginosa	blackberry	Introduced	liane
Agrostis capillaris	browntop	Introduced	grass
	pasture grass	Introduced	grass

All plant species present are classified as Not Threatened except for fungi which do not have a threat classification.

Photographic Plates – illustrating values recorded, May to June 2021 - Waimarino

Plate 1: Waypoint 3 – View north west down the dry gully from below Tui Drive receiving environment for road discharge. Open understory with manuka (*Leptospermum scoparium*), shining karamu (*Coprosma lucida*), shade affected kohuhu *(Pittosporum tenuifolium*), bracken, mountain beech (*Fuscospora* cliffortioides) left side of view

Plate 2: Waypoint 3 – Climbing clubmoss - *Lycopodium volubile* at the base of manuka; also at Waypoint 4.

Plate 3: Waypoint 3 – View south east from below Tui Drive looking up the dry gully towards waypoint 2 (refer to Figure 2); Bush lawyer, wineberry, *Pittosporum tenuifolium*, bracken, clubmoss, Eucalypts, manuka; black sooty mould is visible on manuka.

Plate 4: Waypoint 4 – Mountain kiokio (*Parablechnum montanum*) blackened by sooty mould, Eucalypt sapling on right.

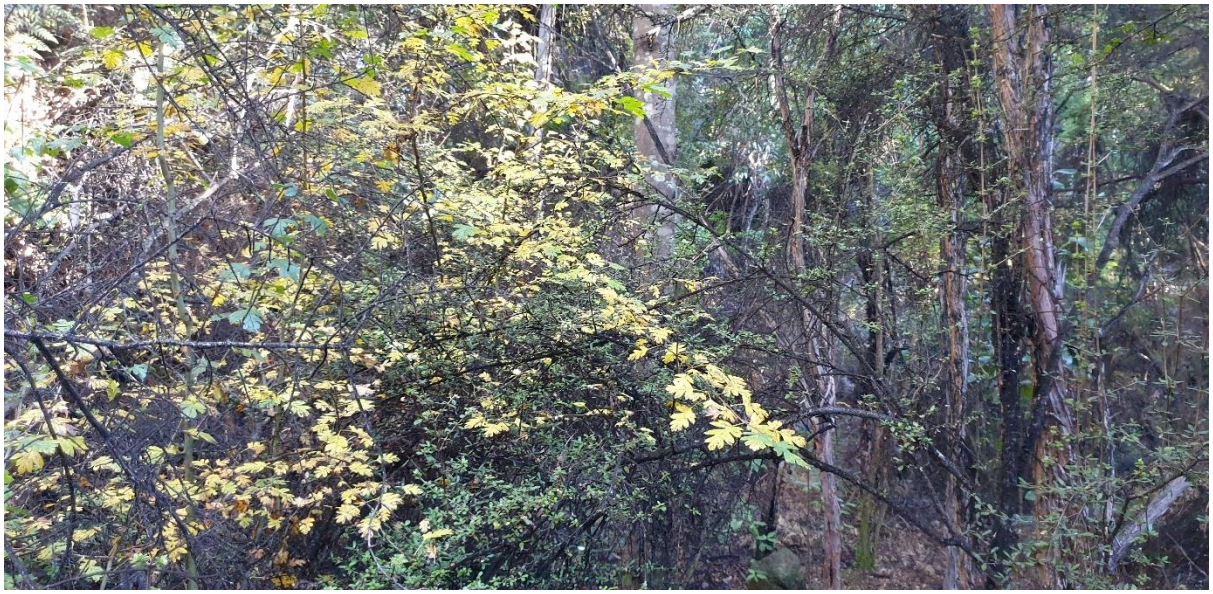

Plate 5: Waypoint 4 – View south west towards carpark and Tree Protection Area 2; hawthorn (yellow leaves), *Coprosma propinqua* (small leaved shrub) and manuka with lianes – bush lawyer – climbing over them; Eucalypt sapling, mountain beech stems visible through the dense sub-canopy

Plate 6: Waypoint 4 – View west down the bed of the dry gully; bracken, manuka, sooty mould covering twigs and woody debris, bracken, Mountain kiokio (*Parablechnum montanum*)

Plate 7: Waypoint 5 – View west down dry gully bed north of the carpark; mountain beech stem on right, manuka, beech and eucalypt saplings, bracken fern, broadleaf (*Griselinia littoralis*) and koromiko (*Veronica salicifolia*) on left margin of view

Plate 8: Between waypoints 5 and 6 north of Protected Tree Area 2 (Figure 2)- and the proposed carpark (Figure 4) - Mountain kiokio (*Parablechnum montanum*), bracken fern, shining karamu (*Coprosma lucida*), *Coprosma rhamnoides* understory.

Plate 9: Between waypoints 5 and 6 north of Protected Tree Area 2 (Figure 2)- and the proposed carpark (Figure 4) - Climbing clubmoss - *Lycopodium volubile,* mountain kiokio, bracken, bush lawyer, *Coprosma rhamnoides* in the understory.

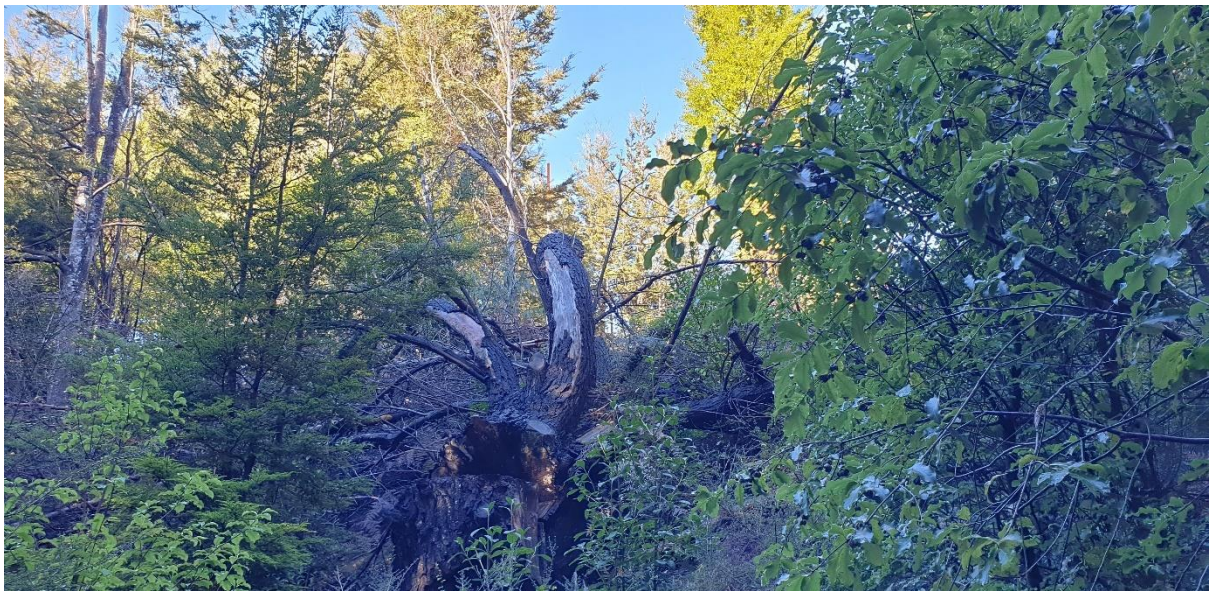

Plate 10: Waypoint 8 – View south from the dry gully north of and between Units 1A and 2A Species recorded in the opening in the forest near the felled *Pinus radiata,* surrounded by *Fuscospora cliffortioides, Leptospermum scoparium, Pteridium esculentum, Coprosma lucida, Coprosma dumosa, Coprosma rhamnoides, Pittosporum tenuifolium, Polystichum vestitum, Austroblechnum penna-marina, *Crataegus monogyna, *Eucalyptus*.

Plate 11: Waypoint 8 — View southwest from the dry gully north of and between Units 1A and 2A across the slope towards Unit 3A and 4A; beech and Eucalypt stems in Tree Protection Area 3

Plate 12: Waypoint 9 – View along the dry gully from north of Unit 4A

Plate 13: Waypoint 10 - located north of Protected Tree Area 4 and Units 4A and 5A. View down gully (west) at a small step interpreted as being indicative of historical flow and erosion. *Species recorded at this waypoint were Entoloma* sp. fungi - Moss, herbs, *Austroblechnum penna-marina*, (at the bottom margin of this photo), *Leptospermum scoparium, *Crataegus monogyna, *Eucalyptus* spp., *Carpodetus serratus*, *Fuscospora cliffortioides, Pteridium esculentum, Coprosma lucida, Coprosma dumosa, Coprosma rhamnoides, Pittosporum tenuifolium, Pseudopanax crassifolius*

Plate 14: Waypoint 10 – View east up the dry gully from north of Tree Protection Area 4 and Units 4A and 5A. Vegetation dominated by Mountain kiokio (*Parablechnum montanum*), wineberry (*Aristotelia serrata),* hawthorn, *Pittosporumn tenuifolium*, manuka

Plate 15: Waypoint 10 - View south into Tree Protection Area 4 along the steep bank near Unit 5A. Vegetation in view is mountain beech with an open understory of bracken, *Pittosporum tenuifolium,* manuka.

Plate 16: Waypoint 10 – Ground cover of mountain hard fern (*Austroblechnum penna-marina*), moss, mushroom (unidentified) in hawthorn and *Pittosporum* leaf litter. The hard fern could potentially be incorporated onto some of the green roof planting.

Plate 17: Waypoint 11 - In the dry gully north of Unit 6A; *Cranfillia fluviatilis* fern, *Acaena anserinifolia* (bidibid) *Lycopodium volubile* (climbing clubmoss) in the background and *Phlegmariurus varius* an erect clubmoss in the mid view. These species could be trialled as green roof vegetation where shaded by beech canopy.

