1877.

NEW ZEALAND.

# HOKITIKA AND GREYMOUTH PUBLIC WORKS COMMITTEE

(FURTHER REPORT OF, TOGETHER WITH MINUTES OF PROCEEDINGS AND EVIDENCE).

## REPORT

ON THE CONSTRUCTION OF A LINE OF RAILWAY TO CONNECT THE TOWN OF HOKITIKA WITH GREYMOUTH.

THE Committee appointed to inquire into and report upon the proposed construction of the Hokitika and Greymouth Railway have the honor to report that they have carefully considered the matter, and have taken evidence thereon.

Mr. Carruthers, Engineer-in-Chief, in his evidence informed the Committee that the total cost of the construction of the line, including rolling-stock, construction of stations, &c., would be £221,000, and that the plans and specifications were so complete that the work, if sanctioned, could be proceeded with at once, and that the surveys had been completed long since.

The District Engineer of Westland, Mr. O'Connor, gave evidence before the Committee and produced plans of the proposed line. He showed that there was no engineering difficulty in connection with the construction of the line, that the gradients would be easy, and that it would connect with the Brunner line.

The line proposed to be constructed would be 23 miles 51 chains in length, and the land to be purchased would be very small in extent.

Attached to this report is the evidence of the Engineer-in-Chief, and the District Engineer of Westland, together with the estimate of the probable amount of traffic weekly, and of the yearly working expenses.

There is reason to believe that the estimate of the traffic is put below what may reasonably be anticipated, and the Committee attach considerable weight to the fact that a branch line to Kumara, five miles in length, would very largely increase the receipts.

The Towns of Hokitika and Greymouth are places of very considerable commercial importance; the Customs duties collected at the two ports during the year 1876 being no less a sum than £70,941, or an increase on the previous year of £3,697. The means of communication between the two towns at the present time are most tedious and uncertain, and thus the ordinary facilities offered to trade in many parts of the colony are absent, placing Westland at a very great disadvantage.

In the event of the railway being constructed, there would be a very extensive traffic in coal, which in itself would yield a very considerable profit in the working of the line, and the timber suitable for export being practically inexhaustible, immense quantities would be conveyed to the two ports. The passenger traffic would amount to no small item, and this, in all probability, would steadily increase. It may be fairly anticipated that the ordinary goods traffic would be very considerable, more especially when it is borne in mind that merchants' stocks vary considerably at times in the two towns proposed to be connected by the railway.

The construction of the line would, to a very great extent, tend to promote settlement, and benefit thereby a large extent of country, while there can be no doubt but that the general prosperity of Westland would be very materially advanced.

The Committee therefore recommend the construction of the line, and trust that the Government will see their way to cause the work to be undertaken.

EDMUND BARFF,
Chairman.

27th November, 1877.

## MINUTES OF PROCEEDINGS.

THURSDAY, 8TH NOVEMBER, 1877.

The Committee met pursuant to notice.

PRESENT:

Mr. Barff in the chair.

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| Sir R. Douglas, Bart., | Mr. Joyce, |
| Hon. Mr. Gisborne, | Mr. Woolcock. |

Order of reference, dated 6th November, read.

Mr. Carruthers, Engineer-in-Chief, attended the Committee, and gave his evidence. (*Vide* Minutes of Evidence.)

Mr. O'Connor, District Engineer, produced plans of the Hokitika and Greymouth Railway, and gave a description of the lines and the country passed through. (*Vide* Appendix D of evidence.)

The Committee then adjourned to allow time for Mr. O'Connor's promised evidence as to the probable traffic on the railway to arrive.

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FRIDAY, 23RD NOVEMBER, 1877.

The Committee met pursuant to notice.

PRESENT:

Mr. Barff in the chair.

Hon. Mr. Gisborne, Mr. Joyce, | Mr. Woolcock.

The minutes of the previous meeting were read and confirmed.

1. The Chairman read a telegram from Mr. O'Connor *re* traffic returns of proposed railway from Hokitika to Greymouth.

2. On motion of the Hon. Mr. Gisborne, *Resolved*, That the Chairman be directed to prepare a draft report for presentation to the House, setting forth the advantages and recommending the construction of a railway from Hokitika to Greymouth, and submit the same to the Committee on Monday next.

