

1928.  
NEW ZEALAND.

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DEPARTMENT OF LANDS AND SURVEY.

# DRAINAGE OPERATIONS IN HAURAKI PLAINS.

REPORT FOR THE YEAR ENDED 31st MARCH, 1928, TOGETHER WITH STATEMENT  
OF ACCOUNTS.

*Presented to both Houses of the General Assembly pursuant to Section 20 of the Hauraki Plains Act, 1926.*

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SIR,— Department of Lands and Survey, Wellington, 30th June, 1928.

I have the honour to present herewith the report of the Chief Drainage Engineer on operations carried out during the past year on the Hauraki Plains in accordance with the provisions of the Hauraki Plains Act, 1926.

I have, &c.,

J. B. THOMPSON,

Under-Secretary for Lands.

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

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## REPORT OF CHIEF DRAINAGE ENGINEER.

SIR,—

I have the honour to submit herewith the twentieth annual report on the Hauraki Plains land reclamation and general development works carried out during the financial year ending 31st March, 1928.

An exceptionally dry summer has been an important contributing factor to the substantial progress made with the development works. As there was practically no rain for a period of fifty-four days during January and most of February, the production of the farms was undoubtedly reduced, but returns up to the end of January were in excess of previous records. It is very satisfactory to find that the dairy factories operating on the Hauraki Plains report that the season's increase in dairy-produce will most likely exceed the average rate of increase for previous years.

The following figures of produce and stock returns, which have been prepared from all available sources, clearly indicate the value of the drainage scheme. For purposes of comparison, the previous year's returns are given in parenthesis :—

Butter produced	..	..	..	..	..	2,350	(2,300) tons.
Cheese	..	..	..	..	..	1,296	(1,235) tons.
Fibre and tow	..	..	..	..	..	1,200	(1,000) tons.
Estimated value of stock sold	..	..	..	..	..	£59,170	(£45,000).
Freights to and from Piako River and Waitakaruru	..	..	..	..	..	11,426	(8,000) tons.

The green fields and comparative abundance of feed on the Plains were in striking contrast to less fortunate districts, where the unusually dry nature of the summer was reflected in parched pastures, and many Hauraki Plains settlers found that the sale of compressed hay was a lucrative business. The sweetening effect and greater porosity resulting from the thorough drying of the surface soil will also prove beneficial. However, the drying of the peat lands produced troublesome peat fires, and the strenuous efforts of flax-millers and the Department's employees could not prevent the loss of a considerable quantity of growing flax. The annual loss resulting from the destruction of valuable flax and cost of fire-fighting emphasizes the necessity of the necessary statutory authority

being furnished for the formation of fire districts in order to provide protection from fire on Crown and also privately-owned lands on which flax is naturally grown or cultivated.

During each winter the heavier country in the northern portion of the Plains has been poached up by stock, with the result that the grass is detrimentally affected, with a consequent reduction in the carrying-capacity of the land, whilst the losses in stock have been above the average. Keen farmers whose lands suffer from this disability have been seeking a remedy, and at present some of them are considering the housing of their stock during wet-weather conditions. This experiment, which is a return to Old Country methods of farming, will be watched with interest. As the poaching of the land is primarily due to inadequate drainage, the surface-water not being removed fast enough, the remedy appears to be in improving the drainage, and especially on those portions of the farms used for wintering stock. The use of the mole-plough, on country free from timber, appears to offer big possibilities towards furnishing a solution of the difficulty, whilst the use of paspalum in conjunction with other grasses would assist in providing a more solid mat of grass, and one more able to withstand the weight of the stock. The question of the use of the mole-plough, as well as other methods of sub-drainage, is under consideration by the Agriculture Department, who propose carrying out experiments on this and similar classes of land.

The development of the peat lands is one which offers a big field for investigation. The shallow peats, especially where there is a fair amount of silt, are usually fairly easily developed, but the peat swamps about 15 ft. in depth and over are full of difficulties when it comes to the development process; and it appears to me that this particular phase of the question should be investigated by the Fields Division of the Agriculture Department in conjunction with this Department.

