

AWAKINO ROUTE.

Estimate of Cost.—Based upon Exploration Survey.

Section.	Subdivision No.	From	To	Length.	Rate per Mile.	Amount.
		M. ch.	M. ch.	M. ch.	£	£
Awakino	1	...	8 0	8 0	7,000	56,000
"	2	8 0	16 0	8 0	8,800	70,400
"	3	16 0	27 0	11 0	5,000	55,000
"	4	27 0	28 0	1 0	24,000	24,000
"	5	28 0	52 0	24 0	9,000	216,000
"	6	52 0	57 0	5 0	12,000	60,000
"	7	57 0	62 0	5 0	6,000	30,000
"	8	62 0	65 0	3 0	5,000	15,000
"	9	65 0	76 0	11 0	11,000	121,000
"	10	76 0	90 0	14 0	6,000	84,000
"	11	90 0	94 0	4 0	5,000	20,000
				94 0	7,994	751,400

AWAKINO RAILWAY ROUTE.—MAHOENUI TO MOKAU RAILWAY-STATION.

SIR,—

Public Works Department, Auckland, 5th July, 1899.

I have the honour to report as follows on that part of the proposed Awakino Railway route between Mahoenui and the Mokau Railway-station.

Referring to the accompanying sketch-plan and sections, I have examined the country along the line shown in red, and also partly the country along the deviations shown in yellow and green.

Yellow Deviation, from 63½ Miles to 86 Miles.—It might be worth while running a trial over this line when the trial surveys are being made, but the necessary rises and falls are against it, and the work would be very heavy along the Mangaotaki; besides, a line following the Mokau River would be more serviceable in opening up the country.

Green Deviation, from 64½ Miles to 80 Miles.—I am of opinion that if the line is made along this deviation, instead of by Totoro, the grades would be easier, the total distance would be about two miles and a half shorter, and the total cost would not be more than that of the red line.

The Mokau River from Waipari Creek to the Wairere Falls runs between limestone cliffs which rise to a height of 200 ft., in places, above water-level of river. The Mangaotaki River, which is about 100 ft. wide at water-level, runs also between similar cliffs. It has a papa-rock bottom, and would have to be bridged at an economical height above water-level, and the line on to Wairere Falls would have to be carefully located, with rising and falling grades of, say, 1 in 70, so as to ease the work and adapt the line to the country.

Red Line, from 62 Miles (Mahoenui) to 94 Miles (Mokau Railway-station).—Starting from 62 miles, the line follows up the Awakino Valley to 64½ miles; grades easy, and cross-section flat. It crosses the Awakino River about 62½ miles.

At 64½ miles the dividing-ridge of papa rock is passed through by a 13-chain tunnel.

From 64½ miles to 67½ miles the line falls with 1 in 70 grade, running down valleys of Waipari Creek and Mokau River; work moderate.

From 67½ miles to 68½ miles the line runs along Mokau River, crossing it at about 68½ miles. The formation-work here would be moderate, and the bridge about 200 ft. in length. The grades would be easy.

From 68½ miles to 72 miles the line follows up the Waikohatu Creek Valley, rising with 1 in 50 grade, and passes over saddle at 10 miles, with a 50 ft. cutting. Formation-work would be heavy here, as cross-gullies would have to be crossed on the siding.

From 72 miles to 73½ miles the line falls with 1 in 50 grade to Mokau-iti River; work moderate.

From 73½ miles to 74½ miles the line rises with 1 in 55 grade; work moderate.

At 74½ miles the line passes through limestone ridge with tunnel about 20 chains long.

From 74½ miles to 75½ miles the line falls with 1 in 55 grade; work moderate.

From 75½ miles to 88½ miles the line follows up the Mokau Valley with flat grades and easy work, the large bends of the river being cut off by passing over saddles in the low hills.

From 88½ miles to 90 miles the line rises with 1 in 70 grade to rise over waterfall in Mokau River; work would be moderately heavy here.

From 90 miles to 94 miles (Mokau Railway-station) the line would follow up Mokau Valley, cutting off bends where possible; grades and work easy.

As the Waikohatu is much lower than the valley leading to the saddle, at 10 miles from Mokau-iti, I think it would be advisable to run a trial, as shown in dotted red line, from 66 miles to 74 miles. The maximum length of bridge required to cross any of the rivers—except Mokau and Mangaotaki—on the square will be about 60 ft., with usual end spans. Ballast shows in Mokau River, at Totoro, and also in Awakino River.

An approximate estimate of this part of the line of railway, including formation, rails, stations, and rolling-stock, amounts to £240,000.

R. W. Holmes, Esq., Resident Engineer.

I have, &c.,

A. C. KOCH, A.E.