

Executive summary

Location

Blue Duck Valley Road, Seaward Valley,
Kaikoura

Opportunity

Given the likely poor profitability of timber production, we recommend that the land is best suited to permanent carbon forest. These land titles already contain approved Carbon Accounting Areas so we believe a discount rate of 6 percent is appropriate. Estimates are sensitive to carbon price, the current carbon price is \$37. Using a conservative \$36 gives a total estimate of in excess of \$3m.

The estimate is based on continuing with existing carbon accounting and adding new planting of 208 ha as well as residual land of 212.8 ha.

Please note that our analysis of historic aerial photos is at variance with the Ministry for the Environment's computer-generated mapping. Any application to Ministry of Primary Industries may wish to deal with this anomaly as part of the application, showing the photographic evidence.



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Description

Location

Blue Duck Valley Road, Seaward Valley,
Kaikoura

Total area

636.9347 ha

Distance to port

144 km to Picton

Distance to nearest mill

185 km to Rangiora

Financial interest

Sale of land for permanent carbon forest

Title references

240372	252.2747 ha
MB1A/507	258.9988 ha
MB1A/509	93.9551 ha
MB1B/969	14.1640 ha
MB5D/556	17.5421 ha

Council

Kaikoura District Council

Zoning

Rural 1a

Land use capability

6-7

Current use

Regenerating bush and scrub with some
pasture

Slope

Medium to steep

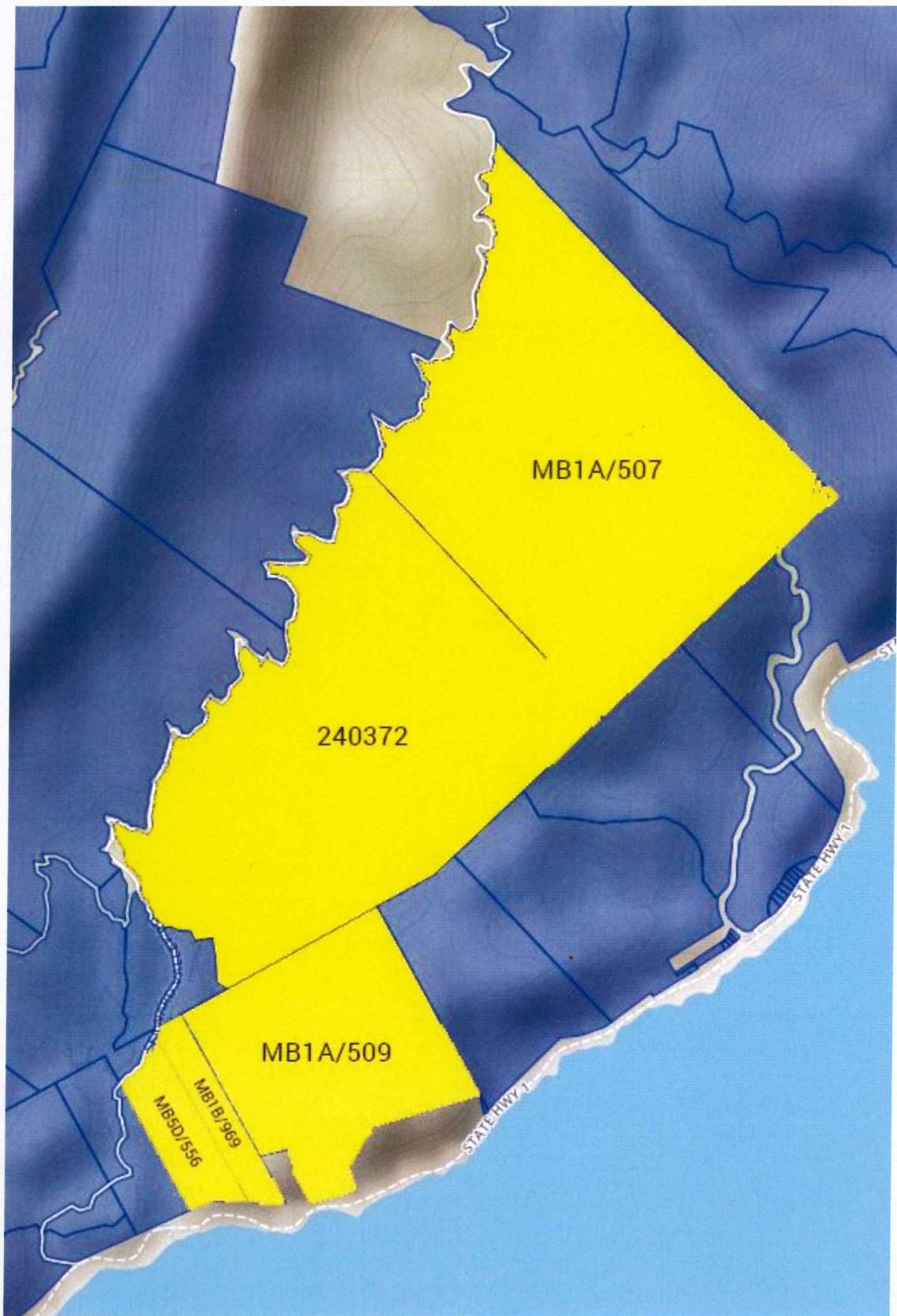
Access to site

Seaward Valley Road

On-site access

Farm tracks

Titles



Aerial view



Ground view



Technical indicators

Rainfall
1500 mm

Elevation
50 to 537 meters

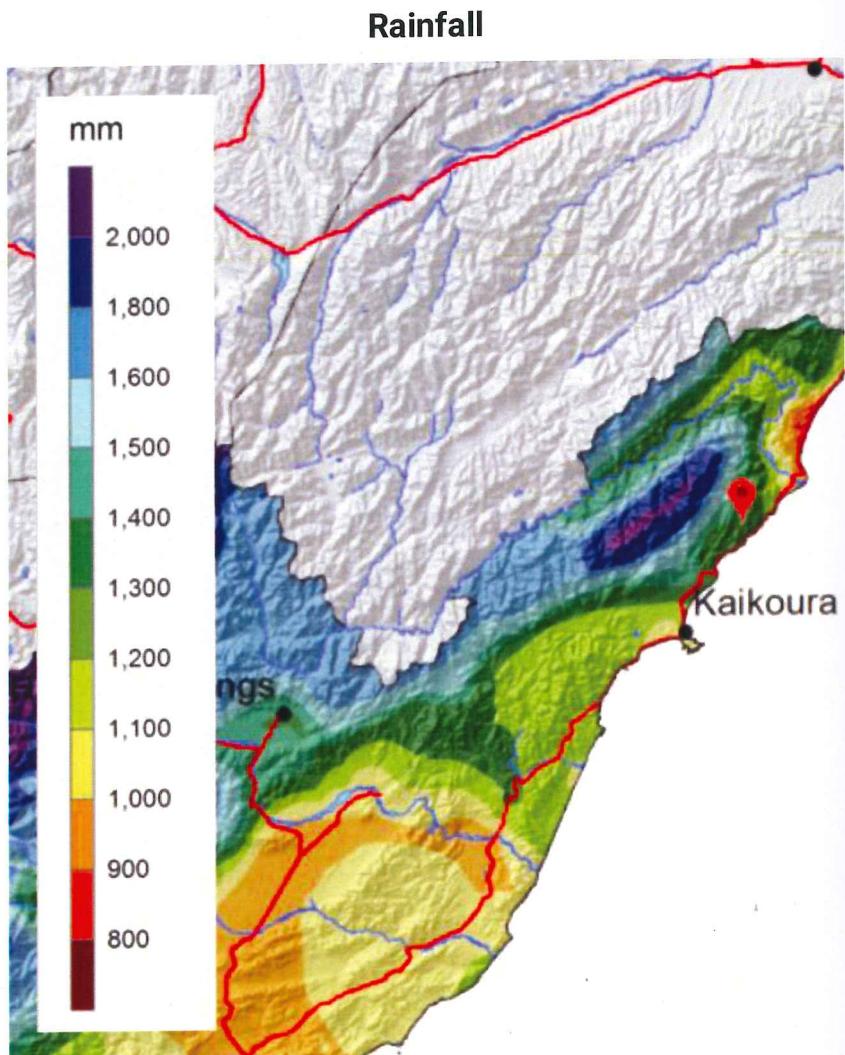
**Wood productivity potentials
(300 index)**
27 m³/ha/yr

