

Alternative Lines affecting a Reduction in Cost of Construction. (Marked in green on plan.)

F to G—Length, $3\frac{1}{2}$ miles.—Ascending from mouth of Frew's Creek to Frew's Creek Saddle can be accomplished by a road with grade of 1 in 6 in $3\frac{1}{2}$ miles, thus affecting a saving in construction of that section of £1,000. A grade of 1 in 6 cannot be called too steep for a stock-road, more especially when, as in this case, it is, to the stock driven over it, a descent and not an ascent. However, it appears to me that if this road is to be constructed at all it should be constructed with the view of its becoming ultimately something more than a stock-road, seeing it will be the direct route from Hokitika to the centre of Canterbury. If constructed with a grade of 1 in 6 now, the whole of the expenses incurred in connection therewith will be lost to the country, if hereafter it is necessary to provide for a better line of communication. On these grounds I cannot recommend that the line as proposed on page 3 (F to G) should be deviated from.

H to P—Length, $4\frac{1}{2}$ miles.—Here again a saving of £2,150 might be effected by descending from Mathias Saddle into Mathias River by a grade of 1 in 15, terminating somewhere near point marked P, the nearest point to mouth of Cannon Creek, where a descent could be effected. From P to L and M the shingle river-bed might be utilized, thus doing away with the construction of about $3\frac{1}{2}$ miles of road. In regard to this I desire to point out that the river-bed travelling between P and L is exceedingly rough, not over small shingle as south of L, but over big boulders, and up and down high and steep banks cut by Mathias River, which is running between P and L at a very rapid rate, and changing its bed with almost every flood. I am sure that if the experiment was made there would be an outcry raised before long to have the road from P to L constructed, and then it would traverse less favourable ground than if it had been carried along that sideling with easy grades, as shown on plan from H *via* I and K to L.

Alternative Line insuring better Communication.

D to Q—Length, 14 miles, namely, D to Long Ford, $1\frac{1}{2}$, and Long Ford to Q, $12\frac{1}{2}$ miles.—The construction of this line would do away with the crossings of two formidable rivers—the Hokitika and Kokatahi—by leading into Town of Hokitika along Ross Road and across Kanieri Bridge. On the other hand, however, the cost of construction of stock-road *via* Mathias Pass would be increased by £1,860. I draw attention to this matter, not with the view of having the route adopted in preference to the one treated as on page 2 (A to B to C to D), but simply for the purpose of pointing out that the question of bridges over Hokitika River at or near Long Ford, and over Kokatahi River abreast of Koiterangi Road, need not enter into calculation; but that there is the far cheaper way of meeting the case, namely, by extending the Mathias Road from point D to point Q at Ross Road.

Re Plan and Section attached hereto.

The altitudes are deduced from my own aneroid observations, and, although I had no check readings taken at Hokitika, the weather throughout my journey had been so very even that they may be relied upon as correct within a trifle. They are marked in blue on plan and section, and those few altitudes which have not been actually observed, but roughly deduced from observation taken in the neighbourhood, have the word "estimated" noted below them.

The grades given on plan and section are the possible general grades of various sections treated of in my report. They do not represent the minimum grade in each section, seeing that is a matter which can be determined only by actual road survey; but they simply denote the grade obtainable between the respective altitudes recorded on plan and section.

General Remarks re Proposed Road.

A stock-road *via* Mathias Pass is practicable, and can be constructed for the sum noted in my estimate, and is desirable for many reasons, whether looked at from a Westland or Canterbury point of view, into the particulars of which I need not enter now.

However, I am anxious to guard against disappointment, and on that account beg to draw your attention to the fact that, owing to the high altitude of Mathias Pass, there is a probability of the road not being always available during the winter months—namely, from the end of May to the beginning of October—when, as a rule, the snow lies fast bound on the ranges.

As I have already stated in the report, Mathias Pass and Frew's Creek Saddle are exceedingly narrow, and consequently favourable ridges for crossing expeditiously. Mathias Pass is about 4 chains wide on the top, falling rapidly on both sides, and Frew's Creek Saddle only 2 chains wide, falling more rapidly still, and consequently, if a "block" by snow should occur, the shovelling aside of, to the utmost, 3 miles of snow (no more than has to be done at Arthur's Pass, Christchurch Road, many times almost every winter, owing to its being comparatively flat for a distance of 4 miles at an altitude of about 3,100 feet) from centre of road might be required, or else for that distance the stock may travel through or over the snow, and in that case the outside edge of the road may be staked out with guiding poles at suitable distances.

Mathias Pass, in regard to altitude, ranges after Arthur's Pass, but I have no hesitation in saying that, in spite of the difference in altitude, Mathias Pass would be selected in preference to Arthur's Pass, if the question of coach-road between Westland and Canterbury had still to be settled. The whole difficulty on Mathias Pass route is the pass itself, and that difficulty is