

Sess. II.—1884.
NEW ZEALAND.

EAST AND WEST COAST RAILWAY,

MIDDLE ISLAND, PROPOSED

Presented to both Houses of the General Assembly by Command of His Excellency.

MEMO. for the Hon. the MINISTER for PUBLIC WORKS.

Public Works Office, 29th September, 1884.

HEREWITH I beg to forward for your information a report by the Assistant Engineer-in-Chief on the above subject.

The report is so full, and the facts so clearly summarized, that it will be unnecessary for me to make any additional remarks; it is also illustrated by complete plans and sections, which will assist materially in conveying a clear picture of all the information which has been collected on this difficult problem.

I have, &c.,

J. BLACKETT,
Engineer-in-Chief.

The ASSISTANT ENGINEER-IN-CHIEF to the ENGINEER-IN-CHIEF.

SIR,—

Wellington, 12th September, 1884.

In continuation of the remarks in my annual report, I have the honour to submit the following report on the results of the surveys for the Middle Island East and West Coast Railway, undertaken during the past year, and which have just been completed:—

CHARACTER OF SURVEYS AND ESTIMATES.

Surveys.—Although only preliminary surveys, they are more in detail than usual. The lines have been pegged out at short intervals, gradients have been carefully run, and cross-sections taken in rough ground, and a traverse has been made of each line for its entire length. The information is, therefore, very complete, and the estimates based on the surveys may be accepted with considerable confidence.

Gradients and Curves.—The surveys have all been made on the same basis, the steepest gradient for the permanent line being 1 in 50, and the sharpest curve $7\frac{1}{2}$ chains radius.

Alternative Lines.—Alternative lines, with steeper gradients, to be worked by stationary or Fell engines, have also been surveyed at the crossing of the main range on the Hurunui and Arthur's Pass routes. These were intended as a temporary expedient, to save the cost of the long tunnels till the traffic develops; but, as will be seen further on, the first saving is not sufficient to counterbalance the extra cost of working the inclines and the ultimate loss in abandoning them.

Estimates.—The estimates have all been prepared on the same basis, consequently a correct comparison can be made between the relative cost of the lines. Prices have been fixed higher than the rates at present ruling in the colony, and the works can possibly be reduced in the permanent setting-out: still, it is better to allow a considerable margin for large slips and other contingencies that will in all probability arise in constructing a railway through such rough country.

ROUTES.

As stated in the annual report, four main routes have been surveyed, as follows:—

1. *Cannibal Gorge Route.*—From the Red Post, on the Amuri Plains, *via* the Waiau Valley, Lewis Saddle, and Cannibal Gorge, to Reefton.
2. *Hurunui Route.*—From Hawarden, near Waikari, *via* the Hurunui Saddle, to Bruce's Paddock, in the Teremakau Valley.
3. *Arthur's Pass Route.*—From Springfield, *via* the Waimakariri and Arthur's Pass, to Bruce's Paddock, in the Teremakau Valley.