

A total of 66,502 cubic yards were excavated by dredger No. 1, while dredger No. 2 was responsible for the excavation of 65,400 cubic yards. The material was all heavy alluvial clay, with practically heavy timber throughout. In one instance some 12 chains in length of oxidized pumice, over 4 ft. in depth, was excavated for a width of 36 ft. This was the heaviest work done so far, and proves the capacity of the plant to deal with all classes of work likely to be met with during our operations.

The dredgers have been employed in excavation of Waitakaruru-Maukoro Canal, Waikaka Canal, Waitoa Canal, and the widening of Piako River. Various dredging has been done at the mouth of the Waitakaruru River, and berths for steamers have also been dredged.

PUHANGA CANAL SPILLWAY.

The contracts for the above work which were let in the previous year have now been completed, the amount of material excavated and built into road and stop-banks amounting to 32,002 cubic yards for the past twelve months. This work was very satisfactorily completed. Great relief will now be experienced when freshes occur in the Piako River, as the flood-waters will have passage through the spillway. It may possibly be advisable later on to place a dredger in spillway to deepen same, but this can only be demonstrated by an exceptional flood. The length of spillway is 145 chains.

WAITAKARURU-MAUKORO CANAL.

Excavation of this canal was continued by dredger No. 1, and a total length of 189 chains by 42 ft. wide is now completed. This shows a distance of 47 chains completed during year, and equal to 61,502 cubic yards. Very heavy timber was met with throughout, which had to be largely "shot" out. Experience has shown that it pays to first strip the overlying peat from clay and sluice it to sea. The dredger was accordingly taken from the canal after having reached the end of previous years "stripping," and while passing through the canal dredged out the accumulated silt, and proceeded to other work.

A contract is now under way for "stripping" the canal ahead, and some 10 chains has so far been done. The material sluiced out consists of generally "woolly" peat, and is being taken out to a width of 42 ft. and a depth of 5 ft., which practically exposes the alluvial clay and timber. Very heavy timber will be found ahead of the operations, and this fact will no doubt cause dredging-work to proceed slowly.

It will pay well to prosecute this work so long as the automatic "chutes" can be worked. Considerable subsistence of the swamp follows as the canal is pushed forward, and fully 50 per cent. less in depth of peat is being maintained than was expected from original borings.

WAIKAKA CANAL.

This canal, of a total length of 65 chains, has now been completed by dredger No. 2, which excavated during year some 39,105 cubic yards of stiff alluvial clay, giving a length of 30 chains by 42 ft. wide. Very heavy timber was met with throughout, but was successfully dealt with. This canal now carries all the river traffic, and steamers from Auckland pass through same. A fall of 20 in. was obtained through making this diversion, and a remarkable lowering of flood level in the locality was effected.

WAITOA CANAL.

Near the junction of the Piako River with the Waitoa River the latter takes a very sudden bend southwards, and a great congestion of water has always occurred in the past during freshes. A canal, therefore, was cut between the two rivers, the length being 12 chains, thus reducing the old course by 50 chains. The width is 36 ft., and would average 6 ft. in depth. Some 9,250 cubic yards of material was excavated, the greater portion of which consisted of a very hard strata of oxidized pumice, and considerable difficulty was experienced in breaking it up. However, once it was penetrated, the clay below was readily excavated.

Very satisfactory results have followed the completion of this work, and considerable fall has been gained, the flooding conditions being greatly minimized in this particular locality.

PIAKO RIVER IMPROVEMENTS.

Dredger No. 2 has been employed for the last three months of the year in effecting various improvements.

A large sandbank had formed at the mouth of the Teko Stream, and some 600 cubic yards of sand silt was excavated by the above dredge. After this was done the widening of the Piako River between Ngarua Stream and Puhanga Spillway was placed in hand. This particular stretch is locally known as "the Narrows" and has a very restricted waterway, which always bottled up the flood-waters, very often causing a complete submersion of the adjacent country. A universal riverway of 66 ft. is being aimed at, and so far some 37 chains in length has thus been widened during the year. The amount of spoil excavated is 16,455 cubic yards, and this has been dumped in position for future stop-banks which will require building when drainage operations on adjacent lands are put in hand.

Widening operations will be carried on to the junction with Awaiti Stream.

Dredger No. 1 has excavated a berth at Shelly Beach, where it is intended to erect a small service jetty. Some 5,000 cubic yards of clay was excavated from channel leading to wharf-site. The various improvements now in hand and projected will greatly increase the efficiency of the Piako River, which will discharge its flood-waters at a much faster rate than formerly, and the navigation of river will be correspondingly facilitated. The latter consideration is very important, as undoubtedly the Piako River is the chief medium of carriage to the Hauraki Plains, and all roads are laid out to take advantage of this waterway.