1934.

NEW ZEALAND.

DEPARTMENT OF LANDS AND SURVEY.

DRAINAGE OPERATIONS IN HAURAKI PLAINS.

REPORT FOR THE YEAR ENDED 31ST MARCH, 1934, TOGETHER WITH STATEMENTS OF ACCOUNTS.

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

Department of Lands and Survey, Wellington, 1st August, 1934.

SIR,—

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.,

W. ROBERTSON,
Under-Secretary for Lands.

The Hon. E. A. Ransom, Minister of Lands.

REPORT OF CHIEF DRAINAGE ENGINEER.

SIR,—

I have the honour to submit the twenty-sixth annual report on the reclamation works carried out on the Hauraki Plains during the year ending 31st March, 1934.

The dairy-produce market remains depressed to a degree that has marked the past year as probably the most difficult period in the history of the settlement of the reclaimed swamp lands of the Hauraki Plains. The settlers on the Plains are essentially dairy-farmers, and, as the result of farm development and improved drainage, the output of dairy-produce has been rapidly expanding, particularly during recent years, when favourable seasons have been experienced. While precise forecasts of future developments are impossible, consideration of the present produce-market position suggests two fairly obvious lines of action to meet changed conditions—viz., (1) adoption of mixed-farming methods for more diversified production; (2) winter milking to spread production more evenly throughout the year. A few years ago these methods could not be recommended for the Hauraki Plains; but the level of efficiency and amenity prevailing throughout the district has been considerably raised during the past few years, and they can be adopted to-day. The result will be that, to the economic gain from year-round production will be added some small measure of social gain from unemployment relief. Another possible means of increasing returns and improving the pasture is the fattening of lambs. The railway now provides quick transport for lambs from the East Coast to the rich pastures of the Hauraki Plains, where, under suitable conditions, they fatten with remarkable rapidity, and at the same time they consume the surplus grass during the "flush" of the season. In view of the satisfactory prices received for fat lambs, the Plains farmers should look into the possibilities of definite gain in this direction.

Expansion along these lines will demand a very high state of efficiency in the drainage system, and it would be disastrous if, through a false sense of security, resulting from a succession of good seasons, or through financial difficulties, the drainage system were neglected. In one district, where the drainage system has recently been handed over by the Department to local-body control, the Board was unable to carry out the annual drain-cleaning last year, and it was only the exceptionally

favourable winter that prevented serious damage to the grasslands by flooding. No matter how great the difficulties, the settlers cannot afford to neglect drain maintenance; and, in fact, the trend of future developments will demand the improvement and extension of the existing system. The day when we can rest in the satisfaction that the district is fully improved and that more drainage and other public works would be wasteful is still far in the future, and, with the assistance offered under the various schemes to meet the needs of unemployment, much useful work can be accomplished at the present time.

The many trading concerns handling the produce of the district kindly supplied figures from which a fair indication of the annual volume of production from the Hauraki Plains can be obtained. Obviously, it is impossible to get complete returns of all produce from a large district, and the recorded returns are probably considerably below the actual returns. The total value of the recorded production for the fiscal year ending 31st March, 1934, is £422,000. The production figures for the year under review are given below and the figures for the previous year are also given in parentheses:—

	Tons.	Tons.
Butter	3,036¾	(2,754)
Cheese	2,895¾	(2,797)
Pigs	7,652	(6,046)
Calves	22,396	(23,262)
Miscellaneous stock	5,790	(6,556)
Flax	72½	(148)
Lime	10,000	..

Cargo received and shipped from the Piako River and Waitakaruru amounted to 9,452 tons as against 11,386 tons for the previous year.

Climatic conditions have been generally favourable to agricultural and pastoral activities for some years past. Rainfall and river discharge records show that no severe flood producing storms have been experienced since 1928, and very considerable improvement of the drainage conditions has been effected since that year. Observations of the effect of flood protection and drainage operations must of course be extended over a considerable period to determine the effectiveness of the works; but it is safe to say that the river-improvement works, though still incomplete, are at a stage when moderate floods are disposed of and the main drainage systems of the settled areas are generally efficient. A recurrence of the intensive storms which tax the capacity of even the most complete protective systems is, however, certain in the future, and it cannot be too strongly urged that lasting security is contingent on the completion of the river-improvement works which were stopped two years ago, and every effort should be made to complete the scheme when economic conditions improve.