The Committee then adjourned.

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MONDAY, 26TH NOVEMBER, 1877.

The Committee met pursuant to notice.

PRESENT:

Mr. Barff in the chair.

Sir R. Douglas, Bart., Hon. Mr. Gisborne, | Mr. Woolcock.

The minutes of the previous meeting were read and confirmed.

The Committee considered the draft report submitted to them by the Chairman.

On the motion of Sir R. Douglas, Bart., *Resolved*, That the draft report submitted by the Chairman be adopted.

On the motion of Sir R. Douglas, Bart., *Resolved*, That such papers as the Chairman may consider necessary to be printed be recommended to the House to be printed.

The Committee then adjourned.

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# MINUTES OF EVIDENCE

ON THE HOKITIKA AND GREYMOUTH RAILWAY.

THURSDAY, 8TH NOVEMBER, 1877.

Mr. CARRUTHERS, Engineer-in-Chief, being in attendance, was examined.

1. *The Chairman.*] Mr. Carruthers, the Committee have instructed me to call evidence with regard to the proposed construction of the Hokitika and Greymouth line of railway, and I have requested you to attend and give such information as you can. If you wish, we can proceed by question and answer; but I would prefer you should make your statement as to what has been done and how the matter stands?—So far the line has been completely surveyed and plans have been made, beyond which I do not think I can give any further information. The cost of the line is estimated at £221,000, which includes everything—actual construction, rolling-stock, and so on.

2. Which way does the line run?—Along the coast.

3. Does it go to Kumara?—No.

4. How near Kumara does it go?—Some distance from it. It crosses the Teremakau River close to the sea.

5. Then it does not cross the river where the tramway now crosses it?—No; it crosses by the sea. It was laid out to cross it a little bit higher up.

6. Does it open up any valuable land—agricultural or gold fields?—Yes. There is a gold field; but there is not much agricultural land, except at Hokitika.

7. How far from the sea does it run?—It is close to the sea.

8. Would the survey that has been made be all that is necessary for preparing plans and specifications for the work, or would there be reason for a further survey?—No; it would be sufficient. The work could be gone on with at once if sanctioned.

9. Where is the terminus, Greymouth?—It would join the Brunner line.

10. Do you know the country between Greymouth and Hokitika?—Not very well. I have been over it once or twice riding along the beach or else taking the back country.

11. Would it increase the cost very much if we took an inland line or route?—Yes; it would be ruinous.

12. Have you any idea what would be the character of the gradient from Kumara to Hokitika? They have a tramway on a very moderate gradient to Kumara Township?—I could not state.

13. Do you know the Kumara tramway?—No; I have not been over it.

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## APPENDIX D.

Mr. O'Connor to the Chairman, Hokitika and Greymouth Public Works Committee.

Sir,— District Engineer's Office, Hokitika, 14th November, 1877.

I have the honor to forward herewith *resumé* of evidence given before the Hokitika and Greymouth Public Works Committee, which I have written out afresh, as the original draft of evidence sent me for signature could not be corrected sufficiently to make it clear.

I also send extracts from Parliamentary Paper D, No. 9, year 1872, containing preliminary report on Hokitika to Greymouth Railway, which may be found useful. From inquiries made as directed concerning traffic on the Greymouth to Kumara tramway, &c., I estimate that the present probable traffic returns of a line of railway from Hokitika to Greymouth would be about £200 per week, and the Engineer-in-Chief estimates that the working expenses of said line would be £7,500 per annum.

The original draft of evidence sent to me is enclosed herewith.

I have, &c.,
C. Y. O'Connor,
District Engineer.

E. Barff, Esq., M.H.R., Wellington.

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Mr. O'Connor, District Engineer of Westland, examined.

Plans of proposed railway produced, and, in reply to questions, Mr. O'Connor stated as follows:—

The line commences at Hokitika in the Police Reserve, which it is proposed to convert into a railway station, and runs through the Town of Hokitika for about 70 chains, the ground throughout that distance being practically level.

