1913. NEW ZEALAND.

DRAINAGE OPERATIONS IN HAURAKI PLAINS:

REPORT FOR THE YEAR ENDED 31st MARCH, 1913; TOGETHER WITH STATEMENT OF ACCOUNTS.

Presented to both Houses of the General Assembly pursuant to Section 10 of the Hauraki Plains Act, 1908.

SIR,-

Department of Lands and Survey, Wellington, 2nd June, 1913.

I have the honour to submit herewith the report on the drainage operations in the Hauraki Plains for the past year, in accordance with the provisions of the Hauraki Plains Act, 1908.

The operations for the past year have been as successful as previously, and the area of land reclaimed and settled now amounts to 30,010 acres, occupied by 199 selectors, the area set apart under the Act for drainage and reclamation purposes being 90,000 acres.

The total expenditure under the Act has now been as follows :---

| | | | | | £ s. d. |
|---|----------|----|-----|-----|---------------|
| For the year ended 31st Marc | ch, 1908 | •• | •• | •• | 5,070 0 0 |
| ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | 1909 | •• | • • | • • | 11,672 5 6 |
| >7 | 1910 | •• | • • | •• | 22,235 2 11 |
| 22 | 1911 | •• | | | 32,103 14 0 |
| ** | 1912 | | | •• | 40,084 13 1 |
| •• | 1913 | | •• | • • | 26,608 1 3 |
| | | | | | |
| Total | | •• | •• | : | E137,773 16 9 |

The valuations of 30,347 acres subdivided for settlement and reserves amount to £160,010, and the valuation of the areas it is proposed to open during the present year amount to an additional £17,000.

During November and January I visited and inspected the works in progress and satisfied myself of the continued success of the operations, which are being carried on in a highly efficient and economical manner.

The detailed report of the Land Drainage Engineer (Mr. J. B. Thompson) sets forth the varied nature of the works performed under his supervision, necessitating much technical knowledge and business ability. His staff have continued to assist him with the greatest energy and zeal.

I have, &c.

The Hon. W. F. Massey, Minister of Lands.

JOHN STRAUCHON, Under-Secretary for Lands.

STATEMENT OF ACCOUNTS (AS REQUIRED BY SECTION 10 OF THE HAURAKI PLAINS ACT, 1908) FOR THE YEAR ENDED 31ST MARCH, 1913.

| | Receipts. | | | | Expenditure. | | | |
|----|--|-------------|----------|----------|--|---------|----|----|
| То | 1st April, 1912. Balance—Cash in Public Account | £ 7,521 | s. 10 | d. 11 | 31st March, 1913. By Expenditure— | £ | s. | d. |
| Тo | 31st March, 1913. Land-sales £1,245 0 Rents 5,167 19 Miscellaneous 451 16 | 0 1 4 | | | Travelling allowances and expenses, camp allowances, and general ex- penses of administration Purchase and equipment of dredges and launches, maintenance, and | 163 | 3 | 1 |
| | | 6,864 | 15 | 5 | and working-expenses | 3,514 | 14 | 11 |
| | Advances made by the New Zealar | nd | | | Buildings, maintenance of | 9 | 6 | 9 |
| | State-guaranteed Advances Office | e 15,000 | 0 | 0 | Drainage-works, clearing channels, building stop banks and all ex- | | | |
| | | | | | penses incidental thereto | 17.551 | 13 | 5 |
| | | | | | Tramways, cost of laying | 794 | 11 | 8 |
| | | | | | Compensation for lands acquired Payments on loans— | 662 | 0 | 9 |
| | | | | | Interest | 2,748 | 15 | 8 |
| | | | | | Repayment of principal | 1,163 | 15 | 0 |
| | | | | | Balance-Cash in Public Account | 2,778 | 5 | 1 |
| | | £29,386 | 5 6 | 4 | | £29,386 | 6 | 4 |
| | | | - | | | | | |

1-C. 8.

| | | 1 | JOAN A | ACCOUNT. | | | |
|------------|-------------------|--------------|--------|--|---------|------------|----|
| To Balance | 31st March, 1913. | £ 118 941 | s. d. | Ist April, 1912. | £ | s . | d. |
| To Dalance | | 110,041 | 1 3 | Bodies' Account (on original loan of £31,000) | 34,729 | 1 | 7 |
| | | | | 31st March, 1913. | | | |
| | | . · · · | | annum | 1,389 | 3 | 3 |
| | | | | State - guaranteed Advances | | | |
| | | | | No. 1 Loan-Balance | 4,784 | 7 | 6 |
| | | | | No. 2 ,, ,, | 4,784 | .7 | 6 |
| | | | | No. 3 ,, ,, | 4,821 | 17 | 6 |
| | | | | No. 4 ,, ,, | 9,043 | 10 | Å |
| | | | | No. 6 | 9 790 | 10 | ŏ |
| | | | | No. 7 | 9,868 | 15 | ŏ |
| | | | | No. 8 " " | 9,868 | 15 | 0 |
| | | | | No. 9 " " | 4,967 | 10 | 0 |
| | | £118,941 | 74 | | 118,941 | 7 | 4 |
| | | | | | | | |

REPORT BY LAND DRAINAGE ENGINEER.

SIR,-

I have the honour, in accordance with the provisions of the Hauraki Plains Act, 1908, to report upon the various operations carried out for the year ending on the 31st March, 1913.

As in previous years, the development and maintenance of the land-drainage system has been actively carried on, and every effort has been made to improve the existing drainage and road works. Naturally, with such a great mileage of this class we have had to carefully allocate available funds, and when the different details hereafter are considered it will be seen that the calls for maintenance are now considerable and ever increasing. As no county rates are paid by settlers on Hauraki Plains, naturally the upkeep of roads is a charge upon special grants and the Hauraki Plains Settlement Account.

During the past year some 2,540 acres of excellent drained country was made available for selection and is now in occupation. The total area now reclaimed and settled is 30,010 acres, and this area is occupied by some 199 selectors. This result may be fairly claimed as being very satisfactory, and represents the transformation of previously useless swamp into what will in the near future be some of the most valuable dairying-land in the district.

Very great strides have been made by the settlers in improving and grassing their holdings, and a considerable amount of cream has been sent away to the factories during the past year. Fortunately these selectors are very enthusiastic and progressive, which is a matter for congratulation, and every reasonable effort is being made to help them.

In each particular work dealt with hereafter, totals are given showing the position the various works have reached as at the 31st March, 1913, and details of all classes of work executed during the year are shown separately under the heading of "Works performed."