The rainfall at Kerepeehi for the year 1933 was below the average for the district. Rain fell on 177 days, distributed fairly evenly throughout the year with the exception of the spring months, when the grass-growth was somewhat affected by an unusual scarcity of rain.

The rainfall records for Kerepeehi since 1915 are as follows:—

Records of Daily Precipitation, Kerepeehi, Hauraki Plains.

Year.	Number of Days, with given Daily Precipitation in Inches.												Total Days.	Total Fall.	Wettest Month.		Driest Month.	
	0·00 to 0·49.	0·50 to 0·74.	0·75 to 0·99.	1·00 to 1·24.	1·25 to 1·49.	1·50 to 1·74.	1·75 to 1·99.	2·00 to 2·49.	2·50 to 2·99.	3·00 to 3·99.	4·00 to 4·99.	5·00 to 5·99.	6·00 to 7·00.					
1916 ..	109	12	9	7	2	3	..	1	..	..	1	..	..	144	52·19	Nov.	6·65	Feb.	1·05
1917 ..	131	11	4	4	3	..	1	1	1	..	..	..	..	156	45·61	Feb.	6·26	Jan.	0·65
1918 ..	145	14	6	4	..	1	..	..	1	..	..	..	..	171	44·06	Oct.	7·47	May	2·24
1919 ..	122	9	1	3	2	..	..	..	..	..	..	..	..	137	27·36	July	4·52	Dec.	0·89
1920 ..	85	7	10	3	1	1	3	2	..	..	..	..	..	112	43·16	Feb.	6·10	July	1·73
1921 ..	93	12	5	3	2	..	..	1	..	..	..	..	..	116	34·41	Oct.	5·89	Feb.	0·72
1922 ..	101	17	9	3	..	1	1	..	1	..	..	..	..	133	42·81	Feb.	6·62	April	1·73
1923 ..	151	6	5	4	..	1	1	..	..	..	..	..	1	169	47·04	April	9·76	Mar.	1·72
1924 ..	132	8	10	5	2	5	1	1	..	2	..	..	..	166	60·37	April	8·55	July	1·87
1925 ..	142	15	4	2	..	..	..	1	..	..	..	..	..	164	37·64	June	6·67	April	0·84
1926 ..	149	15	6	4	5	2	2	..	..	..	..	..	..	183	55·53	May	8·86	Feb.	1·79
1927 ..	159	10	6	5	..	4	..	..	..	..	..	..	..	184	45·33	July	6·29	April	2·01
1928 ..	125	7	9	2	3	2	2	1	..	..	..	..	..	151	47·30	May	7·52	Jan.	0·01
1929 ..	124	19	8	3	1	..	..	..	..	..	..	..	..	155	41·05	April	5·09	Feb.	0·74
1930 ..	131	4	2	2	3	..	2	2	..	..	..	..	..	146	37·72	Jan.	6·87	Dec.	0·80
1931 ..	144	10	7	..	4	..	..	..	..	2	..	..	..	167	43·23	July	7·80	Mar.	0·98
1932 ..	126	7	5	4	..	1	..	..	..	..	..	..	..	143	32·05	Feb.	4·95	Nov.	0·93
1933 ..	152	13	1	4	3	..	..	1	..	..	..	..	..	174	38·93	Feb.	6·54	Mar.	1·20
1934* ..	24	4	3	2	..	1	..	..	..	..	..	..	..	34	10·29	Feb.	5·27	Jan.	2·25

* First three months of year only.

Average annual rainfall over eighteen years is 43·10 in.

For some years past the construction activities of the Department have been planned to provide a maximum amount of manual labour, and, this year, preparations were made for considerably extending these works undertaken for the relief of unemployment. Provision was made for the employment of at least 250 men on sound undertakings on which each pound spent creates at least a pound of value. Nine relief-work camps have been established throughout the district; but, owing to the difficulty in getting men, these camps have not been filled, and apparently it will be necessary to close some of the camps without completing the works for which they were established. The largest number of men employed on the works was 252 in August and the least 189 in January. The average number of men employed during the year was 220, and this figure includes about 50 men engaged on standard work. Though the number of men employed on relief works fell very far short of expectations, a considerable amount of valuable work was accomplished. This includes road formation and metalling, drainage, stopbank construction, cutting scrub, and clearing land for settlement.