Plate 18: Waypoint 11 view down dry gully (west) from position north of Unit 6A. Beech forest, the beech trees in this area were not measured as they were considered to be beyond the footprint of the development. Clearance of the forest in this area should be limited to as little as possible.

Plate 19: Waypoint 14 (Dist Cnr bottom peg), View south from the clearing margin north of the restaurant towards the Restaurant corners and yoga centre pole to the right behind the broom. Introduced broom infests the western portion of the clearing.

Plate 20: View from Waypoint 14 (Dist Cnr bottom peg) – View southwest from the clearing margin north of the Distillery peg viewed from edge of forest.

Plate 21: View east from Waypoint 13 (Rest Cnr bottom peg) towards the bore and the 6B bottom corner peg on the forest margin, the 6B unit structure would require clearance of three beech trees in view along the margin of the forest and possibly some other beech trees in NSN mapped Areas 10 and 15 within the forest, refer Figure 4.

Plate 22: Waypoint 13 - View south from the Restaurant Corner bottom peg across the lower (western) portion of the site. Introduced broom infests the open clearing, NSN mapped area 20 is to the left of this view where 11 mature lancewoods have been retained to date. Eucalypt dominated canopy is visible in the distance where the Lodge residence is located, indicative location indicated with an arrow.

Plate 23: Waypoint 15 (bore) - View from the bore towards the stand of 11 lancewoods in the Area mapped by NSN as Area 20, refer Figure 4. Introduced broom and tutu (*Coriacea sarmentosa)* are also present.

Plate 24: Waypoint 16 – 6B bottom peg, top peg just inside the margin of the forest, the structure would extend to the left of this view into the forest mapped as NSN Area 10 which includes 3 mountain beech. One of the trees is a large multi-stemmed tree marked by both a green triangle and surveyor's string. The largest stem had a DBH of 363 mm making it at least 230 years old.

Plate 25: Waypoint 17 - Land owners private residence / Lodge site (centre pole) south of the proposed Waimarino development. The surrounding vegetation has a canopy of Eucalypts with regenerating hardwood forest (*Pittosporum tenuifolium),* shining karamu *(Coprosma lucida*) and manuka understory, bracken, tutu, *Coprosmas, Corokia*.

Plate 26: Waypoint 18 (2A Cnr peg) view east to isolated red beech DBH 23 mm between Unit 1A bottom corner and Unit 2A corner and NSN mapped Areas 5, 4 and 3 behind, Figure 4.

Plate 27: Waypoint 18 (2A Cnr peg) view south west towards Beech and Eucalypt copse, NSN mapped Area 24; Unit 2A to the right of view in beech forest.

Plate 28: Waypoint 21 – View west along the existing formed road into the proposed reception and carpark area on the right. Isolated beech and lancewood trees (shown as 33 in Figure 4) are present within the footprint of the Waimarino development. Two mountain beech standing together and marked with an arrow have thinning canopies indicative of stress. The roots may have been damaged by road construction.

Plate 29: Waypoint 23 - View west along forest margin with a copse of beech and Eucalypts south of a cleared track. Trees in view on both sides of this track are within Protected Tree Area 2 on Figures 2, 3 and 4 north of the proposed reception and carpark area.

Appendix 1

Fungi recorded At Waimarino

13 – 16 May 2021 at Waimarino Lodge, Bobs Cove, Whakatipu

Fungi collected and photographed by Dawn Palmer between 13 – 16 May 2021 after more than 32 mm fell on May 9 and 11, 2021 with cold to mild temperatures following.

Vegetation of the area where fungi was collected was a dry gully, dominated by a dense canopy of *Fuscospora cliffortioides, Leptospermum scoparium, Eucalyptus globulus,* with regenerating *Pittosporum tenuifolium, Coprosma lucida, Coprosma dumosa, Coprosma rhamnoides*, bracken fern, hawthorn, a large felled *Pinus radiata*, *Leptecophylla juniperina* and *Pseudopanax crassifolius*. Occasional *Aristotelia serrata* and *Carpodetus serratus* are also present. A variety of ferns, moss and clubmoss provide ground cover. Leaf and twig litter covers the floor of the dry gully.

The mushrooms found at the site were photographed and photos with descriptions were sent to Landcare Research to see if any identification was possible. Those that could be identified from photographs by Dr Jerry Cooper (Mycologist at Landcare Research) have been included in this summary of fungal diversity.

The location of waypoints are shown in Photo 30.

1

2

2A

Waypoint 2; *Aleuria aurantia*. Introduced; on gravel margin of access track – 4 mm to 15mm

White Spores

3

3A

Waypoint 2 – *Hypholoma australianum*, Redhead/ Brick woodtuft; white spores, yellowish gills, red/ orange cap, mountain beech leaves provide scale (c. 1cm)

Margin of road cutting; edge of *Fuscospora cliffortioides – Leptospermum scoparium, Dracophyllum longifolium, Pteridium esculentum, Coprosma lucida, Coprosma dumosa*

4

Waypoint *9 – 10: Chalciporus piperatus* on the left (with white spores); introduced parasite of Amanita muscaria and the left mushroom (bolete) in 6A below on the left. All mushrooms in 6A had brown spores. *Clavulina sp.* Coral fungi on the right, mycorrhizal with trees; Both found within leaf litter of hawthorn, red and mountain beech, Pittosporum, Eucalyptus.

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5

5A

Waypoint 20 – 23; large mushroom (white spores) Maybe *Tricholoma* sp. if really white spored; brown spores for top left of tray above *Cortinarius* sp.

6

Waypoint 11 - Twiggy stem, tiny caps 2 – 8 mm wide; white or no spores on white paper; *Criniellis* sp. Woody fine stems attached to woody litter – D Palmer identified using Virtual Mycota website https://virtualmycota.landcareresearch.co.nz/webforms/vM_Species.aspx?pk=2399

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7

Waypoint 11; *Mycena subviscosa;* in beech forest litter

8

Waypoint 11; *Mycena austrofilopes*

Purple/ Brown Spores

9

9A

Waypoint 2 - *Hypholoma australianum;* Margin of road cutting; light green gills, purple/ brown spore print, edge of *Fuscospora cliffortioides – Leptospermum scoparium, Dracophyllum longifolium, Pteridium esculentum, Coprosma lucida, Coprosma dumosa*

Brown Spores

10

Between Waypoint 5 & 23; *Cortinarius* sp. better photos needed for further identification

*Habitat: Fuscospora cliffortioides, Leptospermum scoparium, Pteridium esculentum, Coprosma lucida, Veronica salicifolia, Leptecophylla juniperina, Pseudopanax crassifolius, * Crataegus monogyna*

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11

11A

Waypoint 24; Slimey *Cortinarius* sp. mushrooms in *Fuscospora cliffortioides, Leptospermum scoparium, Pteridium esculentum, Coprosma lucida, Leptecophylla juniperina, Pseudopanax crassifolius, Pittosporum tenuifolium, Polystichum vestitum, * Crataegus monogyna, * Eucalyptus* spp.

12

Waypoint 9 - Possibly *Cortinarius saturniorum*

13

Waypoint 10 among ferns and moss; *Cortinarius phaeomyxa* probably

14

Waypoint 23, - *Cortinarius* sp.

15

Waypoint 9 - *Gallacea scleroderma* (Purple potato fungus) in hawthorn leaf litter within manuka and mountain beech dominated vegetation.

16

Gallacea scleroderma (left – Purple Potato); brown spores; *Psathyloma leucocarpa* (above right)

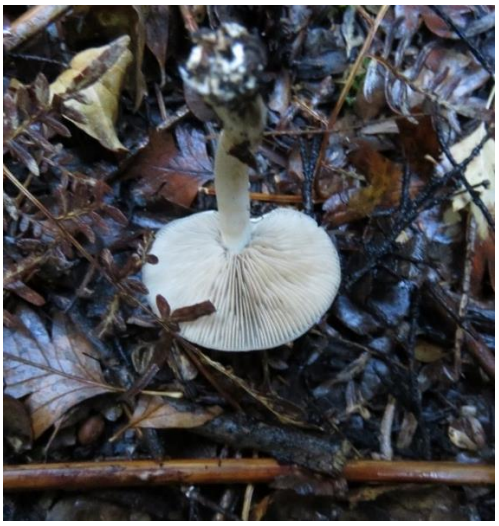
17

Waypoint 10 – *Cortinarius sp*.; slimey, sticky in moss and under *Polystichum vestitum, faint pale brown spore print, hardly visible*

18

Between waypoint 8 – 32 – *Cortinarius* sp. Found within an opening in the forest near a large felled *Pinus radiata,* surrounded by *Fuscospora cliffortioides, Leptospermum scoparium, Pteridium esculentum, Coprosma lucida, Coprosma dumosa, Coprosma rhamnoides, Pittosporum tenuifolium, Polystichum vestitum, Austroblechnum penna-marina, * Crataegus monogyna, and * Eucalyptus* spp.

19



19A

Waypoint 26 – 31 - *Cortinarius* sp. Found in *Fuscospora cliffortioides, Leptospermum scoparium, Leptecophylla juniperina, Pteridium esculentum, Coprosma lucida, Coprosma rhamnoides, Pittosporum tenuifolium, * Crataegus monogyna,* and * *Eucalyptus* spp.