PRIESTMAN DREDGES.

Both dredger No. 1 and dredger No. 2 have been actively engaged during the past year in connection with the improvement of the Piako River, a total of 140,262 cubic yards of alluvial clay being excavated and deposited on the river-banks during the year, at an average cost of 3.05d. per cubic yard. This cost includes every charge against wages, supplies, repairs, idle time, holidays, and maintenance.

The dredges operated on the widening of some $4\frac{1}{4}$ miles of the Piako River between the Awaiti Stream and the Waikaka Canal. Between these points there was great restriction of the river cross-section, and this has been increased in width by an average of 20 ft. throughout. The flood-waters will now readily discharge instead of being "banked up" as in the past. The Awaiti^{*}Stream was also dredged and widened for some 10 chains.

It may be mentioned that considerable trouble was experienced in dealing with the many willowtrees met with *en route*.

The spoil excavated will in the future serve for stop-banks when developing the area in the locality. Our dredgemasters have, as in the past, evinced great interest in their work, which has been excellent and, moreover, economical.

WAITAKARURU-MAUKORO CANAL.

No work has been done on this canal by dredgers during the past year, as they were required for urgent work on the Piako River. However, the policy of stripping the peat for full width of 42 ft. by 5 ft. in depth has been prosecuted, and a length of 75 chains has been executed during the year. Trouble is experienced in carrying out this work throughout the year, as in midwinter the men cannot work up to their waists in "slurry" because of the cold, and in summer there is a scarcity of water for sluicing purposes.

To date some 189 chains of the canal is dredged, while the stripping ahead of dredging is now 85 chains. The stripping has exposed a heavy layer of timber throughout, and some of this has been "shot" out. Considerably less depth of peat has been found at the end of stripping than the original soundings taken some eight years ago roughly indicated.

WAIKAKA CANAL.

During the year an opportunity was taken while the river was low to deepen with dredger No. 2 the northern end of this canal. All traffic is now carried by this waterway, but some further little improvement will be made later on. The length of completed canal is 65 chains.

PIAKO RIVER IMPROVEMENTS.

The works detailed against "Priestman dredges" practically covers this heading.⁵ A special grant of £2,000 per annum for two years has been obtained for this work, out of which an amount of $\pounds 465$ 0s. 9d. has been expended for dredging, covering some four months of the past year, the cost of the remaining eight months' dredging, &c., being a charge against the Hauraki Plains Settlement Account. It is intended to make substantial improvements in addition to the present widening of the river, and some bad bends will be cut through to ease the river in flood-time. The work is very necessary owing to the extra amount of water being discharged into the Piako River through the active operations of the various Drainage Boards up-country.

As mentioned before, some $4\frac{1}{4}$ miles of river has been greatly improved by widening, but it will require some four months' work yet to complete the stretch. The fact of access roads from foothills trending towards the river makes the matter doubly important, as the dangers of navigation to different wharves during winter months will be greatly abated.

STOP-BANKS.

The present total length of stop-banks (or levees) completed to date is 27 miles 42 chains. No new banks were built during the year.

Considering everything, these stop-banks have stood remarkably well, and they are becoming quite consolidated. Where the country is "green" constant attention is paid to stop-banks, and they are maintained and improved from time to time. Close flax-planting at base of banks has proved very effectual in preventing erosion, and grass-seed is sown as required, and both will be continued in the future.

FORMED ROADS.

The total length of formed cart-roads—*i.e.*, drains on both sides of roads, along with formation -- is now 50 miles 28 chains, of which amount 5 miles 43 chains was converted from road-bank tracks during the past year, and some 5 miles 49 chains being new construction.

Drays and scoops have been utilized in blinding with sand some 4 miles 29 chains of peaty road formation, this being included in totals. Some 10,000 cubic yards of sand was used for blinding.

The time is rapidly approaching when the question of metalling a considerable length of the clay roads will be urgent.

ROAD-BANKS.

The total length of road-banks--i.e., spoil from road-drains removed about 4 ft. from edge thereof and spread—is 13 miles. These banks are from time to time converted into formed roads, and are necessarily a fluctuating quantity.

DRAINS IN OPERATION.

The total mileage of drains in operation is now 276 miles, and includes stop-bank drains, roaddrains, subdivisional drains, service-drains, and outfalls of all descriptions. This is an increase of 18½ miles during the past year.

At Waikaka and Waitakaruru very heavy work was experienced in deepening and widening several miles of old drains in the peat country. These old drains were practically closed up : the length so deepened and widened is given under the heading of "Works performed."

WAITOA AND PIAKO RIVERS : SNAGGING.

The Waitoa River has now been snagged for some 15 miles 75 chains, the length covered during the past year being 6 miles 45 chains. All this has been done with a special plant located on a floating pontoon. This work will shortly stop for the season, and be taken up again per medium of bullockteams "snigging," as the banks are now too high to economically work the barge. The total length of Piako River upper reaches now snagged is 8 miles 25 chains, the length covered

this year being 1 mile. It will be advantageous to do about 2 miles more on this river.

Both these works have been done out of special grants.

WHARVES.

The total number of wharves now in position is fourteen, three of these being erected during the past year, and one purchased.

Extensions were made to two of the above wharves, and also six low-water stages added to same. Alterations are about to be made to the lately acquired Waikaka jetty, and a breastwork will be built at the south end of the Puhanga spillway.

FLOOD-GATES.

The total number of gates now in position is fifty-seven, some five gates having been erected during the year. The simple type of gate is still being put in. All these gates will require to be renewed from time to time in reinforced concrete as circumstances warrant. At the outlets of floodgates some twelve flumings have been laid down. Improvements, &c., have been made to flood-gates as required, and all are now in very fair order.

BRIDGES, CULVERTS, ETC.

The total number of sill bridges to date is ninety; small bridges on piles, eight; one two-span bridge; and culverts, four.

PRIVATE TELEPHONE-LINE TO WORKS.

This line of 14 miles has now a considerable amount of work on it, as, in addition to our own, it carries wires of the Post and Telegraph Department. The private wire as been maintained as found necessary.

Buildings.

The total number of buildings on works comprises thirty-seven of all classes, and they used as workmen's quarters, wharf-stores, &c. Of this number four wharf-stores were built during the year. All are in very fair order.

FLOATING PLANT.

This consists of the following: Two Priestman grab dredgers complete, one steamer, four oillaunches, three pontoons, and sundry small punts. All are kept in good repair.