There is, on the Hauraki Plains, a vast field for the profitable employment of two or three hundred additional unemployed workers on the development of Crown land in preparation for permanent settlement. In one area of about 5,000 acres of peat land a considerable amount of drainage and roading has already been carried out; but, owing to the consolidation of the land in response to drainage, the drains now require deepening. This is essentially hand labour on which a large number of men could be given immediate employment. A large portion of the area has reached a stage when a comparatively small amount of additional work will make the land suitable for grazing, and when this condition is reached development is fairly rapid and a more or less natural process requiring only periodical attention to drains, and the cost of this work can be met by leasing the land for grazing until it is in a condition suitable for settlement.

Flax-milling has almost ceased in this district during recent years owing to the low ruling prices for hemp and tow, and, unfortunately, large quantities of millable flax have been damaged and destroyed by fires and stock. This is waste of a valuable asset.

Fortunately the present outlook is not without signs of improvement and hope for the rehabilitation of the industry. The future holds great possibilities for a very considerable fibre production from the vast areas of unreclaimed swamp in the district.

Until recently, the dredging of rivers and canals and the construction of stopbanks with mechanical excavating equipment occupied a prominent place in the construction activities of the Department. In July, 1932, most of the excavating plant was laid up for reasons of economy, and, since that date, only the most urgent work of this class has been carried out. In April, 1933, two of the eight serviceable dredges attached to the works were in commission, and since then only one plant has been operating.

The following table shows the total quantities excavated by the dredges during the past fourteen years:—

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.
1928–29	619,911	6·54d.
1929–30	595,565	6·25d.
1930–31	536,692	8·32d.
1931–32	390,611	7·99d.
1932–33	200,954	8·00d.
1933–34	116,224	5·96d.

No. 24 American Steam Dipper Dredge worked intermittently in the Pouarua Canal. Prior to the 1st April, 1933, the beginning of the year covered by this report, a shallow canal had been excavated for the entire length of the canal, a distance of 480 chains, and the upper reach of 100 chains had been deepened to finished grade as the dredge worked down stream. By December, 1933, the dredge had completed the deepening of the canal, having excavated 107,364 cubic yards in traversing 380 chains of canal. The average daily output was 652·8 cubic yards, and the cost was 5·31d. per cubic yard. The time that the plant was actually dredging was only 166 days in nine months; but stoppages were made to erect a new bridge behind the dredge and to remove two existing bridges and to replace them after the passage of the dredge. A temporary dam had been constructed in the Pouarua Canal, at its junction with the Waitakaruru–Maukoro Canal, to maintain a high water-level during construction, and, as a safeguard against excessive bank caving, the dredge was laid up for eight weeks while the canal water-level was gradually lowered. The crew was temporarily transferred to No. 23 Dredge in the Elstow Canal, and returned to No. 24 Dredge on the 18th February last to remove the dam and back-fill a temporary channel cut through the Canal Bank Road to float the dredge out. The plant is to be brought to Kerepeehi, and, at the end of the

year, it was moored in the Waitakaruru–Maukoro Canal above the main-highway bridge awaiting favourable conditions for crossing the Hauraki Gulf.

No. 23 American Steam Dipper Dredge worked during part of January and February, 1934, in the Upper Elstow Canal. This canal is excavated through very soft peat country, and, to bring about a gradual consolidation of the land, the canal water-level, which is controlled by a temporary dam, is being gradually lowered. As frequently happens in this class of land, there has been a certain amount of bank-caving, and the canal-bottom has risen in places after the water pressure has been reduced, and the dredge has been engaged in cleaning up the canal. In thirty-one working-days the dredge traversed 250 chains of canal and excavated approximately 8,300 cubic yards of material. The average daily output was 267·7 cubic yards and the unit-cost 11·69d. Possibly another clean up of the canal will be required before all control of the canal water-level is removed, and this will complete the Elstow-Awaiti Drainage scheme, an undertaking comprising main drainage for a catchment area of 31,500 acres and flood-protection, roading, and subsidiary drainage for about half the area.