20

Waypoint 24 *Chalciporus piperatus* in leaf litter of mountain and red beech, hawthorn, *Pittosporum tenuifolium*

21

Waypoint 24 Possibly *Cortinarius cardinalis*, brown spores;

Spore Colour Unknown

22

Waypoint 20 - *Amanita muscaria* where *Pinus radiata* felled

23

Waypoint 7 – *Clavulina sp.* Icicle Fungi - at base of *Fuscospora cliffortioides; small brown fungi*

24

24A

Waypoint 10 – *Entoloma* sp. – within moss, herbs, *Austroblechnum penna-marina, Leptospermum scoparium, *Crataegus monogyna, *Eucalyptus* spp., *Carpodetus serratus*, *Fuscospora cliffortioides, Pteridium esculentum, Coprosma lucida, Coprosma dumosa, Coprosma rhamnoides, Pittosporum tenuifolium, Pseudopanax crassifolius*.

25

25A

Between waypoint 9 & 24, *Cortinarius* sp. (orange mushroom), small white capped mushroom *Mycena subviscosa.*

26

Waypoint 4 - *Laccaria* sp. Pink gills

27

Waypoint 10 *Cortinarius* sp. slimey stem and cap

28

Waypoint 19 - *Cortinarius* sp.

29

Waypoint 7 – *Laccaria masonii* pink gills

Near base of *Fuscospora cliffortioides* with *Leptospermum scoparium*, bracken*, Coprosma propinqua, Coprosma rhamnoides, Coprosma lucida, Polystichum neozelandicum subsp. zerophyllum,* regenerating (seedlings) of *Aristotelia serrata, Veronica salicifolia.*

30

Location of Fungi Waypoints; waypoint 2 is at the start of the blue gully line at the road margin.

References:

Dr Jerry Cooper – Mycologist at Landcare Research - Personal Communication (26/5/2021)

https://www.landcareresearch.co.nz/about-us/our-people/jerry-cooper

https://virtualmycota.landcareresearch.co.nz/webforms/vM_Genus_A2Z.aspx?StartChar=h

http://hiddenforest.co.nz/fungi/ - Shirley, C. (2020): Forest Fungi Quick Reference Guide. V5.01, April 2020. Downloaded from The Hidden Forest website.

Ridley, G. (2006): A Photographic Guide to Mushrooms and other Fungi of New Zealand. New Holland Publishers.

https://www.kaimaibush.co.nz/fungi/index.html

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Scientific Name	Common name	Mature Height	Mature Area (m2)	Spacing	Ground Cover	Low Planting	Tall Planting	Trees	Green Roof	Ferns	Edibles	Biostatus	Found locally **	Commercially available	Comment
Conifers															
Prumnopitys taxifolia	Matai	25	28	5									BC, LER	Yes	slow growing, Bobs Cove and Pigeon Island the only natural locations for this species in the Wakatipu catchment
Trees & Shrubs															
Aristotelia fruticosa	shruby wineberry	2	4.5	1									BC, LER	Yes	pink flowers, red fruit
Aristotelia serrata	Wineberry	10	7	2.5									BC, LER	Yes	
*Aruncus dioicus**	Goat's beard	1.2 to 1.8	3	1								Introduced	No	Yes	attracts bees and butterflies
Carpodetus serratus	Putaputaweta	10	7	2.5									BC, LER	Yes	
Coprosma crassifolia	Coprosma	4	1.8	1									BC, LER	Yes	white fruit
Coprosma dumosa	Coprosma	3	1.8	1									BC, LER	Yes	red fruit
Coprosma lucida	shining karamu	3	5	1.5									BC, LER	Yes	orange fruit
Coprosma rugosa	Coprosma	3	1.8	1									BC, LER	Yes	white fruit
Cordyline australis	Tī, cabbage tree	10	5	2									BC, LER	Yes	
Corokia cotoneaster	Corokia	3	1.8	1									BC, LER	Yes	yellow flowers, orange/ red fruit
~~*Dodonaea viscosa*~~	Akeake	3 to 12	na	na									No		Coastal lowlands, dunes and boulder beaches, offshores islands - NOT RECOMMENDED
Dracophyllum longifolium	Inaka	*12*	1.8	1									BC, LER	Yes	*very* slow growing, hard to propagate
Fuchsia excorticata	tree fuchsia	12	9.6	2									BC, LER	Yes	berries
Gaultheria antipoda	bush snow berry, fool'	1	0.8	1									BC, LER	Yes	
Griselinia littoralis	broadleaf	10	7	2.5									BC, LER	Yes	can be hedged
Hoheria lyallii	Mountain lacebark	6	7	2.5									BC, LER	Yes	white showy umbels (flowers around Christmas)
Leptecophylla juniperina subsp. ju	prickly mingimingi	2	0.8	1									BC, LER		berries
Leptospermum scoparium	Manuka	4	3	1									BC, LER		leaves, smoked wood, nectar, honey, vulnerable to sooty mold in this area
Leucopogon fraseri	Patotara, dwarf mingi	0.15	spreading	0.5					?				BC, LER	No	contract grown with permit for seed collection if not on Waimarino land
Lophomyrtus obcordata	Rohutu, New Zealand	6	5	1.5									BC, LER	Yes	
Melicytus ramiflorus	Mahoe	10 to 15	5	1.5									BC, LER	Yes	shiny green leaves
Myrsine australis	red matipo	3 to 5	7	2.5									BC, LER	Yes	slow growing when shaded; medium otherwise
Neomyrtus pedunculata	Rohutu	8	5	1								Nationally Critical	BC, LER	Yes ***	attracts bees, insects, contract grown with permit for seed collection if not on Waimarino land
Olearia arborescens	glossy tree daisy	4	5	1									BC, LER	Yes	white daisy flowers, leaves shiny and similar in shape to kawakawa
Olearia avicenniifolia	Mountain akeake	6	7	1.5									BC, LER	Yes	flowers in autumn have a soft, coconut-ish scent
Olearia fragrantissima	fragrant tree daisy	8	3	2								At-Risk - declining	LER	Yes	sweet smelling flowers
Ozothamnus vauvillersii	Mountain tauhinu	3	1.5	1									BC, LER	Yes	needs more open site
Parahebe/ Veronica stricta ' snow	koromiko	0.3	0.2	0.5								cultivar	No	Yes	northern species, curtilage areas only
Parsonsia heterophylla	New Zealand jasmine	liane													
Pennantia corymbosa	Kaikomako	8 to 10	7	1.5									BC, LER	Yes	
~~*Piper excelsum*~~	Kawakawa	5	na	na									No	Yes	Coastal understory species; not suited to this area
Pittosporum eugenioides	lemonwood/ tarata	8 to 12	9.6	3									BC, LER	Yes	very large tree
Pittosporum tenuifolium	kōhūhū	8	9.6	2									BC, LER	Yes	
Pittosporum tenuifolium 'purpurea'	kohuhu 'purpureum'	2	1.8	1.5									No	Yes	
Podocarpus laetus	Mountain totara	20	20	3									BC, LER	Yes	slow growing
Podocarpus nivalis	mountain totara	2	3	1									BC, LER	Yes	
Pseudopanax colensoi var colens	Five finger	5	7	2									BC, LER	Yes	attracts birds
Pseudopanax colensoi var ternatu	Three finger	8	7	2									BC, LER	Yes	attracts birds
Pseudopanax crassifolius	lancewood	10	3	1.5									BC, LER	Yes	

Scientific Name	Common name	Mature Height	Mature Area (m2)	Spacing	Ground Cover	Low Planting	Tall Planting	Trees	Green Roof	Ferns	Edibles	Biostatus	Found locally **	Commercially available	Comment
Pseudopanax ferox	fierce lancewood	5	5	1.5						AT-Risk - naturally uncommon			BC, LER	Yes	found in isolated pockets around the shore of Lake Wakatipu
Pseudowintera colorata	red horopito	3.5	3	1									BC, LER	Yes	
Sophora microphylla	Kowhai	10	7	2									BC, LER	Yes	attracts birds
Veronica cupressoides	cypress hebe	2	2	2							Nationally Endangered		LER	Yes	open areas
Veronica odora	hebe	1.5	0.8	1									BC, LER	Yes	
Veronica salicifolia	koromiko	5	5	1.25									BC, LER	Yes	
Lianes															
Clematis paniculata	white clematis	liane	climber										BC, LER	Yes	showy white flowers
Muehlenbeckia astonii	Shrubby tororaro	4	12	2							Nationally Endangered		No	Yes	bird dispersed, restrict to curtilage gardens only - not recommended this close to the Reserve; can be hedged
Muehlenbeckia axillaris	creeping pohuehue	0.1	creeping	0.5									LER	Yes	berries; great for birds
Parsonsia heterophylla	Native jasmine	liane	climber	3									BC, LER	Yes	sweet smelling climber
Clubmosses															
Lycopodium fastigiatum	alpine clubmoss, mou	0.1	na	na									BC, LER	No	Search for these on Waimarino land; translocate?
Lycopodium scariosum	Creeping clubmoss	0.1	na	na									BC, LER	No	Search for these on Waimarino land; translocate?
Lycopodium volubile	climbing clubmoss, w	climber	na	na									BC, LER	No	Search for these on Waimarino land
Ferns															
Austroblechnum penna-marina	little hard fern, alpine	ground cover	spreading	0.5									BC, LER	Yes	
Cranfillia fluviatilis	kiwakiwa	0.2	0.1	0.5									BC, LER	Yes	
Lomaria discolor	crown fern	0.7	1.8	1									BC, LER	Yes	
Notogrammitis billardierei	common strap fern	0.15											BC, LER	No	Search for these on Waimarino land
Parablechnum minus	swamp kiokio	0.7	1.5	1									BC, LER	Yes	
Parablechnum montanum	mountain kiokio	0.7	1.5	1									BC, LER	Yes	
Parablechnum novae-zelandiae	kiokio, horokio, palm l	1.5	3	1									BC, LER	Yes	
Polystichum neozelandicum subsp	shield fern	0.4	0.5	1									BC, LER	Yes	
Zealandia pustulata	Hounds tongue, kowa	0.25	1	1									BC, LER	Yes	drought tolerant, prefers open even drier habitars
Orchids															
Microtis unifolia	onion orchid	0.25	na	na									BC, LER	No	Search for these on Waimarino land
Grasses															
Anemanthele lessoniana	Gossamer grass	0.4	0.2	0.5								At-Risk - rel	No	Yes	restrict to curtilage gardens only
Chionochloa conspicua	snow grass	1	1.8	1									LER	Yes	
Chionochloa flavicans	snow tussock	0.75	0.4	0.5									No	Yes	North Island species; restrict to curtilage areas
Chionochloa rigida	Narrow-leaved snow t	1.25	1.5	1											
*Festuca glauca/ trachyphylla**	Hard fescue	0.3	0.1	0.5									No		introduced; restrict to curtilage only
Poa cita	Silver tussock	0.75	0.4	0.9											
Poa colensoi	Blue tussock	0.3	0.1	0.5									BC, LER	Yes	
Poa imbecilla	weak poa	0.15	na	oversow									BC, LER	Yes	PGG Wrighton has this in commercial quantities; Southern Hydroseed can apply
Sedges															
Carex breviculmis	grassland sedge	0.15	0	0.25									BC, LER	No	grown from fresh seed/ division of established plants; could be contract grown
Carex secta	purei	1.5	0.8	1									BC, LER	Yes	pedestal tussock form; gully or stormwater swale margins
Carex buchananii	Buchanans sedge	0.6 to 1	0.1	0.5									BC, LER	Yes	red, erect with slightly curled tips