ARTESIAN BORING PLANT.

To date some fifty-nine bores have been sunk for settlers and the works. Of this number twentyeight were sunk during the year, one of these being situated on the pound-site, the balance being for settlers. Flows have ranged from 3,000 gallons to 100,000 gallons per diem.

The water still continues to be mineralized, but seems to suit stock very well indeed. Schedules of twenty-eight bores are attached hereto, and are of interest geologically.

The bores are being sunk for settlers on easy terms extending over periods that suit them. Repayments to date total £210 16s. 8d., of which amount £179 17s. 9d. was received during the year under review. All outstanding amounts will be collected in due course, so that no loss will accrue to the account. Only one plant is used on the works, and the value of bores sunk during the year is £646 18s. 6d.

LIGHT TRAM-LINE.

Owing to the strikes on the Continent the oil locomotive only arrived quite lately, and as the season was late the line to be laid down for purposes of carrying spoil to ballast peat roads was not proceeded with. Instead of this the rails and sleepers are to be used in connection with transport of road metal on Pipiroa-Waitakaruru Road.

WORKS PERFORMED DURING YEAR.

The following works have been executed under piecework conditions: Double drain and roadbank, 2 miles 18 chains; double drain and road formation, 1 mile 56 chains; widening road-drains and spreading spoil, 11 miles 48 chains; new drain and road formation, 25 chains; clearing scrub and stumping roads, 2 miles 23 chains; converting road-banks into roads, 1 mile 14 chains; cleaning road-drains, 34 miles 48 chains; new outlet drains, 4 miles 61 chains; deepening outlet drains, 8 miles 18 chains; cleaning outlet drain, 9 miles 60 chains; new subdivisional drains, 56 chains; deepening subdivisional drains, 4 miles 56 chains; cleaning subdivisional drains, 3 miles 16 chains; new stopbank drains, 1 mile 33 chains; deepening stop-bank drains, 51 chains; cleaning stop-bank drains, 22 chains; stripping peat, Waitakaruru Canal, 75 chains; snagging Piako River (upper reaches), 1 mile; removing heavy timber from drains, 3 miles 75 chains; fencing, 36 chains: distance covered, 93 miles 61 chains.

The following works have been executed by day labour: Blinding peat roads with sand (10,000 yards, approximate), 4 miles 29 chains; road formation, 3 miles 73 chains; new road-drains, 1 mile 17 chains; deepening road-drains, 4 miles 20 chains; cleaning road-drains, 23 miles 41 chains; cleaning road-drains, 66 chains; cleaning outlet drains, 3 miles 64 chains; strengthening stop-banks, 7 miles 11 chains; cleaning stop-bank drains, 4 miles 55 chains; new stop-bank drains, 1 mile 1 chain; timbering road-drain, 20 chains; discing and rolling roads, 13 miles; snagging Waitoa River, 6 miles 45 chains: distance covered, 79 miles 26 chains. Construction of—wharves, 3; flood-gates, 5; bridges, 19; flumings to gates, 12; sheds, 4. Artesian bores sunk, 28. Posts, 700. Poles, 300. Fascines, 1,500. Spoil removed by dredgers, 140,262 cubic yards.

Many other services of a maintenance nature have been done by day labour. A daily average of about 175 men have been employed on piecework contracts and day labour throughout the year. Day labour has again proved quite satisfactory.

Settlers on Hauraki Plains always have a preference both as regards piecework and day labour, and have done a lot of work during this past year.

CATTLE.

At the beginning of the financial year there were some sixty-nine head of Government stock on the ground standing a cost to the account of \$88 9s. 6d., after allowing for the sales of last year. Of this number there has now been sold by auction, &c., some forty-five head, giving a net return of \$193 9s. 3d. The balance of stock are still on the ground, but some of the number will be written off on account of deaths, &c., after mustering. When it is considered that the stock were depasturing only on rough drained country the result may be considered satisfactory.

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GRASS-SEED FOR SETTLERS.

As mentioned in last annual report, the matter of assisting the settlers to procure grass-seed to replace losses on account of ravages of crickets was to receive attention. Some fourteen settlers obtained seed-supplies at a cost of £276 7s. 5d., which amount was paid to sundry merchants by the Department, who in turn received promissory notes for the various amounts from the several settlers, and these debts are being met as they become due or are repaid upon any transfer of sections taking place.

FLAX AREAS.

The only flax area dealt with is situated at Waikaka, a sum of £58 3s. being realized on account of royalty for green flax. If flax keeps up in value there will be a fair quantity of green flax to dispose of in the locality of Waitakaruru.

METALLING OF ROADS.

During last financial year a special grant of $\pounds 3,500$ was obtained for this purpose, and tenders were twice called for various lengths of road. However, only one contract was let for supply and spreading of metal on Turua Road, at a cost of $\pounds 1,002$ 7s. 6d., and this is well under way. All other tenders were exorbitant, and it was decided to obtain quotes for supply only. One contract was thus let for the supply of 2,500 cubic yards of gravel at a total cost of $\pounds 1,062$ 10s. delivered at Pipiroa Wharf. This metal is being spread by the Department's own day labour, a light tram-line and trucks being used. The cost will very closely approximate our original estimate. Owing to the lateness of the season, it was decided not to put in hand any further work at present, but to do so in the spring.

It will be necessary to obtain some further steel rails and trucks for the coming season, as it is very apparent that metalling can be done much cheaper by the Department than by contract. In addition to the various roads earmarked for metalling last year, it is suggested that some metalling should be done on the various roads leading from the Piako River both east and west, and also that a further length of Pipiroa-Waitakaruru and Kopuarahi-Turua Roads should be metalled, these latter being important through roads.

SURVEYS.

During the year some 2,556 acres was surveyed into sections at Waikaka and Kerepeehi, for settlement and other purposes. Some of this was, however, recast, as the progress of drainage made it possible to cut the sections smaller.

Surveys of some Native lands had also to be undertaken on account of boundaries affecting us. The survey of further areas is now in hand.

VALUATIONS.

Up to date actual valuations have been made of some 30,347 acres that has been subdivided into rural farms, town and suburban sections, and sundry reserves, amounting in the aggregate to £160,010. No valuations of the areas it is intended to bring out during the coming year have as yet been made, but should approximate £17,000, judging from the position disclosed by present state of drainage locally.

WORKS EXPENDITURE DURING YEAR.