A general feeling of security and independence is indicated amongst the settlers within the reclaimed swamp area by the changes of recent years from Government control to local-body control, entailing maintenance of many of the completed drainage-works, roads, bridges, and other requirements of modern rural settlement. For many years the Department exercised all the usual functions of a County Council, Drainage and River Board in the district. Since 1923 control of approximately one hundred miles of roads in the settled areas has been handed over to the Hauraki Plains and Piako County Councils, and negotiations are in train with the Hauraki Plains County for the taking-over of control of some sixteen wharves within the area. The Horahia Drainage Board was formed in 1925 to undertake the maintenance and improvement of the drainage system of an area of 13,000 acres, and at about the same time the Elstow Drainage Board extended its district with a view to co-operating with the Department in the reclamation of freehold and Crown land in the Awaiti District. In August, 1927, the Tahuna Drainage District was formed to control the drainage of an area of 10,000 acres forming the southern portion of the Hauraki Plains District. The preliminary steps have also been taken for the formation of two more drainage districts—(1) in the Netherton District; (2) an area of 13,000 acres on the western side of the Piako River, including Ngatea, Pipiroa, and portion of the Waitakaruru district.

The continued rapid development of the district is undoubtedly largely due to the progressive policy adopted by the settlers and energetically executed by the local bodies already mentioned, also the Thames Valley Electric-power Board and the Hauraki Drainage Board. The latter is now amalgamated with the Horahia Drainage Board under the designation of the Hauraki United Drainage Board.

The total rainfall for the year was above the general average. The gauge at Kerepeehi recorded 47.35 in., the average fall for the past twelve years being 45.62 in. Rain fell on 163 days, but there were no excessive storms to cause floods, and drainage conditions were generally good. The annual rainfall recorded at Kerepeehi during the past twelve years is shown on the following schedule :—

Year.	Total Rainfall.	Wettest Month, and Fall.	Driest Month, and Fall.
1916-17 .. .. .	55.57 in.	Nov., 1916—6.65 in.	Jan., 1917—0.65 in.
1917-18 .. .. .	46.41 in.	April, 1917—5.67 in.	Dec., 1917—2.18 in.
1918-19 .. .. .	41.02 in.	Oct., 1918—7.47 in.	Feb., 1919—1.34 in.
1919-20 .. .. .	34.85 in.	Feb., 1920—6.10 in.	Dec., 1919—0.89 in.
1920-21 .. .. .	35.93 in.	Sept., 1920—5.10 in.	Feb., 1921—0.72 in.
1921-22 .. .. .	46.34 in.	Feb., 1922—6.62 in.	Nov., 1921—1.34 in.
1922-23 .. .. .	33.81 in.	Jan., 1923—4.14 in.	Mar., 1923—1.72 in.
1923-24 .. .. .	52.42 in.	April, 1923—9.76 in.	Nov., 1923—1.81 in.
1924-25 .. .. .	52.56 in.	April, 1924—8.55 in.	Mar., 1925—1.36 in.
1925-26 .. .. .	40.29 in.	June, 1925—6.67 in.	April, 1925—0.84 in.
1926-27 .. .. .	60.91 in.	May, 1926—8.86 in.	April, 1926—1.83 in.
1927-28 .. .. .	47.35 in.	July, 1927—6.29 in.	Jan., 1928—0.01 in.

The following is a general summary of the work carried out by the Department during the year :—

#### DREDGES.

Dredging continues to be one of the main features of the operations, and during the year the aggregate volume of excavation handled by the dredges was 652,413 cubic yards, chiefly in river-improvement and stop-bank and canal construction. The average unit cost was 7.32d. per cubic yard.

For various reasons, all of the dredges have not been continuously employed during the year, but where conditions favoured rapid construction two shifts were worked on four of the dredging-plants.

No. 19, Michigan land dredge, has been on loan to the Public Works Department, and No. 20, Rood land dredge, was laid up for some months. No. 23, Dipper dredge, is idle in the Upper Elstow Canal, as the work cannot progress until an agreement is completed with the Elstow Drainage Board.

Owing to the exceptionally low summer flow in the Waitoa River, it was found impossible to float No. 24, Dipper dredge, to the point of commencement of the proposed Whakahoro Relief Canal. As soon as the river rises this dredge will be placed in commission. This canal will provide a main outlet for a large portion of the Waitoa Drainage District through the recently formed Tahuna Drainage District.