Scientific Name	Common name	Mature Height	Mature Area (m2)	Spacing	Ground Cover	Low Planting	Tall Planting	Trees	Green Roof	Ferns	Edibles	Biostatus	Found locally **	Commercially available	Comment
Rushes															
Juncus edgariae	wiwi, edgars rush	0.6 to 2	0.4	1									BC, LER	Yes	swale margins, stormwater or roof drainage sites
Herbs - Monocot.															
Astelia fragrans	bush lily	2	2	1									BC, LER	Yes	
Astelia nervosa 'Westland'	Mountain astelia/ kaka	1.5	1.8	1									No	Yes	
Phormium cookianum	Mountain flax	1.5	1.8	1.5									BC, LER	Yes	attracts birds
Phormium tenax	NZ Flax	2	3	1.75									BC, LER	Yes	attracts birds
Herbs - Dicot.															
Acaena anserinifolia	bidibid	0.15	1	0.75									BC, LER	No	Search for these on Waimarino land; grow from seed/ rooted pieces
Anaphalioides bellidioides	hells bells daisy	ground cover	spreading	0.5									BC, LER	No	profuse, white everlasting daisy flowers; Search for these on Waimarino land; grow from rooted pieces
Leptinella squalida (mediana)		0.1	spreading	0.5									BC, LER	Yes	tolerates extreams of sun, shade, moisture and foot traffic
Scleranthus biflorus	Canberra grass	mat forming	0.1	0.5									BC, LER	Yes	
Raoulia tenuicaulis	Tutahuna, mat daisy	mat forming	1	1					root?				BC, LER	Yes	
Garden/ Orchard															
Thymus vulgaris	thyme														
Juniper horizontalis	Juniper														
Coriandrum sativum	Corriander														too cold for growing outside
Angelica	wild celery														
Prunus domestica	flowering almond														
Gevuina avellana	Chilean hazelnut														
Cyanococcus	Blueberries														
	Pear														
	Applie														
	Plum														Will attract kereru
	Greengages														
* Introduced															
** Found locally - BC (Bobs Cove Recreation Reserve); LER (Lakes Ecological Region)															
*** Wai-Ora Nursery, ChCh															
Reference for Edibles: Andrew Crowe: A field guide to the Native Edible Plants of New Zealand; refer also															
https://maoriplantuse.landcareresearch.co.nz/WebForms/default.aspx															
Explanatory Notes															
If a species is identified in both Low and Tall planting this indicates that the species may not reach it's stated mature height; shading, micro-climate and soil conditions at the site may limit mature height															
It may be useful to remove desirable species not normally commercially available from the footprint of the site works and attempt to translocate them or provide them to nurseries to propagate for return to the site. Home Creek and Pukerau may be able to do this.															

6 July 2021

Hayley.Mahon
John Edmonds and associates
c/o Hayley.Mahon@jea.co.nz

Dear Hayley

RE: Waimarino Lodge – Neighbour Memberships

This letter to advise you about the operations of Waimarino Lodge.

Whilst my development company (B Property Group Limited) is developing the lodge my hotel operating company (Waimarino Lodge Limited) will operate the business.

Ownership:

We will sell a limited number of villas to private buyers whilst the hotel company will retain most of the villas and all of the common property. The villas that will be sold will have a lease directly back to the hotel business so for all intents and purposes the development will be run as one singular luxury lodge. The lease will extend for a 45-year period and all villas will gain access over our common property that will see this property exclusively used for visitor accommodation.

Sustainability:

Our company and our target customer have focus on sustainability. This extends to using solar power, growing a lot of our own produce, onsite waste handling and sustainable building practices.

Traffic Movement:

To minimise traffic movement our courtesy vehicle will collect and return our staff at the beginning of each shift. Furthermore to reduce any traffic noise from guests movements we supply electronic Audi Vehicles which produce now engine noise.

P. +61 405133671
W. thebgroup.co.nz
E. andrew@thebgroup.co.nz
A. 8 Clarke St
Crows Nest - NSW - 2065
Sydney - Australia

Onsite Management:

The property will be managed by staff 24/7. The property development includes a managers residence so even late at night there are staff on site.

Building Method:

The development will be built largely off-site using pre-fabrication. This will see minimal building waste, reduce traffic movement and construction noise.

Target Market:

We are appreciative that prior to Covid Queenstown had strain on some of its infrastructure with the covid government is hoping to reset the target market towards less visitors at a higher yield. We feel Waimarino caters perfectly to this brief.

We have consulted with our neighbours that live nearby and all have been very supportive of this project and we look forward to adding to the community through various landscaping and charitable events.

Kind regards

Andrew McIntosh
Managing Director

Deed of Lease

[•]

WAIMARINO LODGE LIMITED

lane neave.

DATE **2021**

PARTIES

[●] (**Landlord**)

WAIMARINO LODGE LIMITED (**Tenant**) (NZBN 8135068)

TERMS OF THIS DEED

A. The Landlord:

(i) is registered as the proprietor of the Villa described in Schedule A;

(ii) leases the Villa to the Tenant subject to the covenants, conditions and restrictions set out in this Lease, including those contained in Schedule B.

B. The Tenant accepts this Lease to be held by the Tenant as tenant subject to the conditions, restrictions and covenants set out in this Lease, including those contained in Schedule B.

EXECUTED as a Deed

Executed by

[●]

in the presence of

Director

Director/Authorised Signatory

Witness signature

Full name

Occupation

Address

Executed by
WAIMARINO LODGE LIMITED
in the presence of

Director

Witness signature

Full name

Occupation

Address

lane neave.

Schedule A

Villa:	An estate in fee simple in all that parcel of land being record of title [●], subject to such encumbrances, liens and interests as are described on the record of title, and including the villa constructed on that land.
Commencement Date:	The date that is the later of the date that: (a) a Code Compliance Certificate is issued for the Villa; (b) a Certificate of Public Use is issued in respect of the Lodge; and (c) the Lodge opens to paying guests.
Term:	15 years from Commencement Date.
Further Terms:	Two (2) further terms of 15 years each.
Renewal Date:	The 15th and 30th anniversaries of the Commencement Date.
Final Expiry Date:	45 years following the Commencement Date (if both rights of renewal are exercised).
Rent:	[Insert amount equal to 5.6% of the Purchase Price of Villa]
Rent Review Dates:	2% fixed annual increases on the anniversary of the Commencement Date for years 1 to 4 of the Term. Market rent review at year 5 and every 5 years thereafter.
Outgoings:	The Tenant shall pay 100% of the outgoings incurred in respect of the Villa and the Lodge.
Default Interest:	5% per annum above the Landlord's bank's lending rate for commercial lending.
Business Use:	Luxury accommodation and/or the leasing/renting of the Villa (and Furnishings therein).

Schedule B

1. Definitions and Interpretation

1.1 **Definitions**: In this Deed unless the context otherwise requires:

1.1.1 **Ancillary Facilities and Services** means any or all of the following facilities and/or services:

(a) Electric Audi E-Tron Vehicles ;

(b) Rand powerboat;

(c) Waimarino row boat/s;

(d) Scott Mountain Bikes;

(e) Scott Electric Bikes;

(f) Airport Transfers;

(g) Use of yoga studio;

(h) Day spa use;

(i) Breakfast and dinner meals at the Lodge restaurant;

(j) Laundry;

(k) Telephone;

(l) Other business services, including computer use and fibre internet charges; and

Any other ancillary service initiated by the Tenant.

1.1.2 **Business Use** has the meaning given to it in Schedule A.

1.1.3 **Calendar Year** means January to December.

1.1.4 **Deed** means this document (including the schedules and any appendices) as it may be amended from time to time. The word **Lease** shall also bear this meaning.

1.1.5 **Furnishings** means the following items: [insert list from Furniture Package under SPA].

1.1.6 **GST** means goods and services tax paid or payable in accordance with the GST Act.

1.1.7 **GST Act** means the Goods and Services Tax Act 1985, as amended from time to time.

1.1.8 **Lodge** means the Lodge complex of which the Villa forms part.

1.1.9 **Landlord** and **Tenant** means where appropriate the executors, administrators, successors and permitted assigns of the Landlord and Tenant.

1.1.10 **Landlord Occupancy** shall bear the meaning ascribed to it in clause 27.2.

