

1916.
NEW ZEALAND.

RANGITAIKI LAND DRAINAGE:

REPORT FOR THE YEAR ENDED 31st MARCH, 1916; TOGETHER WITH STATEMENT
OF ACCOUNTS.

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

SIR,—

Department of Lands and Survey, Wellington, 1st May, 1916.

I have the honour to submit herewith the report upon drainage operations in the Rangitaiki Plains for the year ended 31st March, 1916, pursuant to the provisions of the Rangitaiki Land Drainage Act, 1910.

The report of the Chief Drainage Engineer (Mr. J. B. Thompson) gives details regarding the successful progress of the operations carried on under his supervision and the personal direction of the Land Drainage Engineer (Mr. O. N. Campbell). It is very gratifying to note that the settlement of the district is continually on the upgrade, and the increasing productiveness of the Rangitaiki Plains is a natural corollary to the success of the drains and river-diversion.

The expenditure to date has been as follows:—

	£
For the year ended 31st March, 1912	12,140
" 1913	15,203
" 1914	17,873
" 1915	15,990
" 1916	16,875
Total	£78,081

The accompanying statement of accounts shows the expenditure for the year.

I have, &c.,

The Right Hon. W. F. Massey, P.C.,
Minister of Lands, Wellington.

T. N. BRODRICK, Under-Secretary.

STATEMENT OF ACCOUNTS (AS REQUIRED BY SECTION 10 OF RANGITAIKI LAND DRAINAGE ACT, 1910) FOR THE YEAR ENDED 31ST MARCH, 1916.

<i>Receipts.</i>			<i>Expenditure.</i>			
		£	s.	d.		
1915—April 1st.					1916—March 31st.	
To Balance forward	3,030	18	4	By Drainage-works, stop-banks, clearing channels, and all expenses incidental thereto ..	10,227	6 4
New Zealand Loans Act, 1908—Debentures issued under the Rangitaiki Land Drainage Amendment Acts, 1913 and 1914	19,000	0	0	Purchase, equipment, and maintenance of dredges	3,834	17 9
Rangitaiki Land Drainage Amendment Act, 1913, section 6—Rate account "Thirds," &c., received under section 9 of the Rangitaiki Land Drainage Act, 1910	640	18	2	Travelling - allowances and general expenses	266	11 3
					14,328	15 4
				Interest on debentures issued recouping the Consolidated Fund	2,545	7 9
				New Zealand Loans Act, 1908—Charges and expenses in connection with debentures issued	0	17 6
				Balance—Cash in Public Account	5,835	6 0
					£22,710	6 7
<i>Loan Account.</i>						
1916—March 31st.					1916—March 31st.	
To Balance	81,000	0	0	By Debentures issued under the State-guaranteed Advances Act, 1909, and amendments	45,000	0 0
				Debentures issued under the Rangitaiki Land Drainage Amendment Acts, 1913 and 1914	36,000	0 0
					£81,000	0 0

REPORT OF CHIEF DRAINAGE ENGINEER.

SIR,—

I have the honour, in accordance with the provisions of the Rangitaiki Land Drainage Act, 1910, to report on the various services performed during the financial year ending the 31st March, 1916.

Despite the world war and its attendant call on men and money these works have been actively carried on during the year, though not to the same extent as would have been the case under normal conditions. The dearth of suitable labour has been very severely felt in this part of the district throughout the year, and at the time of writing the greatest difficulty is being experienced in even manning the various maintenance-works which are essentially needed before winter sets in. The call for volunteers for the Expeditionary Forces has taken the greater number of young and able-bodied men out of the district, and as the whole of the Whakatane County is particularly prosperous—farmers energetically developing their to a large extent unbroken holdings—the demand for the remaining available labour is keen and difficult to obtain at old rates. Every effort is, however, being made to push on with the works, and thus bring the whole area into such a state that it can add its increased quota of beef, mutton, butter, and cheese, which are in such demand at the present time, to the products of the Dominion.