No. 16 Bucyrus Excavator worked during April, 1933, filling gaps that had been left in the Awaiti Canal stop-banks during construction. Only 560 cubic yards were placed with the machine, and it was then laid up until February, 1934, when it was moved to the site of the pumping-station to excavate the foundations for the building and to be used as a crane. Guides have been suspended from the top of the 50 ft. boom, and the plant is now being used for pile-driving.

Details of the principal works carried out during the year in each district are given below :—

Kerepeehi-Awaiti District.

A party of eight to fourteen men has been engaged since February, 1933, constructing a new drain known as Bancroft's Drain between the intercepting canal and the Tirohia–Otway Road ; 250 chains of this drain was completed during the year, the quantity of excavation being 15,879 cubic yards. On completion of this work in March last the eight remaining men of the working party were transferred to a camp established on the Kerepeehi Block Extension, where they will be employed on the drainage and clearing of Crown land in preparation for permanent settlement. Another working party of fifteen to twenty-five men are camped at the Kaihere Ferry and engaged on the eradication of black-berry and noxious weeds on flax plantations and other Crown land. There were cleaned 1,609 chains of drains, and some widening and deepening of drains was carried out and 59 chains of new drains constructed. Two areas have been developed for small farms by draining, clearing, cultivating, and sowing with grass-seed. A milking-shed was erected on one farm, also fencing and other development work carried out. Maintenance of roads on the Kerepeehi Block has been attended to, and the formation of 32 chains of new road completed. During the year tenders were invited for a large land-drainage pump for the Kerepeehi Block. Twenty-one tenders were received, and the plant selected is a 33 in. Tangye centrifugal pump having a guaranteed capacity of 31,000 gallons per minute at 4 ft. head. The pump will be operated by a 90 h.p. electric motor. Pile-driving for the foundations of a pump-house have been commenced, and two large double-barrel road culverts, with sluice-gates for controlling the flow to the pumps, have been completed. Two hundred and fifty 40 ft. piles required for the pump-house foundations and fifty additional logs for general-construction require-ments were cut, hauled to the Waitoa River, and shipped to Kerepeehi. The staff in the workshops and depot at Kerepeehi has been considerably reduced, and the extra work entailed by the establish-ment of several relief-work camps, together with the issue of stores, general-construction work, and the maintenance and repair of machinery and plant has kept the depleted staff working at high pressure throughout the year. A party of twenty-four men has been transported daily from Thames to the Orongo Settlement, and has been engaged on the following works : Cleaning drains, 6 miles 42 chains ; widening and deepening drains, 8 miles 65 chains (11,858 cubic yards excavation) ; constructing new drains, 23 chains (1,012 cubic yards excavation) ; raising stop-banks (wheelbarrow work), 1 mile 36 chains (9,732 cubic yards material placed).

Waitakaruru District.

In May, 1933, the Miranda Drainage Scheme was completed. This scheme commenced in November, 1931, and was carried out by the Department for the Hauraki Plains County Council to provide drainage for an area of 4,700 acres of rich low-lying littoral swamp lying to the west of the Waitakaruru Township. To secure a subsidy from the Unemployment Board, the work was carried out by manual labour on the co-operative contract principle, and this necessitated the adoption of somewhat unusual construction methods, including the excavation of a canal 27 ft. wide with shovels and barrows. The complete scheme comprised the construction of 14½ miles of drain and 3 miles of foreshore stopbank, also several bridges and outlet structures. The total quantity of material excavated by manual labour was 108,404 cubic yards. An exceptionally high storm tide in the Hauraki Gulf in December last caused some damage to the stopbanks exposed to wave action, and a working party of from six to eight men has since been engaged repairing the damage and raising the stopbanks of the Kairito Canal. On the completion of the Miranda Scheme, the existing camp at Waitakaruru was taken over by the Department and enlarged to accommodate sixty men to be employed widening the Waitakaruru Stream Canal and raising the stopbanks. Actually, this camp has never been brought up to full strength, and the number employed on the work

has varied between eighteen and forty-two men. Sixty-six chains of canal has been widened and 11,500 cubic yards of excavated material placed in the stopbanks. A working party of from ten to twenty-six men, camped on the Maukoro Canal, completed the clearing of an area of 306 acres in the autumn of 1933, and the felled scrub was burnt and the land surface sown with grass. The men have since been engaged cleaning and improving drains and grubbing blackberry. The formation of a stock route from Ngatea to Waitakaruru, via the Orchard East Road and the Maukoro Canal Road, commenced last year, has been completed. This route will eventually form an important addition to the roading system of the district, and, although not yet formed to the standard required for general road traffic, it can now be used to divert travelling stock from the main highway. Drains of a total length of 23 miles 56 chains were cleaned in this district, 6,726 cubic yards was excavated in widening and deepening 2 miles 24 chains of existing drains, and 5,802 cubic yards excavated to complete 100 chains of new drain construction.

