

of the lands contained within the Hauraki Plains is assured, and that this area will in the future carry a very large population.

Naturally it will be some years before the whole area is brought in, for the reason that not only have we to cope with our own waters, but have also to provide for the waters being sent down the Piako and Waitoa Rivers by Drainage Boards away to the south of the Crown Lands.

Another point to be taken into consideration is the silting up of the Waihou River. It is very evident that when this river is in flood a large volume of water finds its way across country to the Piako River, and will continue to do so until protective works are built, or the silting question is successfully solved.

It will be necessary to build continuous stop-banks on both banks of the Piako River, at least as far south as the junction of that river with the Waitoa River; and I propose that this shall be done—when the time arrives—by the dredges widening and deepening the river. The spoil will be used to build the stop-banks. This is the most economical way to deal with both matters, as the sectional area of the river will be increased, and in flood-time the waters will be confined between the stop-banks.

As the work of snagging and clearing out the upper reaches of the Piako and Waitoa Rivers proceeds, a larger volume of water must come down, but it will be disposed of more rapidly. The completion of the Maukoro-Waitakaruru Canal and Puhanga Canal will be the main factors in taking the overflows in flood season, and will greatly supplement the above scheme of stop-banks, &c.

DREDGES.

Both dredges have been employed throughout the past year in cutting practically a new entrance from the Hauraki Gulf to the northern mouth of the Maukoro-Waitakaruru Canal. The old channel was extremely tortuous and quite unsuitable for navigation, and the new channel has been of great benefit in every way. Some dredging was done at the south end of this canal, but I did not consider it advisable to continue the work, as it created rather a *cul de sac*, and tended to give a lead for the flood-waters on to the peat country.

The mouth of the Awaiti Stream was also deepened, and many silt-deposits removed.

New steel chutes are now being erected on dredge No. 2, and I feel certain they will prove entirely successful in getting rid of the spoil. I anticipate a large saving in this connection, as the chutes will be used to build stop-banks and also roads along the canals. The new dredge-buckets, which will arrive very shortly, will be of great service. Although their capacity is one-third less than those now in use, yet more lifts will be made per diem. There will also be far less wear-and-tear on the engines, as the united weights of the new bucket and spoil will be very much lighter than before; and a corresponding gain will be made through less suction being experienced.

MAUKORO-WAITAKARURU CANAL.

The above canal, as shown on the accompanying plan, has now reached another stage. Some 80 chains of channel leading to its northern end had to be dredged before the dredge could get to work at the canal-mouth. There has now been dredged some 50 chains in length by 40 ft. in width to a depth at low water of about 4 ft. Beyond this for a distance of 105 chains the canal-route has been stripped to its full width of the peat lying on the alluvial deposit. The average depth of stripping is about 5 ft., and the material was sent out to sea by sluicing. The spoil dredged up is being used to form roadways on either side of the canal. The adjacent lands have been greatly benefited, and flax is coming on well. Some little work was done at the south end; but I did not consider it advisable to go on with it, more especially as a dredge was required at the Puhanga Canal. A dam will shortly be built so as to lift the dredge to a higher level, and thus save depth of cutting.

PUHANGA CANAL.

Tenders are about to be invited for the cutting of this canal as an overflow only. The formation will be 1 ft. below high-water mark, and the width at the bottom 40 ft. by an average depth of 6 ft. I am of opinion that it will probably prove unnecessary to further deepen this canal, as the proposed cross-section should prove sufficient to carry off the flood-waters, and there is little doubt that in time the scour will materially deepen it. Dredge No. 2 will, however, dredge out some 5 chains of the canal at the northern end, so as to give the water a lead into same, and the mouth will be bell-shaped. It is not desirable to make this canal altogether navigable, as in the dry season the utility of the Piako River for navigation would be greatly impaired. The same applies to the Maukoro-Waitakaruru Canal as regards a couple of miles at the southern end.

WORKS PERFORMED.

The following works have been done during the past year by means of co-operative contracts: New drains, 56½ miles; road and track formation, 27½ miles; stop-banks, 13½ miles; drains deepened and widened, 18½ miles; fencing, 3½ miles.

With reference to the stop-banks, a great deal remains to be done in the way of raising and strengthening same so as to meet all possible contingencies of a severe flood. I anticipate having all the stop-banks adjoining the lands to be offered for selection on 13th May next complete by the spring. Generally all roads and drains will be also greatly improved by that time.

The following works were done by day-labour, the nature of same being rather disjointed, and not lending itself to the co-operative principle: Stripping Maukoro-Waitakaruru Canal 40 ft. wide, and making road-bank 2 miles; combined stop-banks and drain-widening, 1½ miles; road-formation, 40 chains; deepening and widening drains, 2½ miles; felling and clearing of roads 1 chain wide, 7½ miles; sluicing and deepening drain on Puhanga Canal, 30 chains; fencing, 60 chains.