

such as to warrant any special or expensive remedial works. On the other hand, there are certain points near bridges and elsewhere where special protection is required.

As regards the flooding of the land, we are of the opinion that by a proper system of stop-banking in conjunction with other works, the whole or at least the greater portion of the land above referred to may be made immune from flood-damage; but in the absence of full detail survey plans and levels we are not prepared to say at what cost, beyond expressing the opinion that the interests at stake will fully justify the necessary expenditure.

REFERENCE NO. 3.

To ascertain the best method of providing for the control of the said river and its tributaries so as to safeguard the lands affected, and to provide for the effective control and improvement of the said river and its banks.

The works recommended by your Commissioners are as follows:—

(a.) The repair and safeguarding from undermining of the big groyne on the Waihopai at the entrance to Gibson's Creek, by the construction of short spur groynes built along its upper side; also further works to close up this channel and safeguard it from the entrance of either the Waihopai or the Wairau River flood-waters.

(b.) The closing-up of the breach on the right bank of the Wairau River which forms the entrance to the Opawa channel, and leaving only sufficient opening from the Wairau into the Opawa to ensure a maximum flow from the Wairau to the Opawa, when the former river is in high flood, of a quantity not exceeding 10,000 cusecs. This recommendation may be given effect to by the construction of a bridge across the Opawa having a width of waterway about one-twentieth of that of the present Renwicktown bridge across the Wairau, the new bridge to be in line with the existing bridge or on the same contour-line: the two bridges to be connected by a roadway the same height as the bridges, and this and the approaches to be well protected from scour by groynes, stop-banks, and gabion work. This proposal if given effect to will necessitate some heavy and expensive work, but your Commissioners are very strongly of the opinion that if it is not carried out there is a very great danger of the Wairau taking greater and greater control of the present Opawa channel, and gradually augmenting the flood-discharge therein, thus threatening Blenheim with possible disaster in the near future.

(c.) The further stop-banking and protection of the right bank of the Omaka River, with its diversion into the Opawa, in order to prevent any possibility of its again breaking into and flowing down its old channel through Blenheim.

(d.) The diversion of the Fairhall River and its tributary Mill Creek from a point below the junction of the latter, by a cut passing through Sections 21, 60, and 63 into the Opawa channel. The line of this proposed diversion has been surveyed (see Plan No. 5), and the scheme offers no difficulties.

(e.) The enlarging of the various river-channels by means of stop-banks sufficiently far apart and of the necessary height to ensure their being capable of carrying, with a reasonable margin of safety, the following quantities of water per second:—

Wairau River below its junction with the Waihopai River, 160,000 cubic feet per second.

Omaka River, 18,000 cubic feet per second.

Fairhall River, 15,500 cubic feet per second.

Taylor River, 12,600 cubic feet per second.

Opawa River below the junction with the Omaka, 28,000 cubic feet per second. (This is assuming that our recommendation *re* the partial closing of the Opawa inlet is carried out.)

Opawa River below the junction with the proposed Fairhall diversion down to its junction with Rose's Overflow, 43,500 cubic feet per second.

This leaves the old Omaka channel through Blenheim with nothing to do but carry flood-water from the Taylor, estimated at about 12,600 cubic feet per second