

1926.
NEW ZEALAND.

DEPARTMENT OF LANDS AND SURVEY.
RANGITAIKI LAND DRAINAGE.
REPORT FOR THE YEAR ENDED 31st MARCH, 1926, TOGETHER WITH STATEMENT
OF ACCOUNTS.

Presented to both Houses of the General Assembly in pursuance of Section 10 of the Rangitaiki Land Drainage Act, 1910.

SIR,—

Department of Lands and Survey, Wellington, 28th June, 1926.

I have the honour to submit herewith the report upon drainage operations in the Rangitaiki Plains for the year ended 31st March, 1926, pursuant to the provisions of the Rangitaiki Land Drainage Act, 1910.

The accompanying statement of accounts and balance-sheet shows the financial transactions for the year, and the position of the account as at the 31st March last. A plan of the drainage district is attached.

I have, &c.,

J. B. THOMPSON,

The Hon. A. D. McLeod, Minister of Lands.

Under-Secretary for Lands.

REPORT OF CHIEF DRAINAGE ENGINEER.

SIR,—

In accordance with the provisions of the Rangitaiki Land Drainage Act, 1910, I have the honour to submit my report for the financial year ending 31st March, 1926.

During the period under review the construction of the several remaining scheduled works was pushed on, and, with the exception of the Tarawera River control works, where finality can be reached only after close observation of the effect of previous work, this objective has been reached. There still remains the work of diverting the mouth of the Kopeopeo outlet and the improvement of the Awaiti Stream, as recommended by the Rangitaiki Commission, and it is hoped that arrangements can be made to have these works taken in hand shortly. Observations show that the improvement of the channel of the Tarawera River has been brought to a point where final protection of the eastern bank can be safely put in hand, and this work is now well under way. As stated in previous reports, further development of the general scheme will become desirable as the settled areas develop sufficiently to warrant the expenditure. During the past period an abnormally wet winter was experienced, and portions of the area suffered severely by flooding from the Whakatane and Rangitaiki Rivers. Flooding of this nature, although fortunately infrequent, has long been recognized as a possibility, both these rivers having large steep watersheds outside the drainage area, but the cost of adequate protective works has also been recognized as more than the area in its partly undeveloped state could carry. These works, together with that of further internal improvement, are dependent entirely on the question of finance.

An abnormally wet winter was followed by an exceptionally dry summer, and here the area, in marked contrast to the surrounding higher country, showed that it was admirably capable of withstanding a drought. The factory returns bear this out, the amount of butter manufactured by the

Rangitaiki Dairy Company being 985 tons, an increase of 209 tons over last year's production. The amount paid to suppliers was approximately £134,419. The Tarawera Cheese-factory's output for the year was 260 tons of cheese and 7 tons of whey butter, and the amount paid to suppliers was £17,188.

Finance.—A Commission was appointed in April, 1925, to inquire and report on the works generally, and particularly as to the financial side. It was recognized that financial assistance should be granted by the State, and the Commission was asked to define the extent of this relief. After exhaustive inquiry the Commission recommended writing down the capital expenditure to £205,000. The Government has made provision accordingly, and settlers should now be in a position to adjust their finances and meet their obligations.

The difficulties confronting settlers are gradually adjusting themselves, and it can only be a matter of time when the financial assistance and relief granted to settlers will be repaid in the increased productivity of the country. An indication of this is that very few of the settlers have left the district, and areas which have been idle for several years have been again taken up. In addition a large area near the mouth of the Tarawera River long recognized as too low-lying for effective farm cultivation has been purchased by an outside syndicate for flax-growing.

Rainfall.—The total rainfall for the year was 53.35 in., rain falling on seventy-one days. The wettest month was June, with a fall of 13.77 in., and the driest February, with a fall of 0.89 in. The average rainfall for the past eight years was 52.38 in.; and, though this year's fall did not greatly exceed the average, the rainfall during June was more than one-quarter of the total for the year.