From 0 miles 70 chains to 3 miles 70 chains it keeps close to the Hokitika to Greymouth road, on the west or sea side of it, traversing moderately flat ground. In this distance there would be two small river bridges.

At 3 miles 70 chains it crosses to east side of road, and passes over the Arahura River at a point about 50 chains from the sea. The bridge over the Arahura would consist of six 60-feet spans with eleven small spans at ends.

At 4 miles 60 chains the line reaches foot of terrace.

Between 3 miles 70 chains and 4 miles 60 chains the ground is low, and would necessitate embankment; but this would not be a very heavy item.

From 4 miles 60 chains to 12 miles 52 chains the line follows along foot of terraces about 20 chains from the sea, passing over old gold-workings. The ground throughout this distance is rough; but there would be no heavy earthworks, and the only bridges worth mentioning would be those over Waimea and Kapitea Creeks, each consisting of three 40-feet spans with small spans at ends.

From 12 miles 52 chains to 15 miles 39 chains two lines have been surveyed across the Teremakau River, one of which crosses that river at the Lower Gorge about 80 chains from the sea, while the other crosses it on the flat about 30 chains from the sea. The bridge on the upper route would cost about £24,000, while that on the lower route would cost about £27,000; but the total cost is about the same for both routes. The line nearest the sea is the best from an engineering point of view, as it is 43 chains shorter than the other and has much flatter grades.

From 15 miles 39 chains to 21 miles 48 chains the line again follows along foot of terraces, being about 30 chains distant from the sea at 15 miles 39 chains, and 20 chains distant from same at 21 miles 48 chains. For the greater part of this distance it traverses old gold-workings, the ground being a good deal broken, but not so much as to require very heavy earthworks. There would be in this length only two bridges requiring notice—namely, those for New River and Saltwater Creek. The former would consist of three 40-feet spans, and the latter of two 40-feet spans, with, in both cases, small spans at ends.

From 21 miles 48 chains to 23 miles 51 chains the line passes through the Town of Greymouth, terminating at 23 miles 51 chains in the existing station-yard of the Brunner Railway. The ground throughout this distance is pretty even, but the earthworks necessary to keep the line above flood level would be heavy. The low-lying land has been followed in order to avoid passing through land which has been built upon. This, with the exception of the portion at the Teremakau, would be the most expensive portion of the line.

The total estimate, made from detail plans, including ample provision for rolling-stock, land purchase, and stations, with connection to wharf and other items at Hokitika, is £221,000.

The quantity of land which would have to be purchased is small.

On the whole, the line may be characterized as an easy one, there are no engineering difficulties in the way of constructing it, and the gradients are easy, the steepest being 1 in 100, which occurs but seldom, and only for a short distance at a time, so that the working expenses would not practically be any greater than on a flat line. With the exception of the bridges over Teremakau and Arahura, and the four other smaller ones above mentioned, the bridges and culverts throughout are merely ordinary water openings, with spans in no case exceeding 40 feet.

The goods traffic would consist principally of coal and timber.

There is timber along the line between Arahura and Greymouth, but wooden tramways would be necessary in the course of time to get at it, if very large quantities were required for export. These tramways would of course be constructed by the persons or companies engaged in exporting the timber.

The route surveyed is the only practicable one; the country inland of it through Waimea and Kumara being too steep to admit of a railway with reasonable grades, but a branch line from Kumara to peg at 14 miles 15 chains on original line, or to peg at 12 miles 52 chains on sea-side deviation, could readily be constructed. The length of this branch would be about five miles if constructed to original line, or six miles if constructed to sea-side deviation, and its cost in the first case would be about £25,000, and in the second case £30,000.

From Greymouth to the Teremakau the line surveyed is never very far away from the Kumara tramways; and from the Teremakau to Kumara a branch railway, if constructed, would also be close to existing tramway line, but the existing tramway formation could not be made available towards the construction of a railway, as the tramway is not sufficiently well graded for a railway line.

The survey and section, &c., of line throughout as produced was finished in June, 1876, and the sea-side deviation at Teremakau was completed in January, 1877.