**Height productivity potential
(site index)**
24 m

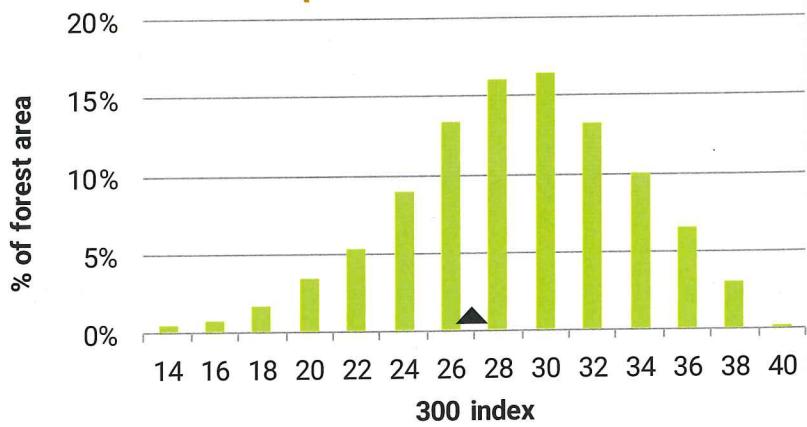
Soils
Patutu steep land soils closer to the coastline and Hurunui steep land soils for the rest of the property.

Slope
Approximately 50% medium hill country, 10% rolling and 40% steep.

Graphs give national distribution and position in range for the property



Wood volume productivity - All NZ



Risk indicators

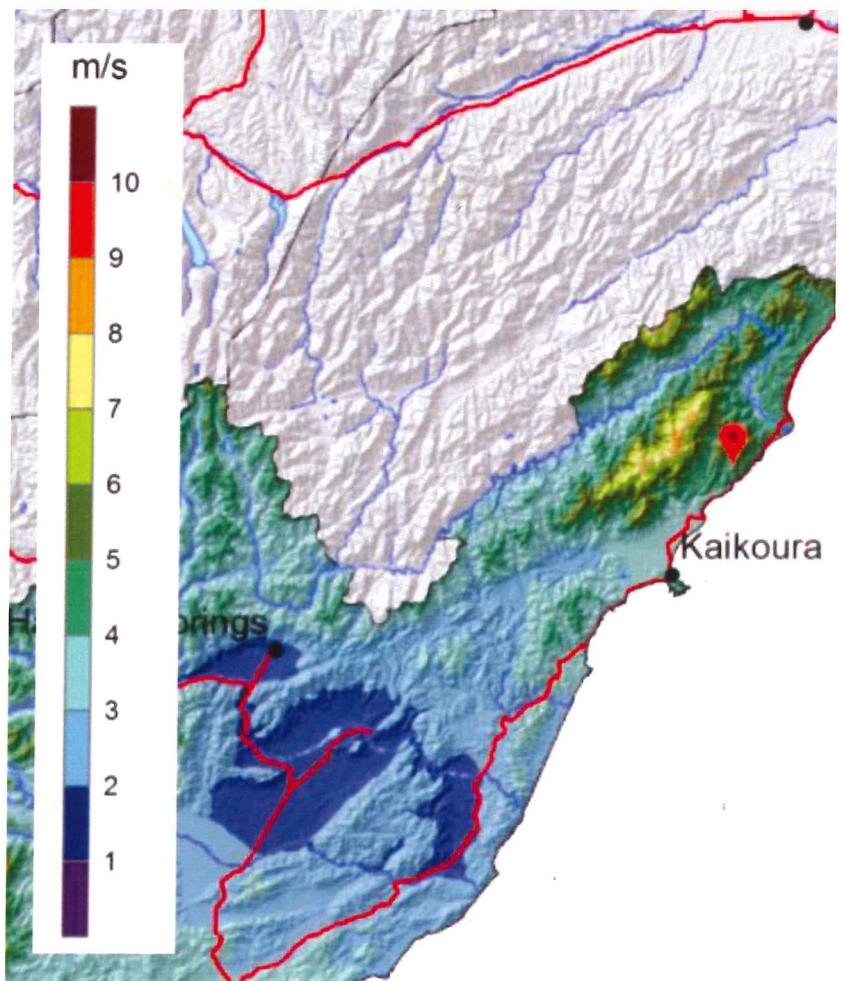
Wind

5-6 km/hr
(median annual average wind speed)