Eastern District.—The two dredges employed in this area completed their programme of work during the period. The dredging of an outlet for the Waioho Stream and the straightening of the old stream has given this area the maximum benefit obtainable from drainage, and it is responding accordingly. A new hardwood silt-trap was erected in the Mangaroa Stream to minimize silting in the Te Rahu Canal, and this has proved very successful. The filling over the Kopeopeo Canal flood-gate, washed out during the winter flood, was replaced and suitably protected with sheet piling and boulders. A start was made with the construction of a concrete barrel flood-gate across the White-pine Bush Road, to serve the area to the west of the road. The various canals and hand-drains have been maintained to their full efficiency.

Western District.—Dredge-work in this area was confined mainly to the erection and maintenance of the Tarawera River stop-banks and the improvement of the channel. Maintenance and improvement work was also carried out by a walking-dredge in several hand-drains with a view to lessening future maintenance charges. The Tumurau drain was opened up from the Tarawera River as far as the north boundary of Section 168. In addition to the usual maintenance of hand-drains and canals, which is put in hand periodically, protection work was carried out on the Tarawera and Rangitaiki stop-banks and natural banks where scour had occurred following the severe winter.

Dredges.—Altogether five dredges, comprising two Priestman, two Monighan drag-lines, and one Bay City dipper dredge have been employed during the period. Both Monighan dredges were idle for the latter part of the year, having completed their programme of work. A total of 431,277 cubic yards of spoil was lifted during the year, covering a total distance of 1,347½ chains. The cost per cubic yard of the material excavated was 5.88d.

The following table shows the total amounts excavated, with the cost per cubic yard, for the past seven years:—

	Cubic Yards.	Cost per Cubic Yard.		Cubic Yards.	Cost per Cubic Yard.
1919-20 ..	176,672	6.62d.	1923-24 ..	788,059	5.59d.
1920-21 ..	215,768	8.82d.	1924-25 ..	626,762	5.56d.
1921-22 ..	473,994	6.68d.	1925-26 ..	431,277	5.88d.
1922-23 ..	540,802	8.13d.			

No. 8 Priestman dredge: This plant commenced the period in the northern end of the Tumurau drain, and after completing work here was moved back to the Tarawera River to work northwards from near the north boundary of Section 167, raising the old bank with a view to leaving a permanent stop-bank on the eastern bank of the river. The total distance covered during the period was 265 chains, and a total of 93,821 cubic yards of spoil was removed.

No. 9 Priestman dredge: At the commencement of the period this plant was working northwards in the Tarawera River, erecting a stop-bank on the eastern bank. This work was completed as far as a point 40 chains south of the Awaiti Stream mouth, when plant was brought back to the railway to work down the middle of the river removing peat-bars and obstructions so as to induce scour. The total distance covered during the period was 365 chains, and 130,166 cubic yards of material were excavated. This plant will complete work in the river early in the coming period.

No. 17 Monighan dredge completed work in the Waioho Stream and deviations during the period, and was then moved to open up an outlet from this stream southwards to link up with the Waioho drain. On completion of this work the plant was given a thorough overhaul and laid up in readiness for future work. The total distance covered during the period worked was 169½ chains, and 66,805 cubic yards of material were excavated.

No. 18 Monighan dredge: This plant, which had completed her programme of scheduled construction work at the beginning of the period and was available for transfer, was kept on the works pending a decision regarding possible further work. The opportunity was taken to widen the lower reaches of the Te Rahu Canal, and utilize the spoil removed in raising the bank on the western side and repairing portions washed out by the floods. This work, together with minor stop-banking fronting the Whakatane River, was completed, and plant was given a thorough overhaul in readiness for future work. The distance covered during the period was 127 chains, and a total of 61,270 cubic yards of material was excavated.

No. 21 Bay City dredge: This plant was dismantled and railed from the Awakaponga drain to the Tarawera Siding early in the period. After overhaul and reassembling, plant was started at the head of Grieve's drain, and worked north to the railway, and was then transferred to work throughout the Omeheu adjunct drain. This was completed late in the period, and a start made with the section of the Omeheu drain north of the railway. The distance covered during the period totalled 420½ chains, and 79,215 cubic yards of material were excavated.