1.1.11 **Rent** or **rent** means the amount initially recorded in Schedule A and thereafter calculated and determined in accordance with the provisions of the Second Schedule which is to be paid by the Tenant to the Landlord.

1.1.12 **Villa** means the Villa described in Schedule A.

1.1.13 **Working Day** has the meaning given to it under the Property Law Act 2007.

1.2 **Interpretation**: In this Deed:

1.2.1 headings are for ease of reference only and will not be deemed to form any part of the context or affect the interpretation of this Deed;

1.2.2 expressions defined in the main body of this Deed bear the defined meanings in the whole of this Deed including the Background and the Schedules;

1.2.3 the singular includes the plural and vice versa;

1.2.4 whenever words appear in this Lease that also appear in any of the Schedules then those words shall mean and include the details supplied after them in such Schedule;

1.2.5 where obligations bind more than one person those obligations bind those persons jointly and severally.

2. Rent

2.1 Subject to the terms of this Deed, the Tenant must pay the Rent to the Landlord in respect of the period from the Commencement Date to the end or earlier termination of the Term, whichever is the earlier.

2.2 The Rent will be paid monthly in arrears to the Landlord's nominated bank account with the first rental payment paid one month after the Commencement Date.

3. Rent Review

3.1 The Rent shall be increased by 2% on each anniversary of the Commencement Date on years 1, 2, 3, and 4 of the Term.

3.2 On the fifth anniversary of the Commencement Date (and every 5 years thereafter) the Rent shall be reviewed to market in accordance with the following provisions:

(a) Either party may not earlier than 3 months prior to a rent review date and not later than the next review date give written notice to the other party specifying the annual rent proposed as the current market rent as the relevant rent review date.

(b) If the party receiving the notice ("the Recipient") gives written notice to the party giving the notice ("the Initiator") within 20 Working Days after service of the Initiator's notice disputing the annual rent proposed and specifying the annual rent proposed by the Recipient as the current market rent, then the new rent shall be determined in accordance with clause 3.3.

(c) If the Recipient fails to give such notice (time being of the essence) the Recipient shall be deemed to have accepted the annual rent specified in the Initiator's notice and the extension of time for commencing arbitration proceedings contained in the Arbitration Act 1996 shall not apply.

(d) Notwithstanding any other provision of this clause the annual rent payable as from the relevant rent review date shall not be less than the annual rent payable immediately prior to the review date

(e) The annual rent agreed, determined, or imposed pursuant to this clause shall be the annual rent payable as from the relevant rent review date, or the date of service of the Initiator's notice if such notice is served later than 3 months after the relevant rent review date but subject to clauses 3.3 and 3.4.

(f) The rent review at the option of either party may be recorded in a deed.

3.3 Immediately following service of the Recipient's notice on the Initiator, the parties shall endeavour to agree upon the current market rent, but if agreement is not received within 10 Working Days then the new rent may be determined either:

(a) By one party giving written notice to the other requiring the new rent to be determined by arbitration; or

(b) If the parties so agree by registered valuers acting as experts and not as arbitrators as follows:

(i) Each party shall appoint a valuer and give written notice of the appointment to the other party within 20 Working Days of the parties agreeing to so determine the new rent;

(ii) If the party receiving a notice fails to appoint a valuer within the 20 Working Day period then the valuer appointed by the other party shall determine the new rent and such determination shall be binding on both parties;

(iii) The valuers appointed before commencing their determination shall appoint a third expert who need not be a registered valuer. If either party cannot agree on the third expert, the appointment shall be made on the application of either party by the president or vice president for the time being of The New Zealand Institute of Valuers;

(iv) The valuers appointed by the parties shall determine the current market rent of the Villa but if they fail to agree then the rent shall be determined by the third expert;

(v) Each party shall be given the opportunity to make written or oral representations subject to such reasonable time and other limits as the valuers or the third expert may prescribe and they shall have regard to any such representations but not be bound thereby.

(vi) The parties shall jointly and severally indemnify the third expert for their costs. As between the parties, they will share the costs equally. A party may pay the other party's share of the costs and recover the payment on demand from the other party.

(vii) When the new rent has been determined the person or persons determining the same shall give written notice thereof to the parties. The notice shall provide as to how the costs of the determination shall be borne and such provision shall be binding on the parties.

3.4 Pending determination of the new rent, the Tenant shall from the relevant market rent review date, or the date of service of the Initiator's notice if the notice is served later than 3 months after the relevant market rent review date, until the determination of the new rent pay an interim rent as follows:

(a) If both parties supply a registered valuer's certificate substantiating the new rents proposed, the interim rent payable shall be halfway between the new rents proposed by the parties; or

(b) If only one party supplies a registered valuer's certificate, the interim rent payable shall be the rent substantiated by the certificate; or

(c) If no registered valuer's certificates are supplied, the interim rent payable shall be the rent payable immediately prior to the relevant market rent review date

(d) but in no circumstances shall the interim rent be less than the rent payable immediately prior to the relevant market rent review date.

(e) The interim rent shall be payable with effect from the relevant market rent review date, or the date of service of the Initiator's notice if the notice is served later than 3 months after the relevant market rent review date and, subject to subclause (f), shall not be subject to adjustment.

(f) Upon determination of the new rent, any overpayment shall be applied in payment of the next month's rent and any amount then remaining shall immediately be refunded to the Tenant. Any shortfall in payment shall immediately be payable by the Tenant.

4. Outgoings

4.1 The Tenant shall be responsible for payment of all outgoings payable in respect of the Villa and the Lodge.

5. Goods and Services Tax

5.1 The Rent paid to the Landlord shall be plus GST.

5.2 The Landlord shall pay to the Tenant or as the Tenant shall direct the GST in respect of any payments or amounts due to the Tenant, such GST to be paid in addition to the payment or amount due to the Tenant from time to time.

5.3 If the Landlord shall make default in making any payment to the Tenant and the Tenant becomes liable to pay additional GST or any interest or penalties, then the Landlord shall upon demand pay to the Tenant all additional tax, interest or penalties.

6. Interest or Unpaid Money

Subject to the provisions of this Deed, if the Tenant defaults in payment of the Rent for twenty one (21) days after the due date for payment then the Tenant shall pay on demand interest at the Default Interest rate specified in the Schedule A on the moneys unpaid from the due date for payment down to the date of payment.

7. Costs

Each party shall meet its own costs of and incidental to the preparation of this Deed, and any variation or renewals of the Lease. The Landlord shall, at its cost, immediately after the Commencement Date register this Lease against the record of title to the Villa in accordance with clause 28.

8. Furniture, Fittings and Other Property, and Refurbishment

8.1 During the Term of this Lease the Tenant shall at all times keep and maintain the Furnishings of or in the Villa to such a standard and with all the necessary furniture, furnishings and chattels

one would normally find in a five (5) star or high quality serviced apartment and replace such of the Furnishings as may be required from time to time to maintain the required standard.

8.2 Every four (4) years during the Term of this lease the Villa shall be renovated to keep it modern and of premium quality. This may include (but is not limited to) some furniture replacement, painting and surface treatments (**Refurbishment**). The cost of the Refurbishment shall be split equally between the Landlord and the Tenant. The Landlord may elect to have this cost either deducted from the Rent received over the following two (2) year period, or pay it in one lump sum to the Tenant upon demand. As at the Commencement Date the estimated total cost of carrying out one Refurbishment is $85,000.00 plus GST. Notwithstanding anything contained in this Lease, the Landlord shall not install, replace, change or otherwise modify any furniture, furnishings, chattels, fittings and fixtures in or on the Villa and/or any of the carpets, floor coverings, wall paper, wall coverings, painted surfaces and colour schemes of the Villa without first obtaining the written consent of the Tenant.

9. Rubbish Removal

The Tenant shall regularly cause all rubbish and garbage to be removed from the Villa and will keep any rubbish bins or containers in a tidy condition other than at time when the Landlord is in occupation of the Villa in accordance with clause 27.2.

10. Maintenance and Care of Villa

10.1 The Tenant shall in a proper and workmanlike manner and at its cost in all matters:

10.1.1 **Maintain the Villa:** Keep and maintain the interior of the Villa, including the Landlord's fixtures, fittings and chattels in the same good clean order repair and condition as they were in at the commencement of this Lease.

10.1.2 **Repair minor breakages:** Repair all glass breakages and breakage or damage to all doors, windows, light fittings and power points of the Villa and shall keep that portion of the electrical system of the Villa from the switchboard of the Villa to all power outlets in good operating condition.

10.1.3 **Painting:** Paint and decorate those parts of the interior of the Villa which have previously been painted and decorated when the same reasonably require repainting and redecoration in accordance with colour schemes approved by the Tenant.

10.1.4 **Floor coverings:** Keep all floor coverings in the Villa clean and replace all worn or damaged floor coverings with floor coverings of a similar quality and which have been approved by the Tenant.

10.1.5 **Make good defects:** Make good any damage to the Villa caused by improper careless or abnormal use.

10.2 The Tenant shall (at its cost in all matters) keep and maintain the exterior and roof of the Villa, all building services and all yards, grounds, paths, driveways, gardens and sealed or paved areas in good order and repair.

11. Furniture, Furnishings and Chattels

In consideration of the sum of one Dollar (NZ$1.00) paid by the Tenant to the Landlord, the Landlord acknowledges that during the Term and any renewal the Tenant shall have the exclusive right to use the Furnishings in or on the Villa from time to time (other than personal items of the Landlord that the Landlord may bring onto the Villa if he/she/they are occupying the Villa on a temporary basis) as part of the Villa and to allow guests and others occupying the Villa as part of the Tenant's business or from time to time to have the use and enjoyment of such property during such time or times as they occupy the Villa. The Tenant shall not be responsible or liable for loss of or damage to any such property of the

Landlord except for fair wear and tear to any such property, but shall use any insurance proceeds the Tenant may receive (if any) in respect of any damage or loss in or towards replacing or reinstating such property. The Tenant acknowledges that at the Commencement Date all Furnishings in the Villa are the property of the Landlord.