Fire

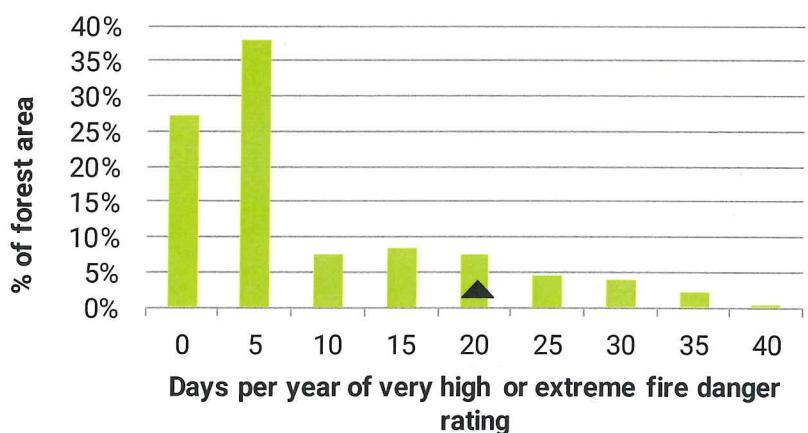
20
(the average annual number of days per season of very high or extreme danger rating)

Wind risk



Graphs give national distribution and position in range for the property

Fire risk - All NZ



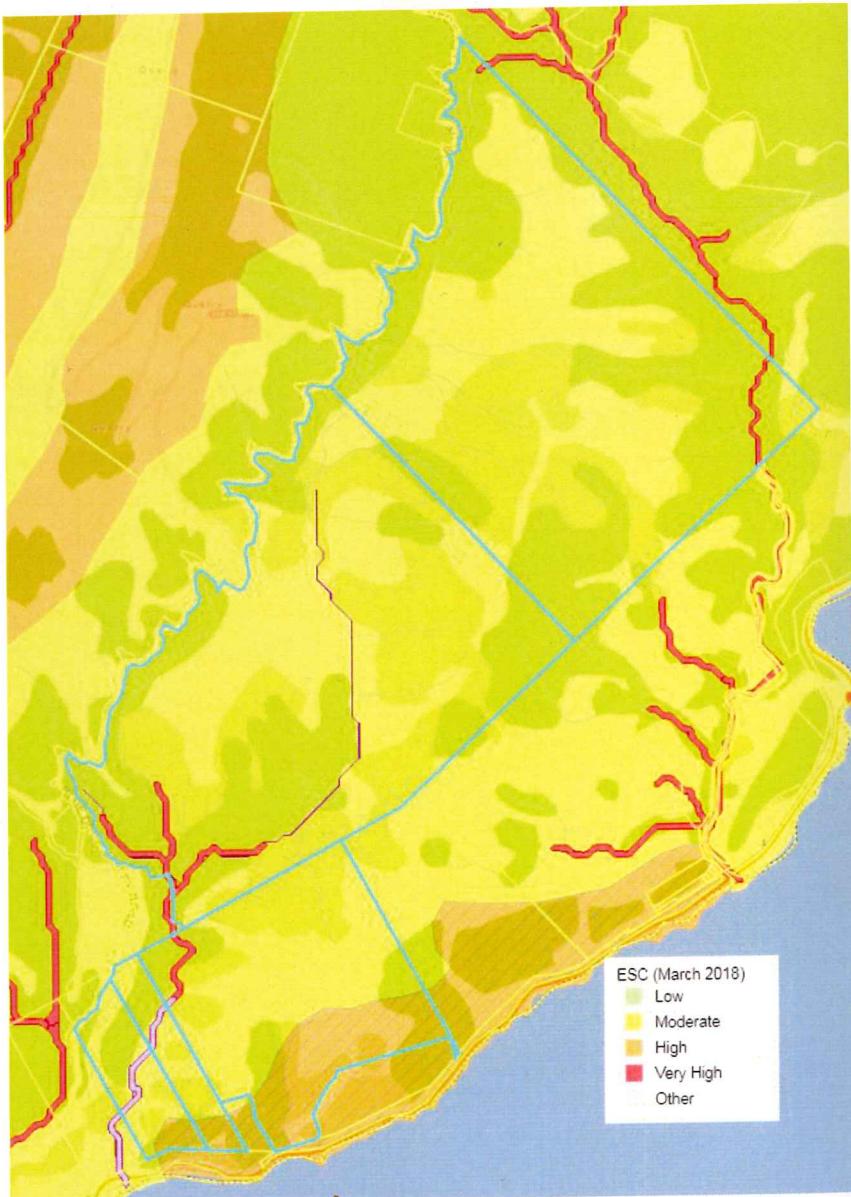
Risk indicators

National environmental standard for production forests (NES)
Moderate

Kaikoura District Council have advised that scrub under eight metres can be removed.