The following table shows the quantities excavated by the dredges during the past eight years, and the average unit cost :—

Year.	Cubic Yards.	Cost per Cubic Yard.
1920-21 .. .. .	158,865	7·42d.
1921-22 .. .. .	246,022	7·29d.
1922-23 .. .. .	440,092	8·20d.
1923-24 .. .. .	508,654	7·27d.
1924-25 .. .. .	822,286	5·86d.
1925-26 .. .. .	856,653	6·32d.
1926-27 .. .. .	647,182	7·42d.
1927-28 .. .. .	652,413	7·32d.

No. 1, Priestman dredge, was engaged on the Piako River improvement-works, Awaiti Canal construction, and pulling willow-stumps along the river-banks. The total quantity excavated by this dredge was 30,432 cubic yards, and the unit cost 12·4d. per cubic yard.

No. 2, Priestman dredge, was engaged on the Maukoro Canal and deepening the Railway Canal in the Waitakaruru District. The dredge was laid up for extensive overhaul during the year, and owing to the necessity for the construction of dams in the cut to raise the water-level as the dredge advances dredging operations have been intermittent. Two shifts were employed, with a very creditable output of 126,375 cubic yards, at unit cost of 5·12d. per cubic yard.

No. 6, Priestman dredge, was engaged entirely on Piako River improvement-works. In September last this dredge was taken through the Ngatea Bridge, and has since been enlarging the channel between the six- and eight-mile pegs. Work on this reach has to be carried out when river-level is about half-tide. The total quantity excavated during the year was 46,225 cubic yards, and the unit cost 8·31d. per cubic yard.

No. 11, Kingston dredge, was employed for three months on the Waikoura outlet, Kaihere District, and for nine months constructing the Awaiti Canal. Two shifts have been worked during the last four months of the year. The quantity excavated was 67,177 cubic yards, at cost of 8·12d. per cubic yard.

No. 15, Bucyrus dragline, working two shifts was engaged for ten months constructing the Awaiti Canal and stop-banks. For the last two months of the year this plant has been removing a troublesome slide from the Piako River near Kaihere Wharf. The output for the year was 114,796 cubic yards, and the unit cost 7·2d.

No. 16, Bucyrus dragline, has been engaged on stop-bank construction on the Piako River between Ngatea and Kaihere Wharf. Two shifts are employed, and the output was 112,134 cubic yards, at a cost of 7·75d. per cubic yard.

No. 20, Rood land dredge, was in commission for four months of the year only, and during that period was engaged on the construction of a large drain and the cleaning-out of machine-excavated drains in the Kerepeehi Block. The quantity excavated was 28,234 cubic yards, at unit cost of 5·21d. per cubic yard.

No. 24, American steam dipper, was for seven months engaged on the construction of the Lower Elstow Canal along the southern boundary of the Kerepeehi Block extension. A total of 127,040 cubic yards of material was excavated, at a cost of 4·01d. per cubic yard.

#### CENTRAL DISTRICT.

The principal activities in this district were: river-improvement works extending over a distance of six and a half miles, including channel enlargement, stop-bank-improvement, and removal of willows; construction of 4 miles 58 chains of road on the Kerepeehi Block and 1 mile 50 chains of embankment road between Puhanga Canal and Kaihere Landing, where two large slides have proved very troublesome; cleaning 30 miles 30 chains of drain and improvement of 7 miles 63 chains of drains, necessitating the excavation of 27,257 cubic yards of spoil, and 12,343 cubic yards excavated in the construction of 1 mile 67 chains of new drain; 24 chains of road was formed and metalled in Kerepeehi Township, and 2,324 cubic yards of clay conveyed by tramway for re-laying Torehape Road. One 37-ft.-span road-bridge was constructed on the Kaihere Road, and concrete piles have been placed under the abutments of the ferro-concrete bridge over the Ngarua Stream.

The Lower Elstow Canal, forming the southern boundary of the Kerepeehi Extension Block, was completed in October. The clay won from this canal will be utilized to complete the stop-banks surrounding the Kerepeehi Block, and it is anticipated that as a result of the drainage provided by the canal the banks will be sufficiently consolidated next summer to support the permanent embankment.