As in the past, cattle-fattening continues to be the principal industry, and an ever-increasing amount of beef is being turned off the area for the Auckland markets. The country requires a good deal of "crushing" before it is suitable for the laying-down of permanent pasture. This is most economically carried out with heavy stock, and this, together with the fact that the country is proving excellent turnip land, tends to popularize fattening of stock. The settlers have to be congratulated on their energy and foresight in the progress already made towards the erection of freezing-works. Experts were appointed to inspect the whole of this coast and select the most suitable site for the erection of freezing-works, and after carefully going into the question—fortunately for the local district—selected a site on a corner of the Rangitaiki Plains adjacent to the Whakatane Harbour and Township. I understand that everything is now in train for the erection of the works. A co-operative company has been formed, the necessary capital subscribed, and in all probability the works will be opened for the receiving of stock some time during the coming summer.

The production of butter-fat is also on the increase, and since last report another cheese-factory—the Rangitaiki Dairy Company 2—has been erected and put into operation at Mangaroa. However, milking is not being resorted to to the extent one would expect, but I am sure that this must eventually become dairy country. With the country as prosperous as it is now and labour unprocurable there is little inclination to milk, but the time must come when settlers will subdivide their present large holdings and make milking the principal industry.

With the increasing farm and dairy produce exported, and the large quantities of farm implements and material generally imported, it is only natural that efforts are being made to improve the shipping facilities. The Whakatane Harbour Board is alive to the needs of the district, and has recently raised a loan of £35,000 for the improvement of that harbour, which apparently will become the main harbour for the district. Considerable shipping also enters the Rangitaiki "outlet," and auxiliary boats up to 120 tons capacity are continually in and out of the port with fencing-material and general non-perishable goods. At Matata the shipping is also considerable, though not perhaps to the same extent.

The construction of the East Coast Railway, the necessity of same being felt more and more every day, is now close at hand. The headworks are now located in Matata Township, and no construction difficulties will be experienced in carrying it across the plains. Hence the isolation is fast disappearing against which this district has had to fight for so long.

It is pleasing to note the great benefits that have resulted from the Rangitaiki River diversion. Two severe floods were experienced during June and July last, the second coming down before the first had subsided. The Rangitaiki and Whakatane Rivers were particularly high. The former overflowed its banks in places between Reid's and Kokohinau, and let a good deal of water into the basin of the swamp. In two or three cases where settlers had burnt and sown grass-seed in advance of our works a small amount was partially ruined, otherwise neither the settlers nor the works suffered in any way. The Whakatane River was particularly high on the Kopeopeo Bend, and backed up for a short time over a small area adjacent to the Kopeopeo outfall, but no damage resulted. Till this flood the Rangitaiki River diversion had not in any way been severely tested, and had had no opportunity of scouring itself to its necessary dimensions. Nevertheless it carried these flood-waters so successfully that no overflow occurred in the five-mile stretch from Reid's to the coast, where formerly the banks were practically awash throughout the winter months and overflowing after each small freshet. The cut has now opened out considerably and its carrying-capacity increased accordingly, so that with the Awaiti Bend cut similarly opened up and the river cleared—as it is now—to a large extent of willow congestion, I am of the opinion that if the same flood occurred again the overflow would be almost entirely cut out. Nevertheless it is advisable, as it is intended, to do a certain amount of stop-banking on the low-lying banks between Reid's and Kokohinau.

Generally the settlers are well up on to our works with their subdivisional draining and breaking in, and improvements are apparent throughout the area. Though in a few cases settlers are getting ahead of our works, there are other instances where more could be done than is being done. Altogether the plains are thriving, settlers are busy and prosperous, and the whole outlook augurs well for the future.

With labour-conditions as they are at present it is fortunate for us that the smaller hand works are so well advanced. There is not a great deal of actual new work to be undertaken, and for the future all available labour can be put on to maintenance and deepening works. This will be the first consideration, and must be carried out in order to hold and, where possible, improve the present conditions.

DREDGES.

The three dredges have been busily engaged throughout the year in the excavation of the major outfall drains, and during almost all the summer months the two Priestman dredgers

have been working double shifts. As is always the case where much machinery is in use, a considerable amount of repair work is necessary. In the majority of cases we are able to effect repairs on the works, but at times parts have to be sent away to the larger foundries, and owing to the inaccessibility of the works this necessitates a good deal of time. Advantage is always taken of such delays to overhaul the plants, thus reducing lost time to a minimum.

During the year under review a total of 224,740 cubic yards of spoil has been excavated at a total cost of £4,252 19s. 4d., and an average cost of 4·54d. per cubic yard. This includes all charges—wages, supplies, repairs, &c.—and must be considered very satisfactory.