The Council has also advised that there are no restrictions on planting so long as the planting can not be seen from State Highway 1, the Inland Kaikoura Road or from the Kaikoura Peninsula lookout. They would like to be consulted on planting.

National environmental standard



Carbon investment

Parts of this property are already registered for carbon.

Our conservative estimate of a plantable area for establishing a new radiata pine carbon forest is 208 ha. This estimate could be increased if a successful establishment regime can be implemented on the steeper and more vegetated slopes.

The remainder of the property lends itself to being an indigenous forest revegetation area that could have high recreation and biodiversity values.

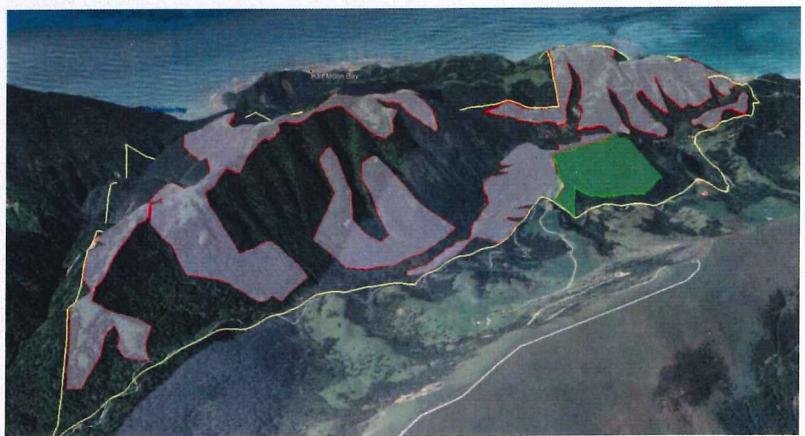
Aerial view at 1985



Proposed planting area for permanent carbon sink



Areas for planting in grey, existing Radiata forest in green

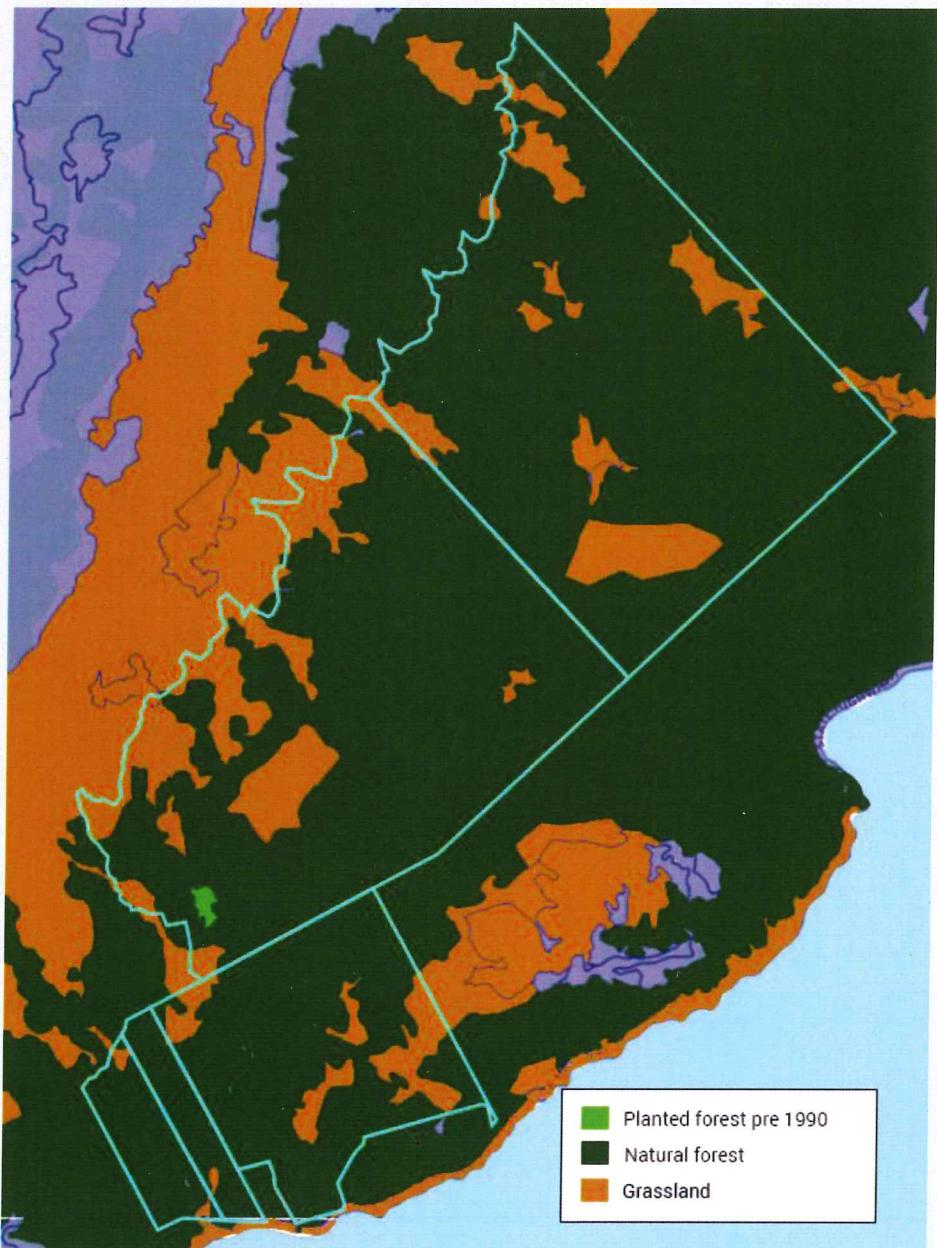


Perspective looking west to east

Carbon summary

Please note that our analysis of historic aerial photos is at variance with the Ministry for the Environment's computer-generated mapping. It is conceivable that the Ministry for the Environment's mapping may come up in any evaluation of the property for additional entry into the Emissions Trading Scheme by the Ministry of Primary Industries. Any application to Ministry of Primary Industries may wish to deal with this anomaly as part of the application, showing the photographic evidence.

Ministry for the Environment public land use map 1990



ForestX assumptions

Operation	Cost/ha	Expected log prices	\$/m3
Pest control	35	P35	185
Land prep costs and access	518	P30-40	174
Planting	1,164	A grade	133
Releasing	302	K grade	118
Thin to waste	408	KI grade	106
Preharvest inventory	144	KIS	89
Annual costs	71	Pulp	50
Carbon setup	201.30		