## WAITAKARURU-PIPIROA DISTRICT.

A pronounced advance has been made with the construction of the Waitakaruru-Maukoro Canal. The dredge is now 5 miles 50 chains from the canal bridge on the Waitakaruru-Pipiroa Road, and will be turned at this point to widen and deepen the canal back to the new dam at 4 miles 6 chains. Some 300 tons of coal for the dredge have been carted to this point from Waitakaruru, necessitating the formation of 45 chains of temporary road. The Railway Canal was deepened and continued for a distance of 15 chains. Five miles of clay roads in the Waitakaruru district were disked and graded, road-bridges repaired, and filling carted to repair roadways damaged by peat fires. Drains of a total length of 87 miles 68 chains were cleaned, 1,140 cubic yards of spoil excavated in the construction of 38 chains of new drain, and 23 miles 69 chains of existing drain enlarged by the excavation of 48,075 cubic yards of earth. The stop-banks on the eastern side of the Piako River and foreshore have been raised for a distance of 4 miles 4 chains by the addition of 13,960 cubic yards of material. Particular attention has been given to the drainage of a large area of unoccupied peat land situated to the east of the Waitakaruru-Maukoro Canal, with the object of diverting the drainage from the Piako River and foreshore outlets to the canal.

## PATETONGA-AWAITI AND TAHUNA DISTRICTS.

The usual annual cleaning and maintenance of drains was carried out in these districts, 38 miles 10 chains of drains being cleaned, and 40,252 cubic yards of spoil excavated in the improvement of 15 miles 23 chains of drains, whilst 2 miles 72 chains of new drain necessitated the excavation of 7,641 cubic yards of spoil.

The principal construction-works were carried out in the Awaiti District, where the Awaiti Canal is under construction, also extensive improvements of the subsidiary drainage system carried out at Netherton.

Prior to handing over control of the Tahuna District to the newly constituted Drainage Board, the drains were cleaned. Practically all of the drains had been deepened during the previous two years; consequently the whole system was in good condition when the new Board took over.

A small drain was made on portion of the line of the proposed Whakahoro Relief Canal, and coal and materials for dams and bridges delivered, in order to commence dredging as soon as dredge can be floated up the river.

The tramway service from the Patetonga Wharf to the township, for the conveyance of settlers' stores and outgoing produce, was maintained throughout the year. The tramway was also used for the conveyance of construction material, and 496 cubic yards of filling for road-formation. Two road-bridges at Patetonga were repaired, and 200 white-pine logs were cut and hauled to provide piles and timber for general requirements.

## ROADS.

Only two short sections of road in the Kerepehi Township were metalled this year, but a considerable amount of road-formation was carried out, as shown in the following schedule:—

Roads formed and metalled—	Metal. Cub. yd.	Length completed. Ch.
Kerepehi School Road .. .. .	195	12
Kerepehi-Kaihere Road east of Awaiti Canal .. .. .	294	12
Totals .. .. .	489	24
Roads formed—		Length. M. ch.
Awaiti Canal Road, Kerepehi Block .. .. .	.. .. .	2 14
Reservoir Canal Road, Kerepehi Block .. .. .	.. .. .	1 34
Kaihere-Ngatea Road from Puhanga Canal to Kaihere Landing .. .. .	.. .. .	1 50
Maukoro Canal Road, western side (not completed) .. .. .	.. .. .	0 45
Awaiti Canal Road, Kerepehi Block Extension (not completed) .. .. .	.. .. .	1 10
Totals .. .. .	.. .. .	6 73
Maintenance—		M. ch.
Clay roads disked and graded .. .. .	.. .. .	8 20
Clay ballast for peat roads—	Quantity of Clay. Cub. yd.	M. Ch.
Torehape Road .. .. .	2,324	1 25
Patetonga Tramway Road .. .. .	496	0 15
Totals .. .. .	2,820	1 40

## DRAINAGE.

The total length of new drainage ditches constructed during the year was 5 miles 69 chains, and the total length of the drains constructed in connection with the Hauraki Plains scheme to date is 608 miles. A summary of the subsidiary drainage construction and maintenance carried out during the year is shown in the following schedule :—