Floods.—The months of May, June, and July were, as is usual in this area, exceedingly wet, and the country north and south of the Kopeopeo Canal and the White-pine bush area was subjected to severe flooding from the Whakatane and Rangitaiki River overflow. The low country surrounding the Omeheu Settlement in the western district was subjected to short-period flooding from the Rangitaiki River. It was anticipated at the time that this flooding would be followed by disastrous consequences on the areas worst affected, but without exception the land has made a good recovery, helped without doubt by the dry summer experienced.

Roadwork.—No new formation work was carried out during the period. A length of 180 chains of road was graded preparatory to handing over to the local body.

Bridges, Flood-gates, &c. One bridge gang has been employed continuously throughout the period erecting permanent pile and sill bridges. Five new pile bridges and fourteen sill bridges were erected, and two temporary crossings were placed to allow for the passage of walking-dredges across canals. In addition this gang erected the new sill-trap at Mangaroa Stream, and carried out the repairs necessary to the Kopeopeo flood-gate.

Stop-banks.—The usual maintenance and protection works have been carried out on the completed lengths of stop-banks throughout the area, but, with the exception of that already enumerated as being done by the dredges, no new formation was put in hand.

Drains in Operation.—The total length of drains in operation is as follows: Dredge-cuts, 65 miles 14 chains; main-outlet drains, 105 miles 17 chains; road-drains, 30 miles 46 chains.

Roads opened.—The total length of roads opened is still 113½ miles, of which 85 miles have been constructed by the Department.

Buildings.—These consist of Engineer's cottage and twelve cottages and huts for workmen, office buildings, machine-shop, blacksmith's shop, store-sheds, &c. All men occupying quarters are required to pay rent for same.

Workshops.—The workshop and smithy have been kept fully employed during the period on repair work for dredges and general machinery, and on the ironwork necessary for bridge and general construction work.

Rolling-stock. The Thornycroft lorry, which is now in its fifth year of running, has got through a creditable amount of work in keeping the dredges supplied with coal and benzine, and in the cartage of bridge-timber and supplies throughout the works.

Plant and Machinery.—One Priestman grab dredger was dismantled and transferred early in the period, and the plant now consists of two Priestman grab dredges, one Bay City walking dipper, and two Monighan walking drag-line excavators, three coal-punts, two oil-launches, and seven small boats and punts. One launch was transferred during the period, and one punt and the towing-barge were dismantled the timbers having rotted beyond repair.

Summary of Work done:—

	M.	ch.	Cub. yd.
New drains	1	71	5,420
Widening and deepening	6	35	13,560
Cleaning drains	73	60	..
Stop-banks (repairs)	1	50	..
Spoil dredged	16	67	431,277
Levels taken	93	40	..
Survey traverses	19	00	..

Proposed Works.—Completion of the Tarawera River stop-banking and improvement of channel by Nos. 8 and 9 Priestman dredges, general maintenance, and minor construction work.

Works Expenditure (General).—The total amount of expenditure recorded in the books for the year was £31,399; of this amount £11,586 was paid for day labour (including dredge crews), and £2,969 paid for piecework contracts. The sum of £18,426 was paid from Whakatane Imprest Account.