The work for the year, with the exception of that on the Tarawera River, has been through very difficult and disappointing country from a dredging point of view, consequently the progress made has not been quite as I would have liked. The trouble on the Kopepeo outfall has been surface and submerged timber, and on the Omeheu work timber and sand. This latter work, lying as it did through waterlogged country, promised to be excellent dredging, but turned out to be the most difficult piece of excavation we had to deal with so far. Layers of fine sandy silt were met with throughout, and on top of this we met an exceptional amount of heavy timber-roots, mostly below water-level. These difficulties are much more than compensated by the results being attained.

In order to reduce maintenance costs later on it would be advisable to dredge the mouths of a number of the smaller outlet drains, especially where the fall is small and the country low-lying. Allowing for this, and before the scheme can be said to be complete, there is still some three years' work ahead of the dredgers.

RANGITAIKI RIVER DIVERSION AND IMPROVEMENTS.

As mentioned above, the success of the river-diversion has been quite up to expectations. The flood problem, which is the key to the whole situation, has not yet been wholly overcome; still, it is so far solved that floods are not now the same source of worry and anxiety as of old. The river is slowly but surely scouring its bed, and will continue to improve for several years to come. Assisted by the snagging of willows and general opening-up of the congested portions of the bed, this scour will leave the channel in state fit to carry all but exceptionally heavy floods. As stated previously, a certain amount of stop-banking will be required on the low-lying banks between Reid's and Kokohinau before the river can be considered safe. So far the mouth of the diversion on the sea-coast has not shown any tendency to wander.

TARAWERA RIVER DREDGING.

The conditions at the mouth of this river—*i.e.*, at its junction with the old Rangitaiki River—are much as they were at the inception of the works. A lowering of over 1 ft. was brought about when the Rangitaiki waters were diverted, but, as was only to be expected, this gain has now been overcome by the silting and consequent reduction of water-space in the Matata Harbour. The works in that vicinity are now well advanced, and the necessity of the diversion of the river out to sea at the junction is being felt. This would bring about a considerable improvement in the conditions of the lower Tarawera country, and it is hoped to have this work taken in hand, and is contingent upon certain important arrangements being first made and considered.

The Hammond bucket dredge which is at work on this river has during the year excavated a total of 72,530 cubic yards. A distance of four miles and a quarter of this river has now been straightened and put in good order generally. It will gradually scour its bed sufficiently low to prevent overflow and to a large extent cut out the seepage which is such a source of worry in the adjacent low-lying country. The dredge is now being transferred up-stream to the vicinity of the Hallett Estate, where a general straightening of the river is urgently wanted.

The position in the upper Tarawera is quite satisfactory. Some little trouble was experienced in getting the river to "take" through a cut-off just north of the main road. This was really a work for the dredge, but as it lay out of their reach the surface vegetation was stripped by hand and the river turned in to scour its own course. The country proved difficult to scour, and the river showed a tendency to keep to the old winding bed. By erecting and maintaining a groyne across the old channel the river has been successfully pushed into the new course.

AWAITI AND OMEHEU STREAMS DREDGING.

This has been a most disappointing work. The sandy silt deposits and the large quantity of timber met made excavation difficult and progress slow. In September this work was considered to be sufficiently far advanced to warrant the continuing of it in the meanwhile with scoop teams and hand labour, and transferring the dredge to urgent work on the Awakaponga outfall. Labour difficulties and wet weather delayed this Omeheu work to a large extent, but it is now well under way, and every effort is being made to push on with it. The work is a most important one, and affects a large area which is now being much developed. On completion of other urgent works, when a dredge can be spared, this dredging will be continued up-stream as far as considered necessary to ensure freedom from floods.

KOPEPEO OUTFALL.

This work was commenced near the end of last year, and is now well in hand and progressing satisfactorily. The dredging has not been the best, as the country so far is comparatively hard and contains a fair amount of timber. Dredging, particularly to a settler located ahead of a dredge, is necessarily a slow operation, but with this work, as with the others, every effort is being made to push on with it and give the long-looked-for relief to the country beyond. Two shifts have been worked throughout the summer months on this dredge, which during the year has excavated a total of 77,420 cubic yards.

In order to hasten the work along, the water in this cut is being kept at top level by a dam and spillway at the mouth. The excavation is made deep enough to float the plant, and balance left to be taken out when the dredge is coming back.