	Cub. yd.	Excavation.	
		M.	ch.
Drains cleaned .. .. .	..	156	78
Drains widened and deepened .. .. .	92,402	44	65
New drains constructed by manual labour .. .. .	15,090	5	36
New drains constructed by machinery .. .. .	7,260	0	33
Drains widened and deepened by machinery .. .. .	6,660	1	33
Stop-bank improvements .. .. .	13,960	4	04

## BRIDGES, BUILDINGS, AND OTHER STRUCTURES.

One 36-ft.-span and two 25-ft.-span road-bridges were built, also 10 access bridges of 20 ft. to 25 ft. span. Several bridges were repaired, and minor repairs carried out to wharves. One 3-ft.-pipe culvert with flood-gate was constructed at Ngatea, and one large two-barrel ferro-concrete outlet culvert with flood-gates and sluice-gates on the Awaiti Canal. A new shed, 40 ft. by 20 ft., was built at Kerepehi for storage of material and plant, also huts for accommodation of workmen.

## PLANT, MACHINERY, AND STORES.

A considerable amount of maintenance and repairs to plant has been carried out in the Department's workshops. The principal items of plant are ten dredges and excavators, seven launches, steam-tug, two metal punts, four general-service barges, six tractors, and large road-construction plant (comprising ploughs, graders, scoops, disks, wagons, drays, roller, tramway material, two rail tractors, and about fifty tip trucks). The central depot at Kerepehi includes well-equipped stores, blacksmith's, engineering, and carpenter's shops, and slipway for docking dredges. Practically all stores and materials required for construction are received at the Kerepehi stores depot for distribution to the various works.

## SURVEYS.

Engineering and hydrographic surveys carried out during the year required  $7\frac{1}{2}$  miles of theodolite and  $14\frac{1}{2}$  miles of compass survey and  $129\frac{1}{2}$  miles of levelling. Much routine work is necessary in connection with the preparation of plans and quantities for contracts, monthly measurements of quantities excavated by dredges, and setting out works. Over 200 cross-sections of streams and canals were taken, and some of these at the mouth of the Piako River are of considerable length. Some 385 borings, varying in depth from 3 ft. to 28 ft., were made for determining the subsurface conditions of the swamp. Investigations in connection with flood control and drainage have also been carried out in adjoining districts.

## FLAX LEASES.

Some nine flax leases are in operation, covering a total area of 3,095 acres, on which the annual rental totals £1,377 15s. 6d. The actual revenue received for the year amounted to £1,140 16s.

## GRAZING AREAS.

The area leased for grazing purposes under temporary tenancies is 9,422 acres, divided into forty-eight holdings. The annual rentals total £755, and £586 8s. 1d. was collected during the period under review.

## ARTESIAN-WELL BORES.

No new artesian wells were sunk during the year, but to date 219 wells have been completed at a cost of £7,185 6s. 8d. The greater portion of this amount has been, or is, recoverable from settlers. Interest is charged on outstanding amounts. During the year £94 10s. 6d. was collected—viz. : principal, £49 5s. 6d. ; interest, £45 5s.

## WORKS EXPENDITURE.

The total expenditure was £47,009 14s. 8d., of which £27,858 12s. 2d. was paid from Thames Imprest Account. Day labour amounted to £27,814 9s. 7d., and fifty-five piecework contracts were completed entailing an expenditure of £5,305 9s. 1d. The drainage rate struck for the rating-year 1927-28 totalled £7,871 14s. 9d., for which 554 rate notices were issued. The sum of £7,071 6s. 7d. was collected during the year.

## FUTURE PROPOSALS.

The principal works to be undertaken during the next financial year are as follows:—

1. Dredging Piako River and improvement of stop-banks.
2. Continuation of Waitakaruru—Maukoro Canal.
3. Continuation of flood-prevention, drainage-works, and roading in the Awaiti District.
4. Construction of stop-banks on southern boundary of the Kerepechi Block.
5. Construction of Whakahoro Relief Canal through the Tahuna District.
6. Metalling main road between Kaihere Wharf and north end of Puhanga Canal.