Piecework contracts absorbed the sums of $\pounds 7,121$ 0s. 7d. from the Hauraki Plains Settlement Account and $\pounds 462$ 5s. from special grants. Day labour absorbed a sum of $\pounds 7,955$ from the Hauraki Plains Settlement Account and $\pounds 2,453$ from special grants. All the above were paid from local imprest.

PRINCIPAL WORKS PROPOSED.

The principal works to be carried out during the current financial year are as follows :-----

- (1.) Improvements to Piako River.
- (2.) Continuance of cart-road formation.
- (3.) General drainage development of new areas for settlement and opening for selection of same.
- (4.) Prosecution of metalling of roads.
- (5.) Maintenance and improvements of general works.
- (6.) Survey of new areas.

LAND FOR TOWNSHIP AND VILLAGE SITES.

Arrangements have been made to purchase an area of 175 acres at Kerepeehi, and 25 acres at Waikaka, for above purposes, and in due course the land will be suitably subdivided.

LAND PROPOSED TO BE OPENED.

It is anticipated that some 2,000 acres of land at Waikaka will be available for selection towards the end of July, and that some months later a further 2,000 acres in the neighbourhood of Torehape and Waitakaruru will be sufficiently developed to permit of opening. The above land is all of good quality.

It may be mentioned that during the current year an area of probably 6,000 acres of Crown lands, consisting of swamp and hill country adjoining the Hauraki Plains and in the locality of Waitakaruru, will be ready for selection. This block will have the advantage of being roaded, this work now being in progress.

OFFICE.

Both office and drafting staffs have been kept very busy during the year, and a very considerable number of engineering surveys have also been done.

GENERAL.

The attached plan shows the position of operations as at end of financial year, and it will be noticed that a large scope of country is being dealt with. No effort is being spared to bring as much swamp land as possible into profitable use, and thus give effect to the Government's policy. My thanks are due to the Assistant Land Drainage Engineer, Mr. R. G. Macmorran, and all

My thanks are due to the Assistant Land Drainage Engineer, Mr. R. G. Macmorran, and all other members of the local staff, who have worked hard to ensure the success of all operations of office and field. I have, &c.,

The Under-Secretary, Department of Lands and Survey.

J. B. THOMPSON,

Land Drainage Engineer.

| | ARTESIAN BORE No. 32. | SECTION 2 | BLOCK XI | THAMES (MR FLYNN) |
|--------------|--------------------------|-------------|-------------|------------------------|
| D | D-4-ile | OBCHION 2, | Duth in Et | D.t.:l. |
| Deptn in Et. | 70 ft alarr | | Deptinnet. | Details. |
| 19 | 1910. Clay. | | 204 | 4 ft alies the |
| 81 | 2 it. sana. | | 208 | 4 it. sningle. |
| 94 | 13 it. clay. | | 284 | 26 ft. pumice sand. |
| 109 | 15 ft. sandy clay. | | 286 | 2 it. rotten timber. |
| 112 | 3 ft. pumice. | | 290 | 4 ft. sandy clay. |
| 116 | 4 ft. rotten wood. | | 292 | 2 ft. rotten timber. |
| 122 | 6 ft. pumice. | | 295 | 3 ft. clay. |
| 125 | 3 ft. rotten timber. | | 299 | 4 ft. pumice sand. |
| 130 | 5 ft. pumice sand. | | 300 | 1 ft. rotten timber. |
| 140 | 10 ft. sandy clay. | | 320 | 20 ft. pumice sand. |
| 143 | 3 ft. hard sand. | | 336 | 16 ft. hard sand, |
| 151 | 8 ft. sandy clay. | | 342 | 6 ft. sandy clay. |
| 155 | 4 ft. white clay. | | 345 | 3 ft. pumice sand. |
| 158 | 3 ft. clay. | | 347 | 2 ft. clay. |
| 164 | 6 ft. rotten timber. | | 354 | 7 ft. pumice sand. |
| 168 | 4 ft. sand. | | 357 | 3 ft. clay. |
| 205 | 37 ft. pumice sand. | | 375 | 18 ft. numice sand |
| 215 | 10 ft. drift sand. | | 381 | 6 ft clay |
| 218 | 3 ft rotten timber | | 441 | 60 ft numice sand |
| 228 | 10 ft drift sand | | 487 | 46 ft sandy clay |
| 234 | 6 ft clay | · · · · | 10, | to it, bailey only. |
| 201 | Total donth 197 ft | Elem 17.9 | | on twonty form harry |
| | 101a1 depth, 401 ft. | 10W, 17,2 | oo ganons p | er twenty-tour nours. |
| ARTE | SIAN BORE NO. 33 : SECTI | ION 9, BLOC | к XI, Тна | MES. (MR. W. E. HALE.) |
| Donth in Ft | Details | • | Donth in Ft | Dotails |

| Depth in Ft. | Details. | | Depth in Ft. | Details. |
|--------------|-----------------------|----|--------------|----------------------|
| 125 | 125 ft. clay. | | 272 | 2 ft. rotten timber. |
| 140 | 15 ft. sandy clay. | | 292 | 20 ft. drift sand. |
| 144 | 4 ft. hard sand. | | 294 | 2 ft. shingle. |
| 152 | 8 ft. sandy clay. | | 300 | 6 ft. drift sand. |
| 156 | 4 ft. white clay. | | 305 | 5 ft. elay. |
| 158 | 2 ft. hard stone. | | 310 | 5 ft. pumice sand. |
| 169 | 11 ft. clay. | | 314 | 4 ft. rotten wood. |
| 171 | 2 ft. rotten timber. | · | .319 | 5 ft. sandy clay. |
| 176 | 5 ft. pumice sand. | | 322 | 3 ft. rotten wood. |
| 186 | 10 ft. rotten timber. | | 357 | 35 ft. hard stone. |
| 207 | 26 ft. pumice sand. | | 369 | 12 ft. sandy clay. |
| 209 | 2 ft. rotten timber. | | 370 | 1 ft. rotten wood. |
| 229 | 20 ft. pumice sand. | | 389 | 19 ft. pumice sand. |
| 237 | 8 ft. drift sand. | | 390 | 11 ft. rotten wood. |
| 242 | 5 ft. rotten timber. | | 393 | 3 ft. pumice sand. |
| 255 | 13 ft. pumice sand. | | 410 | 17 ft. sandy clay. |
| 259 | 4 ft. clay. | | 466 | 56 ft. hard sand. |
| 270 | 11 ft. pumice sand. | C1 | | |

Total depth, 466 ft. Flow, nil.