The land adjoining the line on east side throughout is heavily timbered; but, so far as the topographical features of it are concerned, it is all available for agriculture. None of the land on the Westland Gold Fields can be said to be first-class agricultural land, but, if any of it is fit for agriculture, the land through which proposed railway line passes would be so.

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[Extract from Parliamentary Paper D. 9, 1872.]

REPORT ON PROPOSED ROUTE FOR RAILWAY FROM GREYMOUTH TO ROSS.*

Mr. O'CONNOR to the Hon. Mr. REEVES.

SIR,— Greymouth, 12th April, 1872.

In accordance with your instructions of 22nd February last, I have the honor to forward herewith a tracing showing proposed route for railway, Greymouth to Ross, together with statistics of population, &c., as stated on margin, and to report as follows:—

*Main Road, Greymouth to Hokitika.*—The main line of road between Greymouth and Hokitika, as at present undertaken and partly constructed, is laid out so as to give access to the principal mining centres between the two places.

It may be roughly described as forming two sides of a triangle with the sea for base, the apex of the triangle being at the Greenstone Creek, an inland working eighteen miles from each of the extremities, and eight miles from the coast in a straight line. Between Hokitika and Ross there are no inland workings except the Kanieri and Woodstock, so that the road, after passing through these places, is carried direct to Ross, a course generally parallel to the sea-beach, and about two miles inland of same.

*Proposed Railway, General Course.*—The general course of the proposed railway would be parallel to the sea-coast throughout, at an average distance of 20 chains therefrom.

*Greymouth to Hokitika.*—Along the distance between Hokitika and Greymouth few people are living near the route proposed, and, as both these towns are seaports, the traffic between them would be principally confined to coal. Some merchandise, however, would be sent by rail from Greymouth to the New River, and from Hokitika to the Arahura. This line would also doubtless develop and foster the timber trade of Hokitika, particularly in future time, when the distance the logs will have to be carried to the mill may raise the cost of supply beyond the market value, unless improved communication is provided.

The coal traffic between the Brunner mine and Hokitika would be considerable, and immediately advantageous. It would develop mining in the vicinity of Hokitika, by providing a cheaper and more efficient fuel than now exists, by means of which the auriferous deposits near Kanieri, at present unoccupied, might be drained and worked; and it would no doubt reduce the freight of goods to Hokitika from other than New Zealand ports in providing back loading for the ships, which often return in ballast.

*Hokitika to Ross.*—Between Hokitika and Ross there are only about two hundred persons living along the route proposed, but the whole population of Ross and the surrounding district (in all about two thousand four hundred) being fed from the seaport of Hokitika, the railway between these points would be of immediate advantage in diminishing the cost of provisions, and reduce the risk attendant on their carriage across dangerous rivers. The principal workings at Ross being at a considerable depth below the surface, and in wet ground, the drainage of them requires powerful machinery, mostly driven by steam, and the want of coal for this purpose is greatly felt. Wood is at present used for fuel, but, though there is an ample supply at hand, it is of an inferior quality for generating heat, five cords of wood being only equal to one ton of coal; and the cost of cutting and delivering it is so great that in one case—the Ross Extended Claim—coal, if delivered at Ross for £2 a ton, would reduce the working expenses £800 a year.

A striking proof of this statement being correct exists in the fact that at present about three tons of coal are weekly consumed at Ross, although the cost delivered there reaches £6 5s. per ton.

*Survey.*—The line, as shown on tracing, with the exception of the distance through Borough of Greymouth, and about a mile and a half at Ross end, has been run throughout on the ground, and levels have been taken along it for about a mile near Teremakau, where the country is comparatively difficult, and between Hokitika and Arahura, where a road was being constructed. As a main route, it is rather objectionable on the score of being too near the coast line; but an ample exploration made before survey, and all the information gathered since, prove it to be the only practicable line for a railway of moderate cost. I do not think any good purpose would be served by exploring the line

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* It will be observed that this estimate was made five years since, and that the development of the Kumara Gold Fields, together with other concurrent events, justify the conclusion that the traffic would be much larger on the line than was calculated in 1872, while at the same time the fact is indisputable that the population of the districts to be affected by the construction of the work has very largely increased. E. BARFF, Chairman.

again, as the information at hand is amply sufficient for the purpose of a rough estimate, and would even be sufficient to guide the clearing of the timber, if the construction of a railway be determined on.