- MAIN OUTLET DRAINS.

At the present time, excluding all dredged outfalls and road-drains, there are 66 miles 22 chains of main outlet drains in operation, and of this 6 miles 9 chains have been completed during the present year. Dredged cuts and river-diversions make up another 19 miles 69 chains, of which 4 miles 4 chains were completed this year, making a total of 86 miles 11 chains of artificial waterways in operation.

As the accompanying plan will show, there is a very short total length of drains as yet untouched, and consequently the future annual return of new works will greatly decrease.

The deepening of existing drains will be a big item during next year and the following one, and so will maintenance-work until the scheme can be said to be actually complete and the various drains settled down to their work.

A distance of 34 miles 15 chains of drains has been cleaned and deepened and in places enlarged, and it is hoped to have all drains in good working-order before winter sets in.

ROAD-FORMATION.

A large amount of work has been carried out in connection with road-formation within the area, but not so much as was intended, owing to dearth of labour and prior importance of keeping the drains in an efficient state. It has also been impossible for us to commence the construction of the main arterial road, which is to be located adjacent and parallel to the East Coast Railway, owing to the centre-line not yet having been finally located. This road will be pushed on with, or at least made passable for stock, as soon as possible after the line of railway is fixed across the plain. Its construction will be of immense benefit in opening up the country, and will be used by practically all the traffic up and down the East Coast.

To date 43 miles 72 chains of roads have been completed, and of this total 14 miles 51 chains have been constructed during the year under review.

BRIDGES.

Two three-span pile bridges have been erected during the year across the Kopepeo outfall. The top structure of these will require dismantling and re-erecting later when the dredge backs out of the cut, but the piles will not need disturbing, as the centre span is of sufficient width to allow of its passage.

FLOATING PLANT.

This consists of two Priestman dredgers, one Hammond bucket dredge, one suction plant (incomplete), two ferry pontoons, one snagging-barge, three coal-barges, one towing-pontoon, two oil-launches, and sundry small boats, punts, &c. All of above, with the exception of one ferry pontoon and the suction dredge, are in first-class order and in constant use.

BUILDINGS.

The total number of buildings on the works, including stores, workshops, &c., is seventeen. All are in fair order and sufficient for the purpose.

SURVEYS.

During the greater portion of the year a survey party has been engaged on the various land and engineering surveys necessary for the carrying-out of the works. These, principally engineering surveys, are well up to date.

SUMMARY OF WORKS PERFORMED.

Excavation by wheel scoop teams	...	...	...	...	...	4,405 cubic yards.
Excavation of canals by dredgers	...	...	...	...	...	224,740 "
New outlet drains	...	...	...	...	...	6 miles 9 chains.
Cleaning and deepening outlet drains	...	...	...	...	...	34 " 15 "
Roads formed	...	...	...	...	...	14 " 51 "
Pile bridges built	...	...	...	...	...	2
Coal-pontoons built	...	...	...	...	...	1
Towing-pontoons built	...	...	...	...	...	1
General improvements, snagging, &c., Rangitaiki River; general maintenance and improvements to existing works, together with many minor services too numerous to mention.						

WORKS EXPENDITURE FOR THE YEAR.

On account of piecework contracts and day labour of all descriptions upon drainage operations the sum of £10,550 0s. 5d. was paid out of Whakatane imprest. Out of special vote the sum of £2,285 17s. 9d. was paid from local imprest.

GENERAL.

The books in connection with the works are kept at the Thames office. Many road and engineering survey plans and tracings were made. The Land Drainage Engineer, Mr. O. N. Campbell, who has local charge of works, has not spared himself to ensure the success of all works, and his resourcefulness and assiduity are deserving of commendation. Mr. G. Tuck, foreman dredgemaster, and his assistants are also deserving of praise for the manner in which their work has been executed.

I have, &c.,

J. B. THOMPSON,

Chief Drainage Engineer.


The Under-Secretary for Lands, Wellington.


Approximate Cost of Paper.—Preparation, not given; printing (950 copies, including plan), £10 10s.


