

APPENDIX III.—LAND DRAINAGE OPERATIONS.

(J. B. THOMPSON, Chief Drainage Engineer.)

THE office of the Chief Drainage Engineer was transferred in July, 1917, from Thames to Auckland, as it was considered necessary, in view of the extension of drainage operations, to have the main office in a convenient centre. The advantages of being able to expeditiously obtain estimates for materials from large firms was also a factor in this connection, and the change has proved a great success. Convenient offices were obtained in the Safe Deposit Buildings.

The branch has been actively engaged in drainage operations during the past year. Separate reports have been made on the Hauraki Plains, Rangitaiki Plains, Kaitaia, Waiki, and Poukawa land-reclamation works. Many special inspections and reports have been made, including Lawry Settlement storm-water damage; Matata water-supply; Lees Valley drainage; Raupo drainage-works; Waikato River works; Moutoa Estate; St. John's Lake (Waiaatarua); Mangawhare fore-shore; Kaihu Valley flooding; Kaituna River; Waikare Lake drainage; Invercargill reclamation; and numerous other minor works.

Works done by local bodies out of Government grants and subsidies was inspected and certified to, plans and specifications for such works being examined for approval or otherwise. Vouchers to the amount of £1,827 14s. 8d. were passed for payment to the different local bodies.

Hereunder is a short report on works that have been carried out in connection with the various grants expended by this branch:—

Hauraki Plains, Metalling Roads in.—About 9 miles 11 chains of road was metalled during the year, the following roads receiving attention: Rawerawe, Ngatea-Pipiroa, Hopai, Patetonga, Ngarua, Whakahoro, Paeroa-Tahuna, Mahuta, Rawerawe-Paul's Wharf. Details are included in the report on Hauraki Plains Settlement. Total expenditure, £5,085 0s. 3d.

Hauraki Plains: Maintenance of Completed Works, Drains, &c.—This vote is for maintenance of the works on the settled parts of the Hauraki Plains, and during the year a considerable amount of cleaning was done, partly by piecework contracts and partly by day labour. Total expenditure, £3,236 1s. 1d.

Hauraki Plains Road from Waikaka to Piako River.—Work was commenced on this road, but had to be stopped owing to more urgent works elsewhere. Total expenditure, £180 17s. 8d.

Awaiti Block, Outfall for.—The main and subsidiary drains have been considerably improved. Three new outlets to the Awaiti Stream and a new drain along the Awaiti-Netherton Road is nearly finished. Total expenditure, £478 7s. 8d.

Piako and Waitoa Rivers Improvement.—Dredge No. 1 has been engaged in making canal and straightening up bends, and has done most useful work, although retarded by the hard material encountered. Distance dredged, 45 chains. Expenditure for the year, £529 18s. 6d.

Tararua Bridge and River-bank Protection.—Protective work was erected on northern side Otarakuti Bridge in order to confine the river to a straight course and enable flood-water to get away. A heavy fresh carried some of the work away when only half-finished, but it is now in place again and near completion. Expenditure for year, £66 1s.

Waitakaruru Stream: Improvement to River-bank.—Dredge No. 2 has been engaged in straightening the course of this stream, and has dredged total distance of 59 chains. Another six months should see the work completed. Expenditure for year, £140 12s. 4d.

Wharepoa-Kerepehi Drainage Outfall.—108½ chains of drain were cleaned by contract, expenditure being £73 4s. 9d.

Opouriao Protective Works.—Groynes of a total length of 497 ft. have been put in at bad places in the river, and good results have been noticed to date. One of these groynes is a substantial one, 244 ft. in length, the first 120 ft. having hardwood piles 25 ft. long driven 12 ft. apart, and joined by two traverse 6 ft. by 6 in. stringers bolted to the piles and sheathed with 9 ft. by 2 in. planks driven well into the shingle 6 in. apart. The remainder consists of ordinary boom groyne with 6 ft. by 6 in. piles spaced 11 ft. apart, and transversely planked with 9 ft. by 2 in. piles, fixed alternatively. Willow work has also been prosecuted. Expenditure for year, £640 3s. 10d.

Waimana Protective Works.—472 ft. of boom groynes were erected during the year, also 8 chains of wire-fence groyne, 13 chains of river-bank protection by heavy willow work, and numerous gaps repaired and renewed, besides areas planted with willow-stakes. The cut at Section 19, Block III, is doing well, and carrying about half the normal river-flow. In flood-time its utility has been thoroughly demonstrated, and all fear of serious damage to Section 15, which the cut was designed to protect, is past. The river-banks are now in better condition than ever before, and no serious erosion has taken place lately. Silver-poplars have been planted in places as an experiment. These trees are not eaten by cattle, and, as they throw up numerous suckers and have wide spreading roots, they should be useful for the purpose, but only on waste land and shingle-beds. Expenditure for the year, £762 3s. 6d.

Kaituna River Surveys.—Sixteen miles of levels were taken in connection with proposed drainage-work at Te Puke and the proposed diversion of river. A scheme was also prepared. Expenditure for the year, £88 11s.

Lake St. John (Waiaatarua).—A full report was made on the practicability of draining the marsh without materially injuring the lake itself. Expenditure, £12 6s. 5d.