Mangatarata-Torehape District.

The cleaning of the Mangatarata Stream for a distance of 3 miles 30 chains was completed during the year by a party of from three to seventeen relief workers. The same party was also engaged on deepening drains through peat lands and clearing an area of 76 acres of scrub, which has since been subdivided into two small farms. At the end of the year the number of men in this party had decreased to three, and, as there does not appear to be any immediate possibility of increasing the number, the camp will be closed and the men transferred to other work.

Drainage and the formation of roads through peat land, with clay ballast conveyed by light railway from the pit in the foot-hills at Torehape, has occupied a gang of sixteen to twenty-eight men throughout the year. 5,910 fascines and 11,384 cubic yards of clay ballast were laid on 90 chains of road. The ballast was hauled four miles, and 60 chains of new light railway was laid, requiring 2,000 sleepers, which were cut from willows growing on the banks of the Waitoa and Piako Rivers. Some 415 cubic yards of shingle was removed from the Torehape Road Drain and used for ballasting the line; 10 miles 25 chains of drains were cleaned in this district, and 8,964 cubic yards of spoil was removed in widening and deepening 2 miles 24 chains of drains. An area of 56 acres at Mangatarata was ploughed in the spring and cultivated during the autumn, preparatory to sowing. This is part of an area to be selected under the small-farms scheme.

Patetonga District.

A special feature of the year's work in this district has been the large amount of drain improvement carried out. For this purpose a camp for twenty men was established at Patetonga; but the number of men employed has varied between eight and nineteen. The Waikaka Canal was cleaned and deepened for a distance of 60 chains, and this proved a difficult undertaking for manual labour, owing to the size of the canal and volume of water; 9,072 cubic yards of material was excavated to enlarge 4 miles 44 chains of main drains, and 16 miles 48 chains of drains were cleaned.

The metalling of the Patetonga Top Road, commenced in October, 1932, was completed in March, 1934. The total length of this road reconstructed and metalled is 350 chains. 2,590 cubic yards of metal was quarried, hand broken, and spread on the road during this year, and 220 chains of fairly heavy road reconstruction carried out; also additional metal was quarried for resurfacing Otani Street, Patetonga Township, and 10 chains of formation was widened on O'Dwyer's Road, preparatory to metalling. The cost of this roadwork was provided by the Hauraki Plains County Council, assisted by the Unemployment Board. Practically all the important roads in the Patetonga district have now been metalled, and this is an amenity much appreciated by the settlers.

Structural Work.

A large concrete road culvert having two 5 ft. by 4 ft. barrels and sluice gates operated by rack and pinion gear was constructed on the Kerepeehi Block. One 30 ft. span girder bridge, with hardwood piles and decking, was erected on the Pouarua Canal, and two similar bridges were dismantled and re-erected as the dredge passed down the canal. Four small bridges were erected to provide access to farms and several road culverts were extended to provide for road-widening. Fencing and a milking-shed were provided for a small farm at Kerepeehi. The installation of a large drainage pump previously mentioned has been commenced on the Kerepeehi Block. A temporary dam of steel sheet piles has been placed across the canal outlet and the site unwatered. The driving of 230 piles, 40 ft. long, required for the foundations of the pump-house, has been commenced.

Surveys.

Engineering surveys carried out during the year involved 15 miles 12 chains of traverse, 55 miles 41 chains of levels, 21 miles 51 chains of check levels, 211 cross sections of road and canal, and 100 borings.

Native and Crown land surveys of 2,050 acres subdivided into twenty-one sections were also carried out. A continuous record of river stage at several control points on the Piako River and one point on the Waitoa River was kept during the winter months.

Summary.