Carbon admin return per annum	161.30		
	Cost/m3	Yields	m3/ha
Harvest	40.20	P35	
Transport	20.00	P30-40	
Roading and skids	19.70	A grade	234
		K grade	195
		KI grade	98
		KIS	59
		Pulp	65
		Total	650

Costs use vary depending on the forestry regime and carbon accounting method.

ForestX desktop calculations

Present value for harvest standing Radiata pine and plant for timber and carbon using averaging.

Description	Area (ha)	Current value at 6% (\$/ha)	Current value at 8% (\$/ha)	Total value at 6%	Total value at 8%
Present value from harvesting ETS registered timber crop of Radiata pine	16	19,523	19,157	302,604	296,938
Likely liability for repayment of 8,890 carbon units @ \$36				-320,040	-320,040
Net Value				-17,436	-23,102
Carbon NPV of P89 ETS registered native forest carbon credits for next 30 years @ \$36/unit	200			631,910	557,461
Present value of 208 ha new planting as radiata pine timber forest	208	-2,451	-3,415	-509,869	-710,332
Present value of 208ha new planting with carbon using averaging and \$36/unit	208	6,437	5,204	1,338,807	1,082,411
Total value	-			1,443,412	906,437
Total value adjusted for historic 15% discount to cash flows				1,226,901	770,472
Residual indigenous unplantable	213			638,400	638,400
Total property value	636			1,865,301	1,408,872

Ref: Wairimu Cashflow - existing P89 ETS registered and links to New Plant - 16 April 2021

Timber production is not expected to be profitable on this property based on our assumptions and distance to market. Carbon would be the principal activity.

Combining loss making timber production with carbon, based on a \$36 carbon price and 6 percent discount rate a total property price in the region of \$1.9m might be expected.

ForestX desktop calculations

Market forest as a permanent carbon forest investment opportunity (50 years) and value timber at zero.

