

Formation could be reduced in width and ballast reduced, platform and buildings (except a very cheap goods-shed) omitted, and any other economies you can think of made. It may be possible to make deviations which will reduce the earthwork without actually steepening the grades, unless the steepening is so situated that it can be regarded as a momentum grade.

I shall be glad if you will go into this matter as early as possible, as the information is required now. Also go into the question of probable revenue. Railways have done so already, but I want you to do it independently, and allow for any increase of production which may result from the extension. Send litho indicating land now served by Waihao Downs, and in another colour or hatching the area which would be served by that station and Kelcher's Corner. Divide approximately into "agricultural" and "pastoral."

F. W. FURKERT, Engineer-in-Chief.

Public Works Department, Christchurch, 24th July, 1924.

Waihao Downs Railway Extension.

Memorandum for the Engineer-in-Chief, Public Works, Wellington.

In reply to your P.W. 19/84 of 16th ultimo: It is estimated that £38,000 is as low a figure as it is considered possible to complete the construction of the extension from Waihao Downs to Kelcher's.

The formation is so far forward now that the matter of alterations in grade would not reduce the cost by any appreciable amount. The only alteration in grade proposed is in the Kelcher's station-yard, which at present has not been touched, and which it is suggested be lowered by 18 in.

Regarding the enclosed estimate, it will be noticed that the completion of the formation is estimated to cost £6,810. This includes £3,000 for a deviation between 2 m. 5 ch. and 2 m. 30 ch., which it is considered will have to be adopted in order to avoid traversing a bad slip with a heavy embankment. You will, I think, agree that much curtailment cannot be made in the earthwork. Fencing, gates, and cattle-stops are, I think, as low as possible, and material to the value of £400 in store at present has been taken into consideration. Culverts are estimated as low as is reasonable.

Bridges: 374 lineal feet of bridges are estimated for, and the estimate allows an average of approximately £13 per lineal foot, which I think cannot be reduced.

Ballasting: Ballasting is allowed for at 6s. per cubic yard and platelaying at 1s. 3d. per lineal yard. The amount of ballast has been estimated allowing for 6 in. of ballast under the sleepers.

Station-buildings: As requested, these have been curtailed. At Serpentine, a small station-building and a loading-bank are estimated to cost £110; at Kelcher's, station-building, £70; goods-shed, £300; loading-bank, £40; stockyards, £200; buffer-stops, £50; water-supply and vat, £500; and two platelayers' cottages, £1,400—giving a total of £2,560—have been allowed for. Engine-shed, coal-store, and latrines have been omitted. I do not think any of the items included can be left out.

Permanent-way material has been estimated upon prices quoted in Stores Manager's circular of 27th May last. It will be noticed that this amounts to £15,330 at Waihao Downs, which is a large proportion of the total estimate to complete.

On the accompanying litho you will see the area that will be served by Kelcher's and Serpentine Stations, coloured pink. It is estimated to have an area of 81,500 acres. Coloured blue is shown the area that will still be served by Waihao Downs Station upon the completion of the extension.

I am of the opinion that the increase in productivity by the extension of the railway will be very small indeed, unless considerable variation in the produce-markets occurs. Certainly a considerable area is particularly well adapted to wheat-growing, but the present market prices allow the farmer to make more profit from sheep than from growing grain. There is no doubt that if the extension was completed the farmers would still confine their attention to sheep in preference to grain, unless there was a decided drop in the price of sheep or a rise in the price of wheat. I do not think it reasonable to allow much for increase of productivity.

A committee of settlers went into the matter of prospective traffic, and I understand that thirty-three of the thirty-five settlers concerned agreed to have all goods transported by rail in the event of the extension being completed. This, of course, would not be binding upon any new settler coming into the area, and hence cannot be given too much weight. This committee have compiled a schedule of probable weights that would be carried by rail. A copy of this schedule is enclosed.

Regarding the area of Douglas and Elephant Hill districts, lying east of Kelcher's Corner, which is referred to by the committee, it is clear from the map that this is estimated on the large side. To be on the liberal side the freight of this portion is estimated at 50 per cent. of what the settlers estimate for the area canvassed.

The increased revenue resulting from the extension is then estimated approximately as follows:—

	£	s.	d.
(1.) Sheep, 53,000 (say, 900 trucks) at 3s. 6d.	157	10	0
(2.) Wool, 1,800 bales at 4s.	360	0	0
(3.) Grain, 240 tons at 3s. 11d.	92	0	10
Grain, 470 tons at 5d.	9	15	10
(4.) Manure, 320 tons at 6d.	8	0	0
(5.) Seeds received by rail, 200 tons at 6d.	5	0	0
(6.) Machinery and plant, 75 tons at 6d.	1	17	6
(7.) Coal, 500 tons at 1s.	25	0	0
(8.) Cattle, 360 head (say 60 trucks) at 3s. 6d.	10	10	0
(9.) Miscellaneous goods, 200 tons at 1s.	10	0	0
(10.) Passenger fares, say	100	0	0
	<u>£779</u>	<u>14</u>	<u>2</u>

(1.) Sheep practically all go by rail at present to Paeroa, a distance of 30 miles from Waihao Downs. The increase in revenue is represented by the extra freight that would be charged from Kelcher's instead of from Waihao Downs as at present.

(2.) Wool: The increase represents the full rail freight on all wool from Kelcher's to Timaru. At present practically all is carried to Timaru by motor transport.

(3.) Grain is at present about half carried by rail and half by motor, chiefly to the flour-mills at Waimate. Increase in revenue is based on all being carried by rail.

(4-9.) Increase in revenue is taken upon the increased length of line from Waihao Downs to Kelcher's.

(10.) Passenger fares: The assumption is that an average of four passengers travel each way per day over the extension.

No comparison has been made with the actual freights carried from Waihao Downs during a period of one year by the railway.

It is clear that a much larger increase in revenue would be necessary to justify the extension of the railway. If 10,000 acres were cropped with wheat each year and an average of 27 bushels to the acre obtained, 10,000 tons of additional freight would result. Allowing this to be railed to Timaru, a freight of £3,700 would result. It appears to require something upon these lines to justify the extension.