I have, &c.,

The Hon. W. Reeves,
Minister for Middle Island, Christchurch.

C. Y. O'Connor,
District Engineer, Westland.

*Portion of the present Population of the County of Westland who would be more or less beneficially affected by the Construction of Railway from Greymouth to Ross.*

| | | | Aggregate Population. |
|---|---|---|---|
| Greymouth Borough ... ... ... | 2,181 | ... | 2,181 |
| Greymouth to Teremakau, say ... ... | 1,500 | ... | 2,358 |
| Teremakau to Arahura, say ... ... | 2,000 | ... | 2,139 |
| Hokitika Borough ... ... ... | 3,572 | ... | 3,572 |
| Hokitika to the Wanganui River, including Ross township and the surrounding workings | 2,875 | ... | 2,875 |
| Total benefited ... ... | 12,128 | Aggregate population | 13,125 |

The population of the county south of the Wanganui River (564 in all) would also be beneficially affected, but as possible passengers on the line only, their supplies being landed at Okarita roadstead, a point about forty miles below Ross.

*Timber Trade.*

Quantity of sawn timber exported from Hokitika ... 70,000 superficial feet weekly.

By calculation, the quantity of green timber equivalent to a ton in weight would be 600 superficial feet, but it is usually charged freight, by tramway, at the rate of 400 superficial feet per ton.

For traffic returns given below the calculated rate has been assumed as correct.

*Present Consumption of Fuel.*

| | Cost. | |
|---|---|---|
| At Hokitika, wood, 40 cords per week ... ... ... | £1 4 0 | per cord |
| „ „ coal, 30 tons „ ... ... ... | 2 0 0 | „ ton |
| „ Ross, wood, 100 cords „ ... ... ... | 1 4 0 | „ cord |
| „ „ coal, 3 tons „ ... ... ... | 6 5 0 | „ ton |

*Probable immediate Consumption of Coal if delivered by Railway at 6d. per ton per mile (measuring from pit), with 10s. per ton added for excavation, &c.*

| | |
|---|---|
| At Hokitika, 40 tons per week, at ... ... ... | £1 6 0 per ton |
| „ „ for export, 50 tons per week, at ... ... | 1 6 0 „ |
| „ Kanieri, 10 tons per week, at ... ... ... | 1 16 0 „ |
| „ Ross, 20 tons per week, at ... ... ... ... | 1 14 0 „ |

*Probable immediate Traffic Returns of Greymouth and Ross Railway.*

| | | | | | Weekly. |
|---|---|---|---|---|---|
| Coal, | 90 tons, carried | 24 miles, at | 12s. | per ton ... ... | £50 8 0 |
| „ | 20 „ „ | 39½ „ | 20s. | „ ... ... | 20 0 0 |
| Merchandize, | 12 „ „ | 10 „ | 5s. | „ ... ... | 3 0 0 |
| „ | 10 „ „ | 6 „ | 3s. | „ ... ... | 1 10 0 |
| „ | 20 „ „ | 15½ „ | 7s. 9d. | „ ... ... | 7 15 0 |
| Timber, | 60 „ „ | 3 „ | 1s. 6d. | „ ... ... | 4 10 0 |
| Passengers, | 60 | „ 24 „ | 24s. | ... ... | 72 0 0 |
| „ | 50 | „ 15½ „ | 15s. 6d. | ... ... | 38 15 0 |
| Total immediate returns which might be expected ... | | | | | £197 18 0 |

As it is probable that the development of mining now being attained by increased facilities in internal communication, the contemplated water-races, if constructed, and the opening of Inangahua reefs, will all tend to increase traffic and population, the probable future returns of this line might be set down at, say, double the above—viz., £396 per week.

By Authority: George Didsbury, Government Printer, Wellington.—1877.

Price 6d.]