12. Landlord's Warranties as to Title

12.1 The Landlord warrants that it has the legal and beneficial ownership of the Villa and all the chattels, furniture, fixtures and furnishings located therein from time to time and that the interest of the Tenant under this Lease shall not be subject or subordinate to:

12.1.1 any ground or underlying leases, mortgages, deeds of trust, security agreement or other encumbrances affecting the Villa or the furniture, furnishings or chattels therein; or

12.1.2 any matters affecting title to the Villa which may affect the operation of the Tenant's business.

13. Business Use

13.1 The Tenant shall not without the prior written consent of the Landlord use or permit the whole or any part of the Villa to be used for any use other than the Business Use specified in the Schedule A. The Landlord's consent shall not be unreasonably or arbitrarily withheld in respect of any proposed used:

13.1.1 Reasonably suitable for the Villa; and

13.1.2 Conforming with all town planning ordinances, provision and consents.

14. Signage

To the fullest extent possible, the Landlord authorises the Tenant to affix, paint or exhibit any name, sign, name-plate, signboard or advertisement of any description relating to or describing the Tenant's business on or to the exterior of the Villa or in or outside the Villa.

15. Additions and Alterations

15.1 The Tenant shall neither make nor allow to be made any alterations or additions which are more than minor (minor being under $1,000 plus GST) to any part of the Villa without first producing to the Landlord on every occasion plans and specifications and obtaining the written consent of the Landlord (not to be unreasonably or arbitrarily withheld) for that purpose. If the Landlord shall authorise any alterations or additions the Tenant will at the Tenant's own expense if required by the Landlord at the end of the Term reinstate the Villa. The Tenant will promptly discharge and procure the withdrawal of any liens or charges of which notice may be given to the Tenant or the Landlord in respect of any work carried out by the Tenant.

15.2 The Tenant, when undertaking any "building work" to the Villa (as that term is defined in the Building Act 2004 for which the Tenant may be responsible), shall comply with all statutory requirements including the obtaining of building consents and code compliance certificates pursuant to the Act.

16. Compliance with Statutes and Regulations

16.1 Subject to the provision of this Lease, the Tenant shall comply with the provisions of all statutes, ordinances, regulations and by-laws relating to the Business Use of the Villa by the Tenant or other occupant and will also comply with the provisions of all licences, requisitions and notices issued by any Local or Regional Authority in respect of the Villa or their use by the Tenant or other occupant **PROVIDED THAT**:

16.1.1 The Tenant shall not be required to make any structural repairs or alterations other than those required by reason of the particular nature of the business carried on by the Tenant or other occupant of the Villa or the number or gender of persons employed on the Villa.

16.1.2 The Tenant shall not be liable to discharge the Landlord's obligations as owner under the Building Act 2004 unless any particular obligation is the responsibility of the Tenant as an occupier of the Villa.

17. Insurances

The Tenant shall at all times during the Term of this Lease keep and maintain the Villa insured under a full replacement and reinstatement type of policy against loss, damage or destruction by fire and such other risks as the Tenant thinks fit including, but not limited, to the following:

17.1 a twelve (12) month indemnity for business interruption;

17.2 loss, damage or destruction of windows and other glass and all the Landlord's fixtures, fittings and chattels;

17.3 adequate public risk cover.

18. Landlord Not to Void Insurances

The Landlord shall not carry on or allow upon the Villa any trade or occupation or allow to be done any act or thing which:

18.1 shall make void or voidable any policy of insurance on the Villa; or

18.2 may render any increased or extra premium payable for an policy of insurance

18.3 in any case where in breach of this clause the Landlord has rendered any insurance less effective or void and the Tenant has suffered loss or damage thereby the Landlord shall forthwith compensate the Tenant in full for such loss or damage.

19. Damage or Destruction

19.1 If the Villa shall be destroyed or so damaged so as to render it impossible for the Tenant to conduct the Business Use from the Villa, then the Term shall at once be suspended and the Rent shall cease to be payable until such time as the Villa is fit for the Business Use of the Tenant.

19.2 In such event, provided that:

19.2.1 the Tenant's policy or policies of insurance shall not have been invalidated or payment of the policy moneys refused in consequence of some act or default of the Landlord; and

19.2.2 all the necessary permits and consent shall be obtained,

then the Tenant shall with all reasonable speed expend all the insurance moneys received by the Tenant in respect of such damage towards repairing such damage or reinstating the Villa but the Tenant shall not be liable to expend any sum of money greater than the amount of the insurance money received.

19.3 Any repair or reinstatement may be carried out by the Tenant using such materials and form of construction and according to such plan as the Tenant thinks fit and shall be sufficient so long as it is reasonably adequate for the Tenant's occupation and use of the Villa and complies with the provision of this Lease.

19.4 If any necessary permit or consent shall not be obtainable or the insurance moneys received by the Tenant shall be inadequate for the repair or reinstatement, then at the election of the Tenant the Term may terminate but without prejudice to the rights of either party against the other.

20. No Access

20.1 If there is an emergency and the Tenant is unable to gain access to the Villa to fully conduct the Tenant's business from the Villa because of reasons of safety of the public or property or the need to prevent, reduce, or overcome any hazard, harm, or loss that may be associated with the emergency including:

20.1.1 A prohibited or restricted access cordon applying to the Premises;

20.1.2 Prohibition on the use of the Premises pending the completion of structural engineering or other reports and appropriate certifications required by any competent authority that the Premises are fit for use; and/or

20.1.3 Restriction on occupation of the Premises by any competent authority;

then a fair proportion of Rent shall cease to be payable for the period commencing on the date the Tenant becomes unable to gain access to the Premises to fully conduct the Tenant's business from the Premises until the inability ceases.

20.2 Where clause 20.1 applies, either party may terminate this Lease by giving 10 Working Days' written notice to the other if:

20.2.1 The Tenant is unable to gain access to the Premises for 9 months; or

20.2.2 The party that terminates this Lease can at any time prior to termination establish with reasonable certainty that the Tenant will be unable to gain access to the Premises for that period.

20.3 Any termination shall be without prejudice to the rights of either party against each other.

21. Re-Entry

21.1 Subject to the provisions of this Lease the Landlord may re-enter the Villa at the time or at any time thereafter:

21.1.1 Subject to the provisions of this Lease, if the Rent or any portion of the Rent that would have been due to the Landlord in accordance with the provisions of this Lease shall be in arrears twenty (20) Working Days after the date payment was due;

21.1.2 Subject to the provisions if this Lease, in case of breach by the Tenant of any covenant or agreement on the Tenant's part express or implied in this Lease;

21.1.3 If the Tenant shall make or enter into or endeavour to make or enter into any composition assignment or other arrangement with or for the benefit of the Tenant's creditors;

21.1.4 In the event of the insolvency, bankruptcy or liquidation of the Tenant;

21.1.5 If the Tenant shall suffer distress or execution to issue against the Tenant's property goods or effects under any judgement against the Tenant in any Court for a sum in excess of fifty thousand Dollars ($50,000.00),

and the Term shall terminate on such re-entry but without prejudice to the rights of either party against the other. In the case of sub-clauses 21.1.1 and 21.1.2, the Landlord shall first serve a written notice specifying the breach and giving the Tenant not less than twenty (20) Working Days within which to rectify the breach.

21.2 Upon re-entry the Tenant shall have twenty (20) Working Days to remove its chattels, and thereafter the Landlord may remove from the Villa any chattels in the apparent possession of the Tenant and place them outside the Villa and the Landlord shall not be answerable for any

22. Essentiality Payments

22.1 Subject to the provisions of this Lease, failure to pay the Rent or other moneys payable hereunder on the due date shall be a breach going to the essence of the Tenant's obligations under the Lease.

22.2 The acceptance by the Landlord of arrears of the Rent or other moneys shall not constitute a waiver of the essentiality of the Tenant's continuing obligation to pay the Rent and other moneys.

23. Removal of Tenant's Fixtures

The Tenant not being in breach may at any time before and will if required by the Landlord at the end or earlier termination of the Term remove any Tenant's fixtures and fittings and make good at the Tenant's own expense all resulting damage and if not removed within twenty (20) Working Days of the Landlord's request ownership of the Tenant's fixtures and fittings shall pass to the Landlord.

24. Renewal of Term

If the Tenant has not been in breach of this Lease and have given to the Landlord written notice to renew the Lease at lease three (3) calendar months before the end of the Term then the Landlord will at the cost of the Tenant renew this Lease for a further term as set out in the First Schedule from the Renewal Date as follows:

24.1 The Rent shall continue to be calculated, determine and paid in accordance the provisions of this Lease.

24.2 The renewed lease shall otherwise be upon and subject to the covenants and agreements herein expressed and implied except that there shall be no further right of renewal.

25. Assignment or Sub-Letting

25.1 Subject to this Lease, the Tenant shall not assign, sub-let or otherwise part with the possession of the Villa or any part thereof without first obtaining the written consent of the Landlord which the Landlord shall give if the following conditions are fulfilled:

25.1.1 The Tenant provides to the satisfaction of the Landlord that the proposed assignee or sub-tenant (or in the case of a company the shareholders of the proposed assignee or

sub-tenant are) respectable responsible and has the financial resources to meet the Tenant's commitments under this Lease.

25.1.2 All rent and other moneys payable have been paid and there is not any subsisting breach of any of the Tenant's covenants.

25.1.3 In the case of an assignment a Deed of Covenant in customary form approved or prepared by the Landlord is duly executed and delivered to the Landlord.