## GENERAL.

The field and office staff has been actively engaged on the general supervision of the works, together with the necessary surveys, preparation of plans, specifications, vouchers, &c., and general office work.

I desire to place on record my appreciation of the manner in which all employees have co-operated in carrying out the undertakings of the Department.

I have, &c.,  
 R. G. MACMORRAN,  
 Chief Drainage Engineer.

The Under-Secretary for Lands, Wellington.

## HAURAKI PLAINS SETTLEMENT ACCOUNT.

## RECEIPTS AND PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 1928.

<i>Receipts.</i>			<i>Payments.</i>		
			£	s.	d.
To cash in Public Account, 1st April, 1927	..	12,359	2	10	
Debentures issued	..	40,000	0	0	
Temporary transfers from other accounts	..	15,000	0	0	
Sales of land	..	274	15	6	
Rents	..	9,010	8	2	
Interest on sales of land	..	55	7	11	
Interest on investments	..	209	3	9	
Artesian-well boring—					
Repayment of advances	..	49	5	6	
Interest	..	45	5	0	
			94	10	6
Rates	..	7,348	2	5	
Tram-freights	..	605	7	9	
Law-costs	..	30	9	1	
Miscellaneous services	..	3,696	11	4	
Proceeds from sale and transfer of plant to other works	..	285	8	4	
		£88,969	7	7	
By Drainage-works, stop-banks, clearing channels, and other expenditure incidental to conducting drainage operations (including metalling and formation of roads), material supplied, &c.	..	25,911	13	4	
Machinery and plant	..	214	16	6	
Loose tools	..	3	12	0	
Material and stores	..	3,075	15	2	
Fuel	..	4,784	17	10	
Maintenance of completed works	..	7,476	16	7	
Management and engineering expenses	..	2,802	4	4	
Refunds of rents	..	52	6	5	
Refunds of rates	..	291	4	2	
Cost of acquisition of land and compensation for works on private lands	..	359	10	0	
Recoupment of rates to Consolidated Fund	..	13	2	11	
Interest recouped to Consolidated Fund	..	8,000	0	0	
Interest paid on temporary transfers from other accounts	..	587	19	0	
Temporary transfers from other accounts repaid	..	25,000	0	0	
Cash in Public Account, 31st March, 1928	..	10,395	9	4	
		£88,969	7	7	

## REVENUE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 1928.

<i>Dr.</i>			<i>Cr.</i>		
			£	s.	d.
To Interest on debentures issued under Hauraki Plains Settlement Act, 1926	..	30,181	12	8	
Interest on expenditure from Public Works Fund	..	202	16	0	
Maintenance on completed works	..	6,303	12	9	
Rebate of rent	..	588	14	9	
Rebate of rates	..	90	0	5	
Remissions of rent	..	1,261	6	0	
Irrecoverable rents, &c.	..	120	10	1	
Irrecoverable rates	..	1,093	4	3	
		£39,841	16	11	
By Accrued rents	..	11,564	0	11	
Rates	..	8,165	4	1	
Interest on investments	..	209	3	9	
Interest on sales of land	..	276	16	7	
Interest allowed on sinking-fund contributions	..	312	15	7	
Miscellaneous	..	589	3	11	
Net loss carried down	..	18,724	12	1	
		£39,841	16	11	
To Net loss brought down	..	18,724	12	1	
Balance from previous year	..	47,268	11	3	
Adjustment on account of previous year	..	82	19	6	
		£66,076	2	10	
By Interest allowed on Sinking Fund contributions to 31st March, 1927	..	1,968	11	9	
Balance	..	64,107	11	1	
		£66,076	2	10	