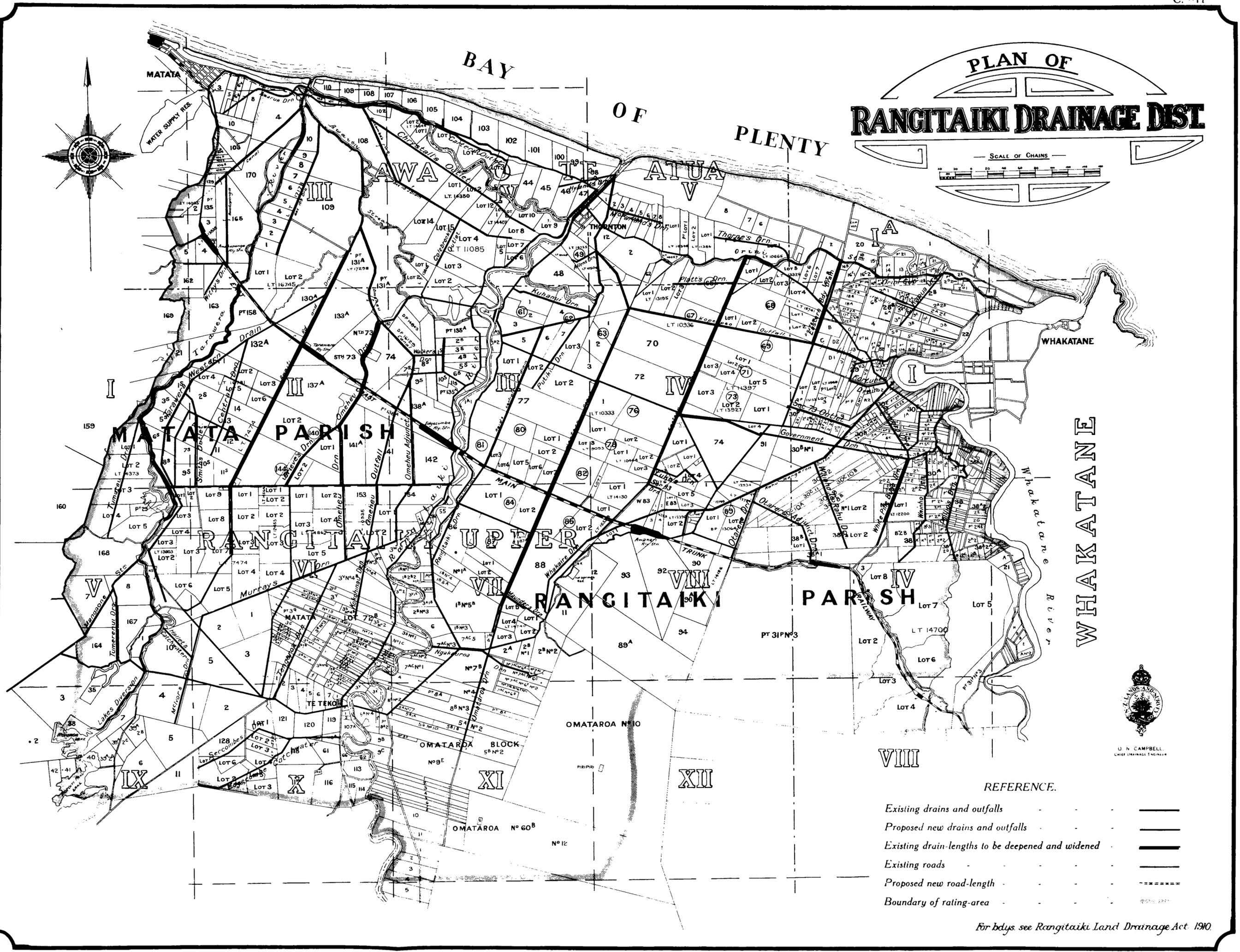
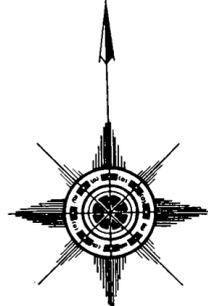
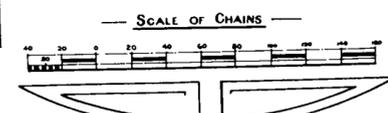
The local officer in charge is Mr. R. L. Innis.

I have, &c.,

O. N. CAMPBELL, Chief Drainage Engineer.

The Under-Secretary for Lands, Wellington.

PLAN OF RANGITAIKI DRAINAGE DIST



REFERENCE.

Existing drains and outfalls	—
Proposed new drains and outfalls	—
Existing drain-lengths to be deepened and widened	—
Existing roads	—
Proposed new road-length	—
Boundary of rating-area	—



For bdy's see Rangitiki Land Drainage Act 1910.