MATATA

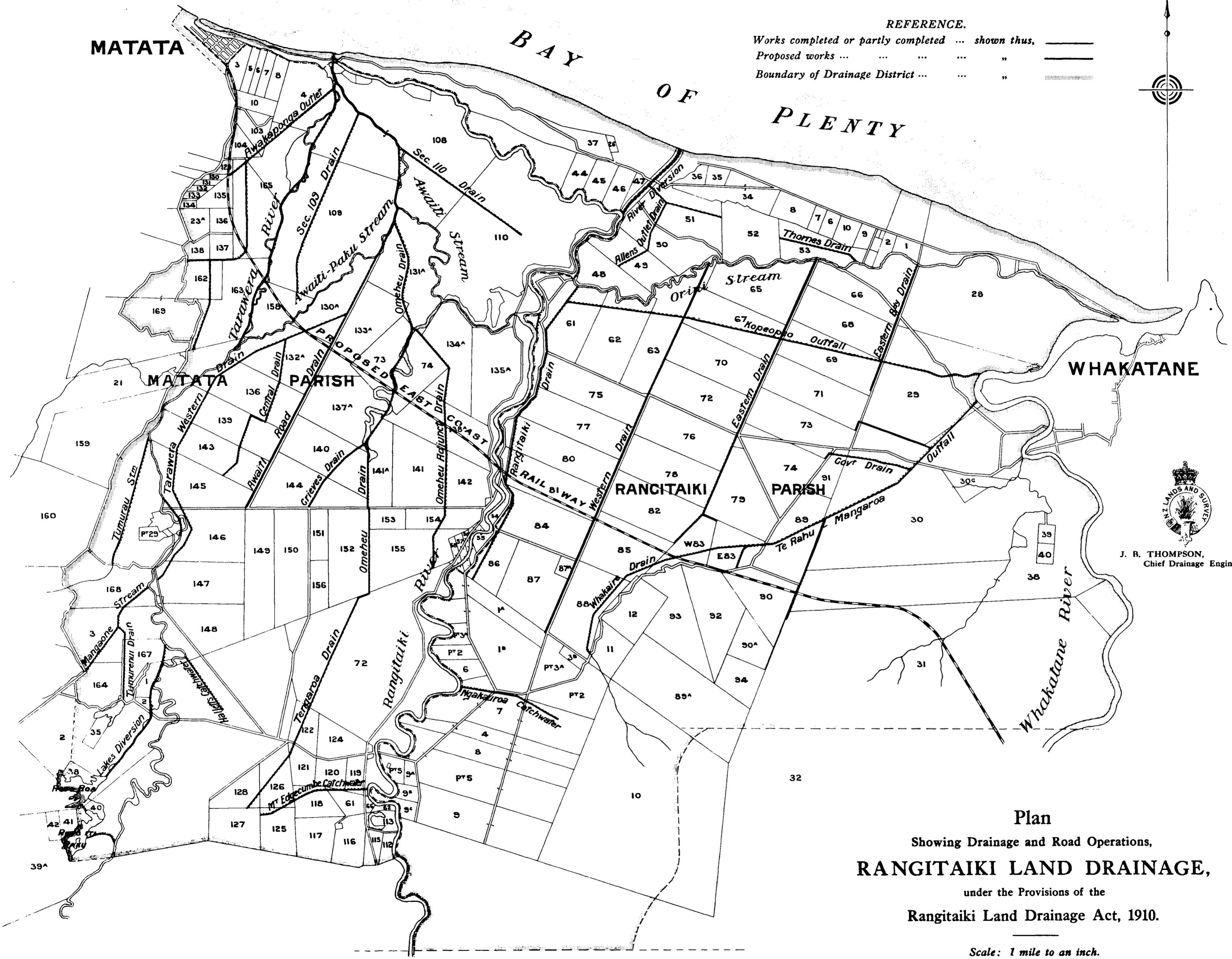
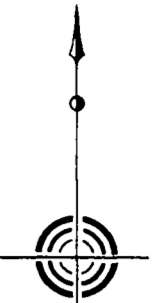
BAY OF PLENTY

REFERENCE.

Works completed or partly completed ... shown thus, 

Proposed works " 

Boundary of Drainage District " 



WHAKATANE

MATATA PARISH

RANGITAIKI PARISH



J. B. THOMPSON,
Chief Drainage Engineer.

Plan
 Showing Drainage and Road Operations,
RANGITAIKI LAND DRAINAGE,
 under the Provisions of the
 Rangitaiki Land Drainage Act, 1910.

Scale: 1 mile to an inch.

