

Dredges.—No. 17 Monighan drag-line excavator after completing 48 chains of maintenance dredging in Reid's Central Drain commenced the deepening of the Kopeopeo Canal, and at the end of the year had completed 182 chains between the junction of Reid's Central Drain and a point 14 chains east of the Eastern Road Bridge. This machine excavated approximately 84,700 cubic yards of material during the year.

No. 30 Bay City drag-line excavator was engaged in raising the eastern Tarawera stop-banks during April and May. In June the machine was transferred to the western bank of the river to repair breaks in the stop-bank, and was engaged on this work and improving 100 chains of Withy's Drain and 12 chains of the Upper Awakaponga until October, when, after overhaul it resumed work on the eastern stop-banks. Approximately 56,400 cubic yards of material was placed in raising this stop-bank for a distance of 166 chains above the railway bridge. The total output for this machine was approximately 62,100 cubic yards for the year.

No. 28 light Bay City drag-line was overhauled in April, and between May and October was engaged on maintenance-work on the Rangitaiki, Tarawera, and Whakatane Rivers. Since November this machine has been used for driving sheet piling and other work in connection with the Orini flood-gate. The material excavated by this machine was 9,400 cubic yards.

No. 32 light Diesel drag-line excavator commenced work in March, 1939, and constructed 11 chains of stop-bank at the upper end of the Mangaroa Drain. This machine, which operates a $\frac{3}{4}$ -cubic-yard bucket on 30 ft. boom, should prove an extremely useful addition to the excavating-plant.

Flood-gates.—A large outlet structure, comprising three 5-ft.-diameter flood-gates, was commenced in the mouth of the Orini Canal on the left bank of the Whakatane River in October, 1938. When completed these flood-gates will exclude tidal water from the drainage system of the low-lying area at the north-eastern corner of the district. A 4-ft.-diameter flood-gate is under construction on the Omeheu Canal to provide an additional outlet for the Omeheu Settlement. A 4-ft.-diameter flood-gate has been constructed on the Kopeopeo Canal, and a similar structure at the northern end of the eastern drain. Also one flood-gate of 4 ft. diameter and one of 3 ft. diameter have been completed on the Omeheu Canal.

Rangitaiki River.—A working party of three to five men has been engaged with a tractor throughout the year removing willows from the banks of the Rangitaiki River, and the channel has now been improved in this manner from Thornton to Edgecumbe, and the willows have been ring-barked for a further distance upstream. During the year 362 chains of river-bank was cleared of willows, and the trees after being cut into convenient sizes have been stacked on the river-bank for burning.

In June, after two unsuccessful attempts, the mouth of the Rangitaiki River was opened in the line of the river's direct approach to the sea, and, though the new mouth has subsequently moved about 15 chains eastward, conditions have been favourable for the drainage of the low-lying land along the lower reaches of the river.

Tauranga River. In addition to the work carried out in connection with raising and repair of stop-banks upstream from the railway bridge mentioned above, the right stop-bank has been raised for a distance of 9 chains upstream from the Whakatane Tauranga Main Highway bridge. The boulder groynes and other training works for fixing the river-mouth completed last year have produced excellent results.

Maintenance.—In addition to the removal of silt from the large drainage channels with mechanical excavators, a weed-cutting launch is used for removing aquatic growth from the waterways, and a very considerable mileage of smaller drains is cleaned annually by manual labour.

The total length of drains constructed or maintained by the Department is as follows :—

	Miles.	ch.
Dredged canals	68	28
Main drains	121	36
Road drains	30	46

Drains maintained by the Department comprise 112 miles 57 chains.

Summary of Work carried out during Year:—

	Miles.	ch.	
Drains and canals cleaned by manual labour	127	3	
Drains cleaned with weed-cutter	4	30	Cubic yd.
Drains widened and deepened by manual labour	4	53	8,440
Drains and canals improved with excavators	4	47	91,560
Stop-banks constructed or improved with excavators	2	21	60,490
Streams improved with excavators	0	48	5,450

Total excavation by machines 157,500

River-bank cleared of willows	4 miles 42 chains.
River-bank willows ring-barked	6 miles.
Flood-gates completed	Three 4 ft. diameter ; one 3 ft. diameter.
Flood-gates under construction	One 4 ft. diameter.
	One having three 5-ft.-diameter gates.

I have, &c.,
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