ARTESIAN BORE No. 34 : SECTION 11, BLOCK XI, THAMES. (MR. CLEVELY.) Depth in Ft. Depth in Ft. Details. Details. 23295 ft. clay. 95 4 ft. rotten timber. 8 ft. sand. 236103 4 ft. pumice sand. 237100 🦉 📕 7 ft. clay. 1 ft. rotten timber. 2404 ft. pumice sand. 12111 ft. sandstone. 13211 ft. clay. 25413 ft. white clay. 140 163 262🖉 8 ft. hard sand. 8 ft. pumice sand, 2664 ft. clay. 23 ft. pumice sand. 27610 ft. pumice sand. 1696 ft. rotten timber. 2 ft. shingle. 178 9 ft. drift sand. 2782802 ft. clay. 19618 ft. pumice sand. 33252 ft. pumice sand. 1971 ft. rotten timber. 337 $\mathbf{210}$ 13 ft. pumice sand. 5 ft. rotten timber. 405213 3 ft. rotten timber. 68 ft. pumice sand. 4092163 ft. white clay. 4 ft. rotten timber. 22812 ft. pumice sand. 440 31 ft. clay.

Total depth, 440 ft. Flow, 17,260 gallons per day.

. . .

| | ARTESIAN BORE NO. 35: | SECTION 4 | , BLOCK XI, | THAMES. (MR. C. A. | RAU.) |
|------------|-----------------------|-------------|---------------|-----------------------|-------|
| Depth in F | t. Details. | | Depth in Ft. | Details. | |
| 48 | 48 ft. clay. | | 247 | 3 ft. rotten timber. | |
| 63 | 15 ft. rotten timber. | | 285 | 38 ft. pumice sand. | |
| 79 | 16 ft. clay. | | 299 | 14 ft. rotten timber. | |
| 99 | 20 ft. pumice sand. | | 307 | 8 ft. clay. | |
| 119 | 10 ft. rotten timber. | | 319 | 12 ft. pumice sand. | |
| 123 | 4 ft. pumice sand. | | 321 | 2 ft. rotten timber. | |
| 147 | 24 ft. clay. 🐲 | | 408 | 87 ft. pumice sand. | |
| 149 | 2 ft. rotten timber. | | 418 | 10 ft. rotten timber. | |
| 159 | 10 ft. sandy clay. | | 436 | 28 ft. pumice sand. | |
| 164 | 5 ft. rotten timber. | | 441 | 5 ft. rotten timber. | |
| 168 | 4 ft. sandy clay. | | 449 | 8 ft. pumice sand. | |
| 185 | 17 ft. hard sand. | | 464 | 15 ft. white clay. | |
| 204 | 19 ft. sandy clay. | | 470 | 6 ft. pumice sand | |
| 207 | 3 ft. pumice sand. | | 478 | 8 ft. clay. | |
| 214 | 7 ft. white clay. | | 488 | 10 ft. sandstone. | |
| 234 | 20 ft. rotten timber. | | 496 | 8 ft. rotten timber. | |
| 244 | 10 ft. pumice sand. | | 556 | 60 ft. sandy clay. | |
| | Total depth | , 556 ft. F | low, 34,560 g | allons per day. | |

| ARTESIAN | Bore No. 36 : Sections 5 | AND 6, BLO F. J. CH | CK XI, 7 RISTIE.) | HAMES. | (Messrs. H | . Grundy | AND |
|-------------|---------------------------|------------------------|----------------------|--------------|-------------|----------|-----|
| Depth in Ft | . Details. | | , Depth in F | 't. De | etails. | | |
| 43 | 43 ft. clay. | ĺ | 270 | 16 ft. | hard sand. | | |
| 53 | 10 ft. rotten timber. | | 278 | 8 ft. | rotten timb | er. | |
| 82 | 29 ft. clay. | | 310 | 32 ft. | sandy clay. | | |
| 97 | 15 ft. rotten timber. | | 319 | 9 ft. | rotten timb | er. | |
| 107 | 10 ft. clay. | ľ | 326 | 7 ft. | pumice san | d. | |
| 128 | 21 ft. sandy clay. | | 330 | 4 ft. | rotten timb | er. | |
| 140 | 12 ft. rotten timber. | | 360 | 30 ft. | pumice san | d. | |
| 156 | 16 ft. hard sand. | | 371 | 11 ft. | rotten timb | er. | |
| 192 | 36 ft. sandy clay. | | 379 | 8 ft. | clay. | | |
| 197 | 5 ft. hard sand. | | 392 | 13 ft. | sandstone | | |
| 227 | 30 ft. shingle. | 1 | 393 | 1 ft. | shingle. | | |
| 235 | 8 ft. rotten timber. | | 433 | 40 ft. | pumice san | d. | |
| 242 | 7 ft. pumice sand. | | 436 | $3 { m ft.}$ | clay. | | |
| 246 | 4 ft. rotten timber. | | 440 | 4 ft. | rotten timb | er. | |
| 252 | 6 ft. pumice sand. | | 452 | 12 ft. | pumice san | d. | |
| 254 | 2 ft. rotten timber. | | | | - | | |
| | [*] Total depth, | 452 ft. Flow | r, 4,800 g | allons per | r hour. | | |

(MESSES. PEAT AND WILSON.) 8 BLOCK XI THAMES 977 а.