25.1.4 The Tenant pays the Landlord's proper costs and disbursements in respect of the approval or preparation of any Deed of Covenant and (if appropriate) all fees and charges payable in respect of any reasonable enquiries made on behalf of the Landlord concerning any proposed assignee sub-tenant.

26. Holding Over

If the Landlord permits the Tenant to remain in occupation of the Villa after the expiration or sooner determination of the Term, such occupation shall be a monthly tenancy only terminable by one month's written notice at the Rent then payable and otherwise on the same covenants and agreements (so far as applicable to a monthly tenancy) as herein expressed or implied.

27. Quiet Enjoyment and Landlord Occupancy

27.1 Subject to this clause and the Tenant paying the Rent and performing and observing all the covenants and agreements expressed and implied in this Lease, the Tenant shall quietly hold and enjoy the Villa throughout the Term without any interruption by the Landlord or any person claiming under the Landlord.

27.2 Where the Landlord is:

27.2.1 a person(s), then the Landlord and members of his/her immediate family (children, spouses and grandchildren); or alternatively

27.2.2 a company, then the Landlord's shareholders and members of the shareholders immediate family (children, spouses and grandchildren); or alternatively

27.2.3 a trust, then the beneficiaries of the trust and their immediate family (children, spouses and grandchildren);

then, subject to this clause 27.2, the Landlord shall be entitled, subject to the terms set out in this Lease, from time to time to occupy (**Landlord Occupancy**) the Villa for a maximum period of fourteen (14) days in each Calendar Year.

27.3 The Landlord does not have any right or privilege to participate in or to administer business policies in respect of the conduct of the Business Use by the Tenant.

27.4 Not later than three (3) months before the start of each Calendar Year, the Landlord will give the Tenant written notice of the Landlord's preferred dates for Landlord Occupancy during the upcoming Calendar Year.

27.5 Subject to requirements for Lodge use, the Tenant will use all reasonable endeavours to grant the Landlord Occupancy of the Villa on the dates specified by the Landlord in the Landlord's notice. If the dates specified by the Landlord are not available or the Landlord fails to give notice in accordance with clause 27.4, the Tenant may set the Landlord Occupancy on such dates as the Tenant thinks fit provided that the Tenant will ensure that the Villa is available for Landlord Occupancy for fourteen (14) days in each Calendar Year.

27.6 The Tenant will give the Landlord written notice of the dates for Landlord Occupancy at least two (2) months before the start of that Calendar Year.

27.7 During the Landlord Occupancy the Tenant will provide to the Landlord the Lodge Services and Ancillary Facilities and Services at no cost to the Tenant.

28. Registration of Lease

The Landlord shall, at its cost, immediately after the Commencement Date register this Lease against the record of title to the Villa. The Landlord shall obtain any mortgagees' consent to this Lease and shall meet all costs associated with obtaining mortgagee's consent (if required).

29. Notice

29.1 Any notice permitted or required to be given under this Lease shall be in writing and shall either be:

29.1.1 delivered personally;

29.1.2 mailed by pre-paid registered mail; or

29.1.3 sent by email transmission;

29.2 to the addressee at the addressee's last known address or email address in New Zealand or, in the case of a corporation to its registered office.

29.3 Any notice sent by registered mail shall be deemed to have been received on the fifth Working Day following the date of mailing. Any notice sent by email transmission during a Working Day between 8 am and 5 pm shall be deemed to be received upon completion of transmission, and in every other case shall be deemed to be received at 8.30 am on the next Working Day after it is sent.

29.4 Each party shall advise the other in writing of an address for service and shall (if necessary) forthwith advise the other party of any changes to that address. All notices, correspondence and communications may be sent or delivery to the last notified address.

30. Force Majeure

30.1 If any circumstances constituting force majeure as hereunder defined has a substantial adverse effect upon the operation of the Tenant's business and such circumstances continue for a period of sixty (60) Working Days, then the Tenant shall have the right, by notice in writing to the Landlord, to terminate this Lease. The Tenant shall be excused from and shall not be liable for, any delay or failure in the performance of its obligations under this Lease due to any circumstance constituting force majeure as hereunder defined. For the purposes of this Lease, force majeure shall mean any act occasioned by a cause beyond the reasonable control of the Tenant including, but not limited to, acts of God, acts of war, civil disturbances, epidemics or pandemics, sabotage, arson, adverse Government decision and the like.

30.2 The Tenant shall promptly notify the Landlord in writing of the occurrence of any force majeure conditions and of cessation of such conditions.

31. Ownership of Documents

All books, cards, register, receipts, documents, brochures, promotional material, signs and any other papers or material in connection with the operation of the Tenant's business or this Lease, are and shall be and remain the sole property of the Tenant.

32. Trademarks

Trademarks, service marks or other trade registration of the Tenant, or any party associated with the Tenant, used in connection with the Tenant's business shall be and remain the sole property of the Tenant. The Landlord warrants that the Tenant shall be entitled to use the name of the Lodge and Villa in its promotional material, advertising or brochures, and all stationery and other documents without any payment being due to the Landlord or to any other party. There shall be no royalty or other payment due from the Tenant to the Landlord for the use of any name associated with the Lodge or the Villa.

33. Sale by Landlord

33.1 Prior to the selling, assigning or charging its interest in the Villa or the Furnishings, the Landlord shall (at its cost in all matters) arrange for the new owners, assignee, mortgagee or chargeholder to first enter into a Deed of Covenant with the Tenant pursuant to which it covenants to observe, perform and be bound by the provisions of this Lease and to perform the Landlord's obligations therein.

33.2 If at any time during the Term the Landlord wishes to sell the Villa the Landlord shall give the Tenant a first right of refusal on the purchase of the Villa and shall serve written notice (**Landlord's Offer Notice**) on the Tenant offering the sale of the Villa on such terms and conditions including price as contained in the Landlord's Offer Notice.

33.3 The Tenant shall have 30 Working Days from receipt of the Landlord's Offer Notice to advise the Landlord by written notice (**Tenant's Notice**) whether the Tenant wishes to purchase the Villa on the terms and conditions specified in the Landlord's Offer Notice. If the Tenant's Notice contains advice that the Tenant wishes to purchase the Villa on such terms and conditions, then from receipt by the Landlord of the Tenant's Notice a binding agreement shall exist between the parties to enter into an Agreement for Sale and Purchase to be prepared by the Landlord's solicitor on the then most current edition of the Auckland District Law Society Agreement for Sale and Purchase, as amended by the terms in the Landlord's Offer Notice.

33.4 If the Tenant does not respond to the Landlord's Offer Notice within the period specified in clause 33.3 above or if the Tenant's Notice contains advice that the Tenant does not wish to purchase the Villa on the terms and conditions specified in the Landlord's Offer Notice then the Landlord shall be free to deal with the Villa without reference to the Tenant, provided the Landlord deals with the Villa on the same terms as offered to the Tenant and cannot sell the Villa on any other terms without first referring the alternative terms to the Tenant in the manner provided by clause 33.2.

34. Dispute Resolution

34.1 **Negotiation**: If a party believes that there is a dispute arising between the parties out of or in connection with this Lease, including any dispute as to its existence or validity ("**Dispute**"), it will serve written notice on the other party stating the subject matter and details of the Dispute. The parties will then meet within five (5) Working Days of receipt of such notice to negotiate the Dispute in good faith with a view to resolving the Dispute. If the Dispute is not resolved within ten (10) Working Days after, and exclusive of, the date of service of written notice of the Dispute, the Dispute may be referred to mediation. Any referral to mediation shall be made no later than five (5) Working Days after, and exclusive of, the ten (10) Working Days allocated to negotiation.

34.2 **Mediation**: Any referral to mediation shall be commenced by a party serving written notice on the other party stating the subject matter and details of the Dispute and requesting that the Dispute be referred to a mediator to be appointed by the parties. The other party shall, within five (5) Working Days of receipt of the written request for mediation, give written notice to the first party advising whether it agrees to mediate. If the other party does not agree to mediate, the Dispute shall be referred to and finally resolved by arbitration by a sole arbitrator under the Arbitration Act 1996 (New Zealand). If the other party does agree to mediate, a mediator shall

be appointed by the parties within fifteen (15) Working Days after, and exclusive of, the date of service of the written notice advising of agreement to mediate. Failing agreement within fifteen (15) Working Days after, and exclusive of, the date of service of the written notice advising of agreement to mediate, a mediator shall be appointed at the request of a party by the president or vice-president of the New Zealand Law Society or the nominee of such president or vice-president. The guidelines which shall govern the mediation shall be set by the parties. Failing agreement within ten (10) Working Days after the appointment of the mediator, a party may request the mediator to set the guidelines (whether or not in conjunction with such party) which shall govern the mediation proceedings.

34.3 **Arbitration**: If the parties are unable to resolve the Dispute by mediation the Dispute shall be referred to and finally resolved by arbitration by a sole arbitrator under the Arbitration Act 1996 (New Zealand).

34.4 **Commencement**: The arbitral proceedings shall commence on the date that a written request for the dispute to be referred to arbitration is received by the respondent.

34.5 **Appointment**: The arbitrator shall be appointed by the parties to the Dispute. Failing agreement within twenty (20) Working Days after the date of receipt of the written request, the arbitrator shall be appointed at the request of a party by the president or vice president for the time being of the New Zealand Law Society or the nominee of such president or vice president.

34.6 **Governing law**: The arbitrator shall decide the Dispute in accordance with the substantive law of New Zealand.

34.7 **Time bar**: No arbitral proceedings are to be commenced in respect of any Dispute unless the written request for the Dispute to be referred to arbitration is received by the respondent within two years of the time when the matter or matters giving rise to the Dispute first come to the attention of the party seeking to commence the arbitral proceedings.

34.8 **Second schedule**: Clause 3, 5, and 6 of the second schedule of the Arbitration Act 1996 shall apply to any arbitral proceedings under this Lease, and any party may appeal to the High Court on any question of law arising out of an award.