Discount rate	6%			8%		
Average carbon price (\$/t CO2)	32	36	40	32	36	40
Present value of 15.5ha P89 Radiata pine in ETS as permanent carbon forest for next 30 years	301,508	339,197	376,885	254,063	285,821	317,579
Present value of 199.7 ha P89 ETS registered native forest carbon credits for next 30 years	561,698	631,910	702,122	495,521	557,461	619,401
Present value of 208ha new planted permanent carbon cash flows for 50 years	1,430,475	1,874,979	2,466,131	787,363	1,117,210	1,520,728
Total value	2,293,681	2,846,085	3,545,138	1,536,947	1,960,492	2,457,708
Market value of 212.8ha residual unplanted land	638,400	638,400	638,400	638,400	638,400	638,400
Total property value (no adjustment for historic discount to cashflows)	2,932,081	3,484,485	4,183,538	2,175,347	2,598,892	3,096,108

Ref: Wairimu Cashflow - existing P89 ETS registered and links to New Plant - 16 April 2021

Given the likely poor profitability of timber production, we recommend that the land is best suited to permanent carbon forest. These land titles already contain approved Carbon Accounting Areas so we believe a discount rate of 6 percent is appropriate. Estimates are sensitive to carbon price, the current carbon price is \$37. Using a conservative \$36 gives a total estimate of in excess of \$3m.

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Background other notes

Land use capability

LUC rating is the ability of each polygon or block to sustain primary production, based on an assessment of the physical factors, climate, the effects of past land use, and the potential for erosion.

Slope

The National Environmental Standard for Production Forests starts 1 May 2018 and may have an impact on harvesting requirements for this forest.

<http://www.mpi.govt.nz/growing-and-harvesting/forestry/national-environmental-standards-for-plantation-forestry/> Detailed slope maps may be available from the local Regional Council Office to better examine slope and erosion risk.

Wood volume productivity potentials

The 300 Index is the average volume increment per ha per year at an age of 30 years standardised on 300 stems/ha for the direct saw log regime.

Height productivity potentials

The Site Index is the average height (m) of the largest diameter 100 stems/ha at age 20 years.

Wind

The Wind Risk is derived by calculating the median extreme wind speed (km/hr) for the forest location. It indicates the location windiness and compares it with the range of values found for forested areas in New Zealand.

Fire

Using the fire danger rating system, this is calculated as the average annual number of days per season of very high or extreme danger rating.

NPV

The net present value of an investment, calculated using a discount rate and series of future payments (negative values) and income (positive values).

Annuity

The NPV is distributed into an annual payment amount based on a rate of return. This amount is indicative of a maximum rental that could be sustained.

IRR

The internal rate of return being the interest rate received for an investment consisting of payments (negative values) and income (positive values) that occur at regular periods.

LEV

Land expectation value is the NPV for multiple forest rotations on an in perpetuity basis. This amount gives an indicative land value based on the land being used for forestry into the future.

Important information

Information sources

This report draws from the following information sources:

- Scion - the Crown research agency for forestry
- Te Uru Rakau - the forestry division of the Ministry of Primary Industries
- Land Information New Zealand and New Zealand Land Resource Inventory
- National Institute of Water and Atmospheric Research
- Ministry for the Environment
- Forest Owners Association
- Carbon Forest Services

For forest productivity yield modelling we use:

- Forecaster
- Radiata pine Calculator v4 Pro

For spatial information, depending on the assignment we currently use:

- QGIS
- Google Earth
- LINZ
- NES_FP online
- S Maps
- G Maps
- Retrolens

Calculation standards

In making our calculations:

- Nominal values are used without accounting for inflation.
- We do not try and predict the tax status of the parties of a transaction. Amounts

exclude GST. No special treatments are made in relation to the 'cost of bush' and income is pre-tax.

- Neither have we attempted to predict transaction costs which can include legal expenses, commissions, resource consenting and harvest levies.

Important notice

The information and opinions provided in this report have been prepared for the client whose name is recorded on the front page of this report and its specified purposes. Accordingly, any person other than the client uses the information and opinions in this report entirely at its own risk. The report has been provided in good faith and on the basis that reasonable endeavors have been made to be accurate and not misleading and to exercise reasonable care, skill and judgment in providing such information and opinions.

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This report aims to provide a description of a possible forest resource on this site and the impact of the site and locality on the resource. This report may provide price guidance in line with real estate industry practice but does not constitute a forest valuation.