| ARTESIAN D | ORE NO. 31: SECTIONS (AND O, DL | OCK AI, IH | AMES. (MESSRS. IEAI AND | ** |
|--------------|-----------------------------------|--------------|-------------------------|-----|
| Depth in Ft. | Details. | Depth in Ft. | Details. | |
| 49 | 49 ft. clay. | 260 | 18 ft. pumice sand. | • • |
| 70 | 21 ft. rotten timber. | 264 | 4 ft. rotten timber. | |
| 95 | 25 ft. clay. | 272 | 8 ft. pumice sand. | |
| 115 | 20 ft. pumice sand. | 274 | 2 ft. rotten timber. | |
| 160 | 45 ft. drift sand. | 319 | 45 ft. pumice sand. | |
| 172 | 12 ft. shingle. | 324 | 5 ft. rotten timber. | |
| 175 | 3 ft. rotten timber. | 370 | 46 ft. pumice sand. | |
| 182 | 7 ft. pumice sand. | 372 | 2 ft. clay. | |
| 184 | 2 ft. rotten timber. | 374 | 2 ft. pumice sand. | |
| 197 | 13 ft. pumice sand. | 380 | 6 ft. rotten timber. | |
| 199 | 2 ft. rotten timber. | 389 | 9 ft. pumice sand. | |
| 214 | 15 ft. clay. | 394 | 5 ft. rotten timber. | |
| 216 | 2 ft. rotten timber. | 438 | 44 ft. pumice sand. | |
| 227 | 11 ft. pumice sand. | 466 | 28 ft. drift sand. | |
| 242 | 15 ft. clay. | | | |
| | Total depth, 466 ft. Flow, 11,5 | 20 gallons p | er twenty-four hours. | |
| A | ARTESIAN BORE NO. 38: SECTION 37, | Вьоск Х, | THAMES. (MR. SCHWARZ.) | |
| Depth in Ft. | Details. | Depth in Ft. | Details. | |
| 48 | 48 ft. clay. | 166 | 2 ft. rotten timber. | |
| 70 | 22 ft. pumice sand. | 179 | 13 ft. pumice sand. | |
| 73 | 3 ft. rotten timber. | 184 | 5 ft. rotten timber. | |
| 87 | 14 ft. pumice sand. | 214 | 30 ft. pumice sand. | |
| 89 | 2 ft. rotten timber. | 217 | 3 ft. rotten timber. | |
| 117 | 28 ft. pumice sand. | 227 | 10 ft. pumice sand. | |
| 121 | 4 ft. clay. | 245 | 18 ft. white clay. | |
| 149 | 28 ft. drift sand. | 253 | 8 ft. sand. | |
| 156 | 7 ft. shingle. | 258 | 5 ft. rotten timber. | |
| 164 | 8 ft. pumice sand. | 273 | 15 ft. pumice sand. | |
| | | | | |

Total depth, 273 ft. Flow, 160 gallons per hour.

ARTESIAN BORE No. 39 : SECTION 32, BLOCK X, THAMES. (MR. W. J. ABBOTT.)

| Depth in Ft. | Details. | Depth in Ft. | Details. | |
|--------------|-----------------------|--------------|----------------------|--|
| 53 | 53 ft. clay. | 225 | 4 ft. rotten timber. | |
| 80 | 27 ft. hard sand. | 237 | 12 ft. pumice sand. | |
| 93 | 13 ft. rotten timber. | 239 | 2 ft. rotten timber. | |
| 101 | 8 ft. sand. | 253 | 14 ft. pumice sand. | |
| 104 | 3 ft. clay. | 261 | 8 ft. rotten timber. | |
| 128 | 24 ft. drift sand. | 280 | 19 ft. pumice sand. | |
| 131 | 3 ft. rotten timber. | 282 | 2 ft. clay. | |
| 134 | 3 ft. sand. | 286 | 4 ft. pumice sand. | |
| 137 | 3 ft. rotten timber. | 289 | 3 ft. rotten timber. | |
| 142 | 5 ft. pumice sand. | 297 | 8 ft. pumice sand. | |
| 145 | 3 ft. rotten timber. | 301 | 4 ft. rotten timber. | |
| 152 | 7 ft. clay. | 342 | 41 ft. pumice sand. | |
| 156 | 4 ft. rotten timber. | 345 | 3 ft. rotten timber. | |
| 164 | 8 ft. sandy clay. | 356 | 11 ft. pumice sand. | |
| 166 | 2 ft. rotten timber. | 358 | 2 ft. rotten timber. | |
| 174 | 8 ft. pumice sand. | 364 | 6 ft. pumice sand. | |
| 177 | 3 ft. rotten timber. | 365 | 1 ft. rotten timber. | |
| 221 | 44 ft. pumice sand. | | | |

Total depth, 365 ft. Flow, 180 gallons per hour.

ARTESIAN BORE NO. 40 : SECTION 33, BLOCK X, THAMES. (MR. T. PRENDERGAST.)

| Depth in Ft. | Details. | Depth in Ft. | Details. |
|--------------|----------------------|--------------|----------------------|
| 54 | 54 ft. clay. | 229 | 3 ft. rotten timber. |
| 58 | 4 ft. rotten timber. | 237 | 8 ft. pumice sand. |
| 64 | 6 ft. hard stone. | 239 | 2 ft. rotten timber. |
| 66 | 2 ft. clay. | 254 | 15 ft. pumice sand. |
| 87 | 21 ft. black sand. | 255 | 1 ft. rotten timber. |
| 94 | 7 ft. rotten timber. | 267 | 12 ft. pumice sand. |
| 117 | 23 ft. pumice sand. | 272 | 5 ft. rotten timber. |
| 119 | 2 ft. shingle. | 311 | 39 ft. pumice sand. |
| 132 | 13 ft. pumice sand. | 318 | 7 ft. sandy clay. |
| 136 | 4 ft. rotten timber. | 323 | 5 ft. pumice sand. |
| 158 | 22 ft. pumice sand. | 326 | 3 ft. rotten timber. |
| 167 | 9 ft. clay. | 338 | 12 ft. pumice sand. |
| 169 | 2 ft. rotten timber. | 340 | 2 ft. white clay. |
| 181 | 12 ft. clay. | 356 | 16 ft. pumice sand. |
| 188 | 7 ft. pumice sand. | 359 | 3 ft. clay. |
| 189 | 1 ft. rotten timber. | 362 | 3 ft. pumice sand. |
| 201 | 12 ft. pumice sand. | 370 | 8 ft. rotten timber. |
| 203 | 2 ft. shingle. | 425 | 55 ft. sandy clay. |
| 226 | 23 ft. pumice sand. | | |

Total depth, 425 ft. Flow, 160 gallons per hour.

ARTESIAN BORE NO. 41: SECTION 36, BLOCK X, THAMES. (MR. CLEAVER.) Details. Depth in Ft. Details. Depth in Ft. **4**9 49 ft. clay. 10 ft. shingle. 14828 ft. pumice sand. 2 ft. rotten timber. $\mathbf{59}$ 10 ft. drift sand. 17669 10 ft. pumice sand. 17898 29 ft. drift sand. 1824 ft. pumice sand. 108 10 ft. shingle. 1897 ft. white clay. 13830 ft. pumice sand. 23445 ft. pumice sand. سمو

Total depth, 234 ft. Flow, 160 gallons per hour.

| | ARTESIAN BORE No. 42: | Pound | RESERVE AT | r Pipiroa Township. |
|--------------|-----------------------|---------|--------------|----------------------|
| Depth in Ft. | Details. | • • • • | Depth in Ft. | Details. |
| 64 | 64 ft. clay. | | 181 | 4 ft. clay. |
| .97 | 33 ft. drift sand. | | 216 | 35 ft. pumice sand. |
| 102 | 5 ft. shingle. | | 235 | 19 ft. shingle. |
| 107 | 5 ft. rotten timber. | | 238 | 3 ft. rotten timber. |
| 123 | 16 ft. pumice sand. | | 261 | 23 ft. white clay. |
| 128 | 5 ft. rotten timber. | | 283 | 22 ft. blue clay. |
| 148 | 20 ft. pumice sand. | | 287 | 4 ft. rock. |
| 151 | 3 ft. rotten timber. | | 290 | 3 ft. sand. |
| 177 | 26 ft. pumice sand. | | 335 | 45 ft. white clay. |

Total depth, 335 ft. Flow, 3,840 gallons per day.