The total length of subsidiary drains constructed in connection with the Hauraki Plains Drainage Scheme to date is 754 miles 75 chains. The principal works carried out during the year are shown in the following tabular statement :—

	Length. Miles ch.	Excavation. Cub. yd.
Drains cleaned by manual labour	106 1	..
Drains widened and deepened by manual labour	18 20	37,236
Drains (new construction) by manual labour	5 57	28,406
Stopbanks raised by manual labour	3 12	21,766
Total excavation by manual labour		87,408
Streams and canals cleaned by manual labour	4 10	..
Canals deepened with dredges	9 0	116,224
		Metal.
Roads reconstructed and metalled	2 60	2,590
Roads formed	0 42	..
		Ballast.
Clay and shingle ballast delivered on peat road by light railway	1 10	11,799
3-ft.-gauge tramway laid	0 60	..
		Number.
Fascines used for road construction		5,910
		Acres.
Area sown in grass		306
Area ploughed and cultivated		71
Area cleared of scrub and rushes		124
		Number.
Road bridge (30 ft. span)		1
Farm-access bridges		4
Reinforced-concrete culverts having two 5 ft. by 4 ft. barrels with sluice-gates		2

Flax Leases.

Some four areas, totalling 3,964 acres, are leased for flax-growing purposes at an annual rental of £252, and £73 was collected during the period under review.

Grazing-area.

Some 8,252 acres in seventy holdings were leased under temporary tenancies at an annual rental of £499, and rent collected totalled £450.

Works Expenditure.

Expenditure totalled £18,963 9s. 7d. Drainage rates struck amounted to £1,572 0s. 11d., and £1,341 10s. 9d. was collected.

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

The Under-Secretary for Lands, Wellington.

HAURAKI PLAINS SETTLEMENT SCHEME.

RATE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 1934.

Dr.	£ s. d.	*Cr.*	£ s. d.
To Maintenance of completed works	1,126 11 4	By Balance brought forward	1,615 9 10
Rates in respect of area handed over to control of Hauraki Plains West Drainage Board	292 3 0	Rates levied	1,791 12 6
Remission of rates	202 16 3	Penalty, 10 per cent.	72 11 5
Balance	1,858 3 2		
	£3,479 13 9		£3,479 13 9

RECEIPTS AND PAYMENTS FOR THE YEAR ENDED 31ST MARCH, 1934.

Receipts.	Public Works Fund. £ s. d.	Consolidated Fund. £ s. d.	*Payments.*	Public Works Fund. £ s. d.	Consolidated Fund. £ s. d.
To Rates	..	1,386 6 1	By Drainage-works: Stop-banks, clearing channels and other expenditure incidental to conducting drainage operations (including formation and metalling of roads), materials supplied, &c.	13,479 11 9	
Law-costs	..	6 6 6	Materials and stores	1,801 14 11	..
Sale of land	592 11 2	..	Fuel	981 3 4	..
Rents and grazing-fees	..	8,586 16 2	Maintenance of completed works	..	1,213 9 2
Interest on sales of land	..	565 18 8	Management and engineering expenses	1,647 2 1	
Artesian-well boring: Interest on advances	..	4 15 4	Refund rent	..	12 11 2
Tram freights and ferry fares	..	198 1 3	Discharged Soldiers Settlement Account: Recoupment in respect of merged transactions	4 5 9	20 15 7
Instalments on buildings	..	21 0 10	Kaihere Ferry expenses	..	193 1 1
Credits in reduction of expenditure	8,681 3 5	446 7 8	Refund deferred-payments principal instalments to pay rent	64 2 2	..
Transfer expenditure to Treasury Adjustment Account	..	1,507 10 3	Refund amount credited to Consolidated Fund in error	..	1 15 6
Transfer expenditure to Public Works Fund	17,909 12 1	..	Cost of raising loans	..	101 0 0
			Transfer receipts to Treasury Adjustment Account	..	11,180 10 3
			Transfer receipts to Public Works Fund	9,205 6 8	..
	£27,183 6 8	£12,723 2 9		£27,183 6 8	£12,723 2 9

REVENUE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 1934.