34.9 **Unreasonable delay**: Neither party will unreasonably delay the dispute resolution procedure as set out in this clause 34.

34.10 **Equitable relief**: Nothing in this clause shall prevent either party from applying to the High Court for urgent equitable relief in respect of any matter under this Lease.

35. Parties' Relationship

The parties' relationship is that of Landlord and Tenant. Nothing in this Lease shall be construed as creating a partnership, joint venture or other relationship between the Landlord and the Tenant except that of independently contracting parties.

36. Governing Law

The law governing this Lease shall be the law of New Zealand and the parties submit themselves to the non-exclusive jurisdiction of the Courts of New Zealand.

Appendix A: Safe Harbour Certificate

Warning

New Zealand law normally requires people who offer financial products to give information to investors before they invest. This information is designed to help investors make an informed decision.

If you are a wholesale investor, the usual rules do not apply to offers of financial products made to you. As a result, you may not receive a complete and balanced set of information. You will also have fewer other legal protections for these investments.

Ask questions, read all documents carefully, and seek independent financial advice before committing yourself.

Offence
It is an offence to give a certificate knowing that it is false or misleading in a material particular. The offence has a penalty of a fine not exceeding $50,000.

Confirmation	**In signing this certificate, the Purchaser confirms that he/she/it understands the consequences of certifying himself, herself or itself to be a wholesale investor**.	
Relevant category of wholesale investor claimed by the Purchaser ***(Please tick)***		**Investment business**
		Investment activity criteria
		Large investor
		Government agency
Grounds on which the Purchaser claims to be a wholesale investor under the category selected above ***(Please complete)***		

Purchaser name(s):	
Residential address or (if a body corporate or agency) registered office:	
Signature(s):	
Date:	

Definitions of relevant "wholesale investors"[1]

Investment business (clauses 3(2)(a) and 37 of Schedule 1 of the Financial Markets Conduct Act 2013 (FMC Act))

(1) A person is an "investment business" if the person is:
- (a) an entity whose principal business consists of 1 or more of the following:
  - (i) investing in financial products; or
  - (ii) acting as an underwriter; or
  - (iii) providing a financial adviser service (within the meaning of section 9 of the Financial Advisers Act 2008) in relation to financial products; or
  - (iv) providing a broking service (within the meaning of section 77B of the Financial Advisers Act 2008) in relation to financial products; or
  - (v) trading in financial products on behalf of other persons; or
- (b) a registered bank; or
- (c) an NBDT; or
- (d) a licensed insurer (within the meaning of section 6(1) of the Insurance (Prudential Supervision) Act 2010); or
- (e) a manager of a registered scheme, or a discretionary investment management service, that holds a market services licence; or
- (f) a derivatives issuer that holds a market services licence; or
- (g) a QFE or an authorised financial adviser.

(2) Subclause (1)(a) does not apply to an entity if the entity was established or acquired with a view to using it as an entity to which offers of financial products may be made in reliance upon the exclusion in clause 3 of Schedule 1 of the FMC Act.

Investment activity criteria (clauses 3(2)(b) and 38 of Schedule 1 of the FMC Act)

(1) A person (**A**) meets the "investment activity criteria" if at least 1 of the following paragraphs applies:
- (a) A owns, or at any time during the 2-year period before the relevant time has owned, a portfolio of specified financial products of a value of at least $1 million (in aggregate);
- (b) A has, during the 2-year period before the relevant time, carried out 1 or more transactions to acquire specified financial products where the amount payable under those transactions (in aggregate) is at least $1 million and the other parties to the transactions are not associated persons of A; or
- (c) A is an individual who has, within the last 10 years before the relevant time, been employed or engaged in an investment business and has, for at least 2 years during that 10-year period, participated to a material extent in the investment decisions made by the investment business.

(2) For the purposes of:

[1] Undefined terms have the meaning given to them in the FMC Act.

(a) subclause (1)(a), in determining the specified financial products owned by A, the specified financial products owned by an entity controlled by A may be treated as being owned by A;
(b) subclause (1)(b), in determining the transactions carried out by A, transactions carried out by an entity controlled by A may be treated as carried out by A; and
(c) applying subclause (1)(a) and (b) in relation to derivatives, the value of a derivative or the amount payable under a transaction to acquire a derivative must be treated as being the notional value of the derivative divided by 10 (see clause 49 of Schedule 1 of the FMC Act).

(3) The frameworks and methodologies prescribed by the FMA under subpart 4 of Part 9 of the FMC Act for the purposes of this clause (if any) must be complied with when determining whether any of the paragraphs of subclause (1) are satisfied.

(4) In this clause, specified financial products, in relation to A, means financial products other than:
(a) category 2 products:
(b) interests in a retirement scheme:
(c) financial products issued by an associated person of A.

Large investor (clauses 3(2)(c) and 39 of the FMC Act)

A person is "large" if at least 1 of the following paragraphs applies:

(1) as at the last day of each of the 2 most recently completed financial years of the person before the relevant time, the net assets of the person and the entities controlled by the person exceeded $5 million:

(2) in each of the 2 most recently completed financial years of the person before the relevant time, the total consolidated turnover of the person and the entities controlled by the person exceeded $5 million.

Government agency (clauses 3(2)(d) and 40 of Schedule 1 of the FMC Act)

A "government agency" is any of the following:

(1) a public service agency as defined in section 5 of the Public Service Act 2020;
(2) a Crown entity under section 7 of the Crown Entities Act 2004;
(3) a local authority;
(4) a State enterprise (within the meaning of section 2 of the State-Owned Enterprises Act 1986);
(5) the Reserve Bank; or
(6) the Board of Trustees of the National Provident Fund continued under the National Provident Fund Restructuring Act 1990 (and a company appointed under clause 3(1)(b) of Schedule 4 of that Act).

Notes to the Safe Harbour Certificate

1. The purpose of this certificate (**Safe Harbour Certificate**) is to provide certainty to the Vendor and the Company that the Purchaser is a "wholesale investor" of the kind referred to in clause 3(2) of Schedule 1 of the FMC Act.
2. Every person comments an offence under clause 47 of Schedule 1 of the FMC Act who gives a Safe Harbour Certificate that is false or misleading in a material particular. Every person (**A**) commits an offence who incites, counsels, or procures any person to give a Safe Harbour Certificate that A knows is false or misleading in a material particular. The penalty on conviction is a fine not exceeding $50,000.
3. The Purchaser may give written notice to the Vendor and the Company that the Safe Harbour Certificate given by the Purchaser is revoked and that the Vendor and the Company may no longer rely on the certificate in respect of any subsequent offer.
4. This certificate ceases to be effective on the date that is two years after the date on which it is given.

Appendix B: Eligible Investor Certificate

Warning

New Zealand law normally requires people who offer financial products to give information to investors before they invest. This information is designed to help investors make an informed decision.

If you give this certificate, the usual rules do not apply to offers of financial products made to you. As a result, you may not receive a complete and balanced set of information. You will also have fewer other legal protections for these investments.

Make sure you understand these consequences.

Ask questions, read all documents carefully, and seek independent financial advice before committing yourself.

Offence
It is an offence to give a certificate knowing that it is false or misleading in a material particular. The offence has a penalty of a fine not exceeding $50,000.

Certification	**In signing this certificate, the Purchaser certifies that:** **(a) the Purchaser has previous experience in acquiring or disposing of financial products that allows the Purchaser to assess:** **(i) the merits of the offer of shares in Still Waters Distillery Limited (the Offer);** **(ii) the Purchaser's own information needs in relation to the Offer; and** **(iii) the adequacy of any information provided to the Purchaser by any person involved in the Offer; and** (b) **he, or she or it understands the consequences of certifying himself, herself or itself to be an eligible investor.**
Grounds for this certification **(Please complete)**	
Purchaser name:	

Residential address or (if a body corporate or agency) registered office:		
Signature(s):		
Date:		
SECTION TO BE COMPLETE BY THE PERSON CONFIRMING THE CERTIFICATE ABOVE		
Confirmation	**I/We confirm, having considered the Purchaser's grounds for providing the certification above, that:** **(a) I am / We are satisfied that the Purchaser has been sufficiently advised of the consequences of the certification; and** **(b) I/We have no reason to believe that the certification is incorrect or that further information or investigation is required as to whether or not the certification is correct.**	
Name of person providing the confirmation		
Confirmers(s) residential address or (if a body corporate or agency) registered office:		
Status ***(Please tick)***		**Authorised Financial Adviser**
		Qualified Statutory Accountant
		Lawyer
Signature		
Date		

Notes to the Eligible Investor Certificate

1. The purpose of this certificate (**Eligible Investor Certificate**) is to provide certainty to the Vendor and the Company that the Purchaser is a "eligible investor" of the kind referred to in clauses 3(3)(a) and 41 of Schedule 1 of the FMC Act.
2. Every person comments an offence under clause 47 of Schedule 1 of the FMC Act who gives an Eligible Investor Certificate that is false or misleading in a material particular. Every person (**A**) commits an offence who incites, counsels, or procures any person to give a Eligible Investor Certificate that A knows is false or misleading in a material particular. The penalty on conviction is a fine not exceeding $50,000.
3. The Purchaser may give written notice to the Vendor and the Company that the Eligible Investor Certificate given by the Purchaser is revoked and that the Vendor and the Company may no longer rely on the certificate in respect of any subsequent offer.
4. This Eligible Investor Certificate ceases to be effective on the date that is two years after the date on which it is given.
5. The authorised financial adviser, a qualified statutory accountant, or a lawyer providing the confirmation in the Eligible Certificate may be the Purchaser's authorised financial adviser, a qualified statutory accountant, or a lawyer (but does not need to be).