MAHUTA ROAD THROUGH CROWN BLOCK, ON WESTERN SIDE OF HAURAKI PLAINS.



MANUTA ROAD UNDER CONSTRUCTION, FROM EDGE OF SWAMP TO FOOTHLES.



WAITAKARURU STREAM BRIDGE AND COMMENCEMENT OF MAHUTA ROAD INTO CROWN BLOCK.



WHARF AT WAIKAKA, PIAKO RIVER.



NORTHERN STEAMSHIP COMPANY'S "VICTORY" ON PIAKO RIVER en route to Auckland.



OATS GROWING ON VIRGIN LAND AT WAIKAKA.

| | | 9 | | | U.—8. |
|------------------------|-----------------------------------|----------------------|--------------------------------|------------------|--|
| ARTESIAN H | SORE NO 43 : SECTIONS | 8 and 10. Block X | THAMES | (MESSES KNAPP | AND KEANE). |
| Donth in Ft | Datail | Donth i | ь Г 4 Т | Childono, Minari | And HEAME. |
| . Deptii m г t. 104 | 104 ft alay | Depth 1 | 11.121. 1 1. 91.ff | shingle | |
| 111 | 7 ft sand | 20 | 1 2110 | t drift sand | |
| 121 | 10 ft clay | 21 | 5 5 fr | t clay | |
| 121 | 3 ft sand | 21 | 9 4 ft | t rotten timber | |
| 134 | 10 ft. white clay. | 24 | 6 	 27 ft | t. blue clay. | |
| 139 | 5 ft drift sand | 26 | 6 20 ft | t white clay | |
| 146 | 7 ft. white clay. | 27 | -0 ft | z rotten timber | |
| 155 | 9 ft. numice sand | 33 | 1 60 ft | , sandy clay. | |
| 180 | 25 ft. drift sand. | | | · sallaj slaj · | |
| | Total depth | , 331 ft. Flow, 5,76 | 0 gallons p | er day. | |
| ARTES | AN BORE NO. 44 : SECT. | ION I. BLOCK X. W | HAREKAWA | . (Messrs, Harr) | (S BROS.) |
| Donth in Ft | Dataila | Denth i | nFrt í |)etails | |
| 64 | 64 ft elay | 112 | $\frac{1}{3}$ $\frac{1}{4}$ ft | sand | and the second |
| 79 | 15 ft. numice sand | 11 | 5 - 2 ft | rotten timber | |
| 89 | 10 ft. clay. | • 12 | 7 12 ft | s sandy clay. | |
| 101 | 12 ft. pumice sand. | 12 | $9 \qquad 2 \text{ ft}$ | , rotten timber. | |
| 109 | 8 ft. rotten timber. | 15 | 1 $22 ft$ | , pumice sand | |
| 100 | - 100 1000000 0- <u>1</u> 110-121 | atal donth 151 ft | Elem nil | P dimete source, | |
| | 1 | orai depen, 151 le. | rlow, un. | | |
| ARTESI | an Bore No. 45: Sect | ion 26, Block X, I | 'HAMES. (I | MR. F. H. BROCKI | EHURST.) |
| Dopth in Ft. | Details. | Depth i | n Ft. l | Details. | 1. A. 1. |
| 67 | 67 ft. clay. | 18 | 2 	2 	ft | . drift sand. | |
| 83 | 16 ft. pumice sand. | 18 | 4 2 ft | . clay. | station and |
| 88 | 5 ft. clay. | 18 | 7 3 ft | . drift sand. | |
| 100 | 12 ft. pumice sand. | 20 | 13 ft | . rotten timber. | |
| 103 | 3 ft. clay. | 20 | 8 8 ft | . pumice sand. | |
| 111 | 8 ft. pumice sand. | 21 | 5 7 ft | . rotten timber. | |
| 121 | 10 ft. clay. | 23 | $5 20 {\rm ft}$ | . pumice sand. | |
| 128 | 7 ft. drift sand. | 23 | 4 ft | . rotten timber. | |
| 139 | 11 ft. white clay. | 25 | 5 16 ft | . pumice sand. | |
| 147 | 8 ft. pumice sand. | 26 |) 5 ft | . drift sand. | |
| 180 | 33 ft. blue clay. | 900 H IN 17 90 | 00 11 | | |
| | Total deptn, | 200 It. Flow, 17,20 | so ganons I | ber day. | - |
| I | RTESIAN BORE NO. 46 : | SECTION 24, BLOCK | Х, ТНАМ | es. (Mr. C. Wait | 'Е.) |
| Depth in Ft. | Details. | Depth i | n Ft. D | Details. | |
| 64 | 64 ft. clay. | 250 | 8 9.ft | . rotten timber. | |
| 156 | 92 ft. pumice sand. | 26 | 3 5 ft | . sand. | |
| 181 | 25 ft. white clay. | 268 | 55 ft | rotten timber. | |
| 186 | 5 ft. sand. | 280 | 12 ft | . sandstone. | |
| 194 | 8 ft. clay. | 28 | 5 5 ft | . clay. | |
| 198 | 4 ft. sand. | 28 |) 4 it | . sand. | 1 a |
| 206 | 8 ft. rotten timber. | 31 | i 28 ft | blue clay. | |
| 210 | 4 ft. clay. | |) 3 ft | . pumice sand. | |
| 214 | 4 ft. rotten timber. | 328 | 8 8 ft | . clay. | |
| 220: | 6 ft. sand. | 33. | 5 7 ft | . pumice sand. | |
| 222 | 2 ft. rotten timber. | 34. | | . clay | 2 - A Congaine |
| 225 | 3 ft. sand. | 340 | | . pumice sand. | 1777 177 |
| 227 | 2 ft. rotten timber. | 348 | 3 2 it | . rock. | |
| 249 | 22 it. drift sand. | 392 | | . clay. | |
| | Total depth, | 352 ft. Flow, 5,76 |) gallons p | er day. | |
| ARTE | MAN BORE NO. 47 : SEC | TION 23, BLOCK X. | Thames. | (Messrs. Simpson | BROS.) |
| Depth in Ft. | Details. | Depth in | Ft. D | etails. | · · |
| 70 | 70 ft. clay. | 200 | 25 ft | . blue clay. | |
| 102 | 32 ft. drift sand. | 218 | 18 ft. | . rotten timber. | £., |
| 105 | 3 ft. clay. | 222 | 4 ft | . pumice sand. | |
| 108 | 3 ft. pumice sand. | 224 | 2 ft | . rotten timber. | |
| 109 | 1 ft. clay. | 285 | 61 ft | . drift sand. | |
| 124 | 15 ft. drift sand. | 287 | 2 ft | . rotten timber. | an an Thair an thair an thair |
| 129 | 5 ft. rotten timber. | 296 | 9 ft. | . pumice sand. | |
| 137 | 8 ft. clay. | 300 | 4 ft. | . shingle. | - 11 |