Dr.	£ s. d.	*Cr.*	£ s. d.
To Interest on Public Works Fund capital	37,274 11 2	By Accrued rents	10,005 12 10
Kaihere Ferry expenses	193 1 1	Interest on sales of land	756 1 3
Kaihere Ferry: Half profit to County Council	3 3 0	Grazing-fees	133 2 8
Administration expenses	410 10 3	Ferry fares	199 7 3
Remissions of rent	614 0 1	Royalties	1 10 0
Remissions of interest	0 9 4	Miscellaneous services	479 4 9
Rebates	897 18 9	Interest allowed on sinking-fund contributions	395 15 3
Irrecoverable rents, &c.	201 3 2	Net loss carried down	27,739 12 10
Premiums on conversion	14 10 0		
Cost of raising loans	101 0 0		
	£39,710 6 10		£39,710 6 10
	£ s. d.		£ s. d.
To Net loss brought down	27,739 12 10	By Balance carried forward	202,290 9 7
Balance from previous year	174,550 16 9		
	£202,290 9 7		£202,290 9 7

HAURAKI PLAINS SETTLEMENT SCHEME—*continued.*

BALANCE-SHEET AS AT 31ST MARCH, 1934.

Liabilities.	£ s. d.	£ s. d.
Capital Account—		
Public Works Fund	832,972 4 7	
Value of Crown land set apart under Act	45,000 0 0	
		877,972 4 7
Discharged Soldiers Settlement Account: Merged transactions under section 20, Discharged Soldiers Settlement Amendment Act, 1923		424 1 11
Sundry creditors—		
Miscellaneous	831 5 4	
Departmental	19 14 7	
		850 19 11
Rent charged in advance ..	..	2,387 0 0
Rate Account	..	1,858 3 2
Payments in advance—		
Rent	31 16 10	
Rates	1 14 11	
Instalment principal, deferred payment sales	14 8 8	
Instalment interest, deferred payment sales	0 15 3	
Miscellaneous	0 1 0	
		48 16 8
Suspense Account	..	58 3 9
Writings-off in Suspense ..	..	278 7 5
Deposits by lessees: Surety against drain damage ..	..	10 0 0
Treasury Adjustment Account ..	..	203,697 2 1
		£1,087,584 19 6

Assets.	£ s. d.	£ s. d.
Improved lands handed over to Land Board for settlement—		
Leased	188,472 9 11	
Unleased	11,568 0 3	
Unpaid purchase-money for land sold on deferred payments	15,112 7 8	
		215,152 17 10
Unimproved value of land not disposed of ..		41,929 8 11
Improvements on adjoining Crown lands ..		7,710 0 0
Permanent reserves		8,851 0 0
Works in progress: Expenditure on land in course of reclamation, including formation and metalling of roads		550,783 5 1
Artesian wells—	£ s. d.	
Crown tenants: Hauraki Plains ..	421 10 9	
Permanent reserves and Crown lands	216 10 9	
		638 1 6
Buildings		4,825 17 1
Wharves		3,573 0 0
Machinery and plant		30,906 2 6
Live-stock		38 16 6
Loose tools		994 19 10
Stores and fuel		4,164 17 0
Stamps on hand		0 4 0
Sundry debtors—		
Rent	3,262 10 6	
Rates	3,388 7 5	
Instalment principal on deferred-payment sales	173 13 5	
Instalment principal on buildings	4 0 0	
Interest on well-boring ..	119 16 0	
Interest, deferred-payment sales	197 9 11	
Law-costs	81 7 10	
Tram freights and ferry fares ..	24 6 9	
Grazing	58 13 1	
Miscellaneous	5,232 8 1	
Departmental	863 13 0	
		13,406 6 0
Postponed rent		1,566 17 4
Postponed interest		117 8 11
Losses in Suspense		278 7 5
Interest accrued but not due		216 10 0
Premiums on conversion		130 10 0
Cash in Deposits Account		10 0 0
Revenue Account: Balance forward		202,290 9 7
		£1,087,584 19 6

W. ROBERTSON, Under-Secretary for Lands.
WM. E. SHAW, Accountant.

I hereby certify that the Rate 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: (1) In the opinion of the Audit Office interest charged on works in progress should be capitalized; (2) a Bad Debts Reserve should be created; (3) suggestions in reference to the treatment of expenditure on lands already handed over for settlement were made to and are at present under consideration by the Department; (4) that the accounts of the Auckland District Land Office and Chief Drainage Engineer, the audit of which has not yet been completed by the local audit Inspector, are in agreement with the Head Office books.—G. F. C. CAMPBELL, Controller and Auditor-General.

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