HAURAKI PLAINS SETTLEMENT ACCOUNT—*continued.*

## BALANCE-SHEET AS AT 31ST MARCH, 1928.

<i>Liabilities.</i>				<i>Assets.</i>					
Capital Account—				Improved land handed over to Land Board for settlement—					
Debentures issued under Hauraki Plains Act, 1926 .. ..	£	s. d.	£	s. d.	£	s. d.	£	s. d.	
Expenditure from Public Works Fund .. ..	740,000	0 0			182,783	5 0			
Value of Crown land set apart under the Act .. ..	5,070	0 0			18,768	5 0	201,551	10 0	
			790,070	0 0					
Discharged Soldiers Settlement Account (merged interests under section 20, Discharged Soldiers Settlement Amendment Act, 1923) .. ..				116	0 0	Unpaid purchase price of land sold on deferred payment .. ..			
Consolidated Fund—						Unimproved lands not yet disposed of .. ..			
Interest on debentures under Local Bodies' Loans Act, 1908 .. ..	£	s. d.			Improvements on adjoining Crown lands .. ..				
Interest on expenditure out of Public Works Fund .. ..	22,083	6 8			Permanent reserves .. ..				
Rates unpaid, 1917–21 .. ..	4,056	0 0			Works in progress—Expenditure on land in process of reclamation, including formation and metalling of roads .. ..				
	48	2 4	26,187	9 0	Artesian wells—				
					Crown tenants, Hauraki Plains				
Interest on debentures under Hauraki Plains Act, 1926 .. ..	97,561	16 3			Permanent reserves and Crown lands .. ..				
Less accumulated losses written off under section 22 of the Finance Act, 1927 (No. 2) .. ..	55,722	16 5			Buildings .. ..				
			41,838	19 10	Wharves .. ..				
Interest on debentures, accrued but not due .. ..			5,910	6 0	Machinery and plant .. ..				
Sundry creditors .. ..			4,160	3 9	Live-stock .. ..				
Rents, &c., paid in advance .. ..			215	18 9	Loose tools .. ..				
Rents charged in advance .. ..			2,795	0 0	Stores and fuel .. ..				
Writings-off in suspense .. ..			79	14 4	Sundry debtors for—				
Reserve Account .. ..			5,860	17 4	Rents, &c. .. ..				
					Instalments on principal on deferred-payment sales .. ..				
					Interest on deferred-payment sales .. ..				
					Interest on well-boring .. ..				
					Law-costs .. ..				
					Rates .. ..				
					Tram freights .. ..				
					Miscellaneous .. ..				
					Postponed rent .. ..				
					Writing-off in suspense .. ..				
					Revaluation Board determinations from 1st April, 1927, to 31st March, 1928—				
					Reduction in value of lands .. ..				
					Rents written off .. ..				
					Remissions of rent .. ..				
					Interest accrued, but not due on sales of land .. ..				
					Investment in Public Debt Redemption Fund .. ..				
					Revenue Account—Balance .. ..				
					Cash in hands of Post Office .. ..				
					Cash in Public Account .. ..				
			£877,224	9 0			£877,224	9 0	

J. B. THOMPSON, Under-Secretary for Lands.  
J. H. O'DONNELL, Controller of Accounts.

I hereby certify that the Receipts and Payments and Revenue Accounts and Balance-sheet have been duly examined and compared with the relative books and documents submitted for audit, and correctly state the position as disclosed thereby. The following comments are appended: (a) In the opinion of the Audit Office interest charged on works in progress should be capitalized; (b) a Bad Debts Reserve should be created; (c) suggestions in reference to the treatment of expenditure on lands already handed over for settlement have been made to the Department; (d) interest on the amount held in the Public Debt Redemption Fund has been compounded whereas there is no statutory provision therefor.—G. F. C. CAMPBELL, Controller and Auditor-General.

*Approximate Cost of Paper.*—Preparation, not given; printing (700 copies, including map), £42.