Total depth, 363 ft. Flow, 7,200 gallons per day.

41 ft. clay.

22 ft. black sand.

de la

30 ft. white clay. 5 ft. sand.

3 ft. pumice sand.

BC.<u>8</u>. Provide A. ARTESIAN BORE NO. 48: SECTION 21, BLOCK X, THAMES. (MR. S. S. MURRAY.) Depth in Ft. Details. Depth in Ft. Details. 73 ft. clay. 18 ft. drift sand. 73158752 ft. rotten timber. 166 8 ft. shingle. 10227 ft. pumice sand. 25488 ft. clay. 106 4 ft. clay. 2573 ft. sand. 118 12 ft. pumice sand. 2603 ft. rotten timber. 122 4 ft. clay. 2611 ft. sand. 1308 ft. pumice sand. 2654 ft. clay. 138 8 ft. clay. 2652 ft. rotten timber. 140 2 ft. shingle. 2769 ft. pumice sand. Total depth, 276 ft. Flow, 11,520 gallons per day. ARTESIAN BORE NO. 49 : SECTIONS 8 AND 9, BLOCK I, WAIHOU. (MESSRS. VOWELL AND PRICE.) Depth in Ft. Details. Depth in Ft. Details. 68 68 ft. clay. 1238 ft. black sand. 702 ft. rotten timber. 1285 ft. rotten timber. 83 13 ft. pumice sand. 1302 ft. pumice sand. 2 ft. rotten timber. 85 1333 ft. clay. 91 6 ft. clay. 1396 ft. pumice sand. 9 ft. pumice sand. 100 141 2 ft. clay. 102 2 ft. clay. 15413 ft. drift sand. 2 ft. pumice sand. 10421561 ft. clay. 108 4 ft. clay. 219 4 ft. sand. 1135 ft. pumice sand. 2223 ft. rotten timber. 115 2 ft. clay. 230 8 ft. drift sand. Total depth, 230 ft. Flow, 4,800 gallons per day. ARTESIAN BORE NO. 50: SECTION 3, BLOCK II, WAIHOU. (MR. W. E. G. WILLY.) Depth in Ft. Details. Depth in Ft. Details. 42 ft. clay. 421786 ft. pumice sand. 48 6 ft. rotten timber. 180 2 ft. rotten timber. 73 25 ft. clay. 19717 ft. pumice sand. 88 15 ft. pumice sand. 201 4 ft. rotten timber. 101 13 ft. clay. 2086 ft. pumice sand. 1054 ft. sand. 210 2 ft. rotten timber. 108 3 ft. clay. 22212 ft. pumice sand. 110 2 ft. sand. 2253 ft. rotten timber. 25 ft. pumice sand. 1199 ft. white clay. 2501223 ft. rotten timber. 2522 ft. rotten timber. 1253 ft. sand. 2553 ft. pumice sand. 128 3 ft. clay. 2616 ft. clay. 1335 ft. rotten timber. 2654 ft. pumice sand. 136 3 ft. clay. 2683 ft. rotten timber. 161 25 ft. pumice sand. 6 ft. pumice sand. 27411 ft. rotten timber. 172Total depth, 274 ft. Flow, 3,840 gallons per day. ARTESIAN BORE NO. 51 : SECTION 17, BLOCK XI, THAMES. (MR. J. W. TREADAWAY.) Depth in Ft. Details. Depth in Ft. Details. 5858 ft. clay. 114 9 ft. clay. 68 10 ft. pumice sand. 12713 ft. rotten timber. 74 3 ft. rotten timber. 1358 ft. pumice sand. 762 ft. pumice sand. 1361 ft. rotten timber. 30 ft. pumice sand. 6 ft. clay. 82 16690 8 ft. pumice sand. 171 5 ft. rotten timber. 97 7 ft. clay. 183 12 ft. clay. 103 6 ft. pumice sand. 21633 ft. pumice sand. 1052 ft. rotten timber. Total depth, 216 ft. Flow, 2,880 gallons per day. ARTESIAN BORE NO. 52: SECTION 15, BLOCK XI, THAMES. (MR. S. S. MURRAY.) Depth in Ft. Details. Depth in Ft. Details. 43 ft. clay. 43 133 2 ft. pumice sand. 8 ft. rotten timber. 511374 ft. white clay. 70 19 ft. clay. 15518 ft. drift sand. 76 6 ft. sand. Э., 1594 ft. shingle. 86 10 ft. rotten timber. 4.1 161 2 ft. clay. 103 17 ft. pumice sand. 176 15 ft. drift sand.

131

28 ft. clay.

3 ft. clay.

179

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10

| | (ARTESIAN BORE NO, 52: SECTION | 15, Вьоск У | XI, THAMES—continued, | |
|--------------|--|---------------|----------------------------------|-----------------------|
| Depth in Ft. | Details. | Depth in Ft. | Details. | balaabti |
| 185 | 6 ft. drift sand. | 244 | 4 ft. clay. | ≥ 0 |
| 193 | 8 ft. shingle. | 252 | 8 ft. hard sand. | $\{Y_{i}\}$ |
| 210 | 17 ft. drift sand. | 255 | 3 ft. rotten timber. | ST |
| 220 | 10 ft. shingle. | 267 | 12 ft. clay. | 1. |
| 231