

Concrete would be preferable for the construction of these piers, abundance of shingle being at hand. It would be much more expensive as an item than if constructed of loose granite blocks, but being enabled to build the piers of a much lighter section when of concrete, the total cost would be nearly the same, and have the advantage of being much less liable to damage from heavy seas.

It may be considered that a much less expensive mode of construction could be adopted, such as a timber structure loaded with stone. I do not consider that such a thing would stand a heavy N.W. gale, unless very strongly built indeed, in which case it would prove the most expensive plan, and have the disadvantage of only being able to last a certain length of time. The only durable timber on this coast is the black birch (*Fagus fusca*), and this does not grow to any length or size: it is also unfit for marine works. I consequently do not consider it advisable to recommend this plan for the following reasons:—Because of the difficulty that would be experienced in entering the port during heavy weather, the piers being of necessity so close together, for it must be remembered that this is an open roadstead, without any shelter from north to nearly south-west. Because that, during floods in the Ngakawau River, it is certain that to some extent stones and shingle are brought down, which, however small in quantity, would eventually refill the expensive excavation made alongside the wharf. Because of the large expenditure necessary, and which might be considerably increased before the completion of the works. Also, because the time necessary for construction cannot be accurately defined.

3. I have now arrived at the last proposition, and the one I can confidently recommend as being the quickest and most efficient manner of opening up not only the Ngakawau but the Waimangaroa coal fields as well. Its adoption would not prevent the River Ngakawau being used for small craft to a much larger extent than it now is till the works are completed. A line of railway from Ngakawau to Westport is favoured by the natural features of the country,—the gradients would be nearly level, rendering traction cheap, and only two rivers of any importance have to be crossed. The harbour for shipment in the River Buller is, I believe, the best on this part of the West Coast. On the 11th of June the Harbour Master sounded the bar, and found 14 feet at high water, which is less than is usual, owing to the recent floods having widened and consequently shallowed the channel. It is well protected from the S.W. seas by Cape Foulwind and the Steeples Rocks. The river is capable of accommodating a large amount of shipping, with plenty of depth at low water for such as can cross the bar.

In connection with a railway to this port, a certain length of wharfage would be required, at which vessels could lie and be protected during floods in the river, and also to give storage room for coals. In conveying the coals from the mine by railway they would be but once handled, namely, when put into the trucks at the mine, they would be from them shot into the railway waggons, which, on arrival at Westport, would again shoot their contents into the vessel's hold.

The recent floods in the Buller have shown that something must be quickly done to protect the banks. Any wharf accommodation necessary would consequently form part of such protection; and as I have to report separately on that subject, I will for the present presume that it will soon be constructed, whether as a portion of the railway scheme or not. It is well known that a bar harbour like this cannot be always depended upon, as the channel is liable to shift. I however think that the recent changes at the mouth are likely to improve the constancy of its direction, and should the north bank be protected by a training wall it will be very likely to deepen the water on the bar. The position to be taken up by vessels alongside a wharf would be out of the force of the current during floods, and, to a great extent, protected from snags and drift timber. The route I propose for the railway is denoted on plan No. 2 by a dotted line. It would start from the coal reserve in Westport, curving round till parallel with the beach road; it would cross the Orawaiti a little above the present road-bridge, striking off from there to the open Pakihi. Its course for this length would be over high sandy ground. For two and a half miles it would run through the open Pakihi, requiring very little forming, and ballast being plentiful within two feet of the surface. A mile of bush would then be passed, crossing Deadmans' Creek by a small bridge. We then find another Pakihi, through which the line can be taken for four miles, crossing the Wariatea *en route* by a small bridge about 2 chains long. From here the line must strike through a mile of bush to the crossing of the Waimangaroa, for which a bridge about 4 chains long will suffice. From this point the line would run along a high shingle terrace for eight and a half miles up to the coal mine. This terrace appears to be formed by nature for a railway. It consists of clean shingle, and varies in width from 1 to 3 chains. It is well above high watermark, and the line would be in a position safe from the heaviest seas. Neither ballast nor drainage would be necessary, with the exception of two openings through which flood-water flows from the lagoon to the sea.

The following is my estimate for a railway line:—

	£
Forming line, Westport to Waimangaroa, 9 miles at £300 ... ..	2,700
Ditto Waimangaroa to Ngakawau, 9 miles at £80 ... ..	720
Bridges—1,410 lineal feet at £3 ... ..	4,230
Drains ... ..	60
Sleepers, 18 miles, and 1 mile sidings ... ..	3,895
Ballast, 9 miles ... ..	1,350
Plate-laying, 19 miles ... ..	4,180
Haulage of materials ... ..	1,270
Fencing, single, 2 miles ... ..	240
Freight in New Zealand, 1,292 tons ... ..	2,584
Cost of permanent way in England ... ..	20,900
Stations, &c. ... ..	4,000
	£46,129
Management and Contingencies, 20 per cent. ... ..	9,226
	£55,355