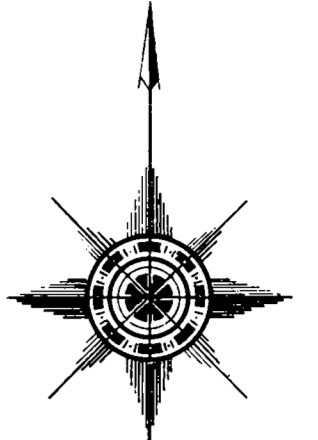
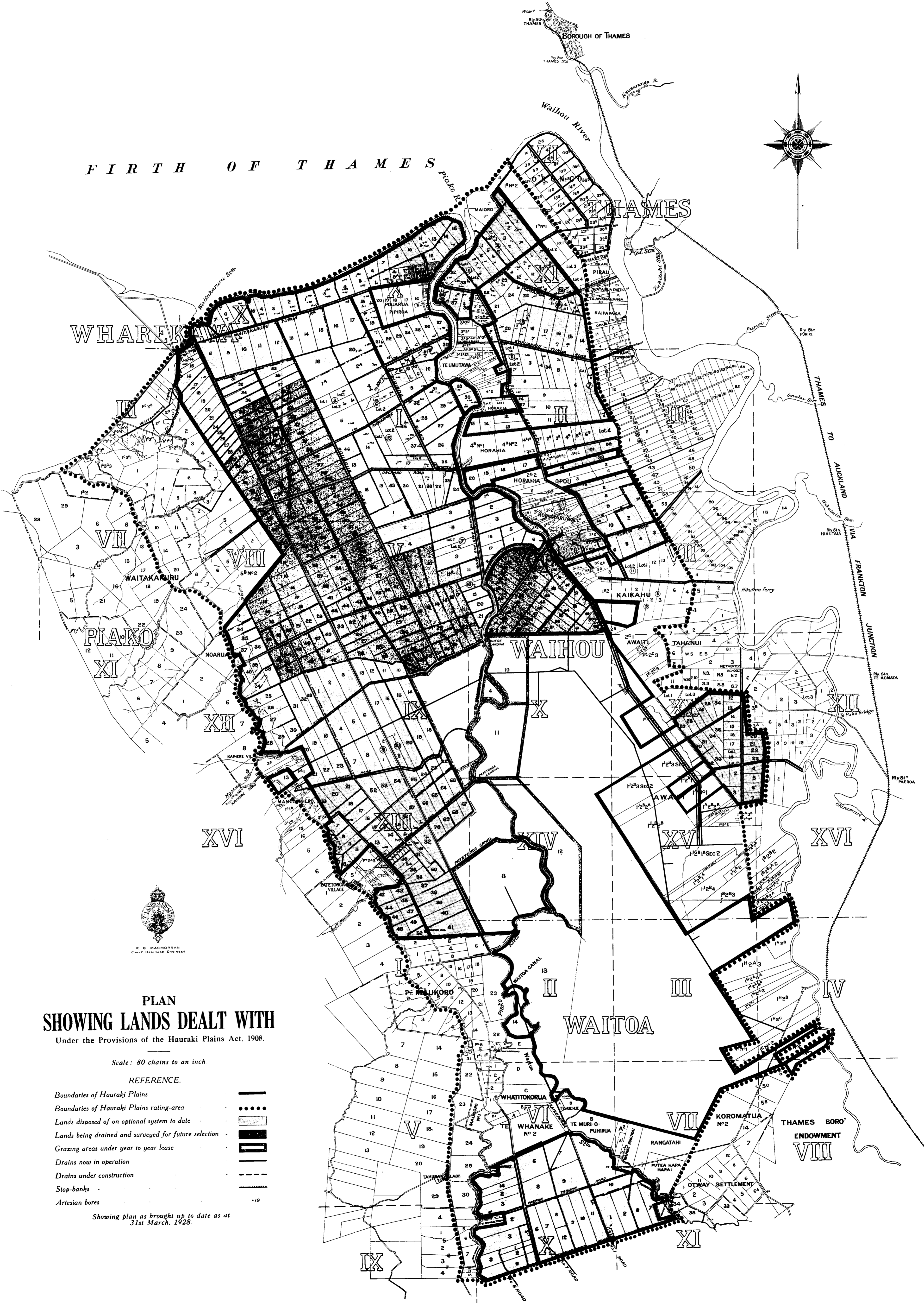
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# FIRTH OF THAMES



R. G. MACMORAN  
CHIEF DRAINAGE ENGINEER

## PLAN SHOWING LANDS DEALT WITH

Under the Provisions of the Hauraki Plains Act, 1908.

Scale: 80 chains to an inch

### REFERENCE.

- Boundaries of Hauraki Plains
- Boundaries of Hauraki Plains rating-area
- Lands disposed of on optional system to date
- Lands being drained and surveyed for future selection
- Grazing areas under year to year lease
- Drains now in operation
- Drains under construction
- Stop-banks
- Artesian bores



Showing plan as brought up to date as at  
31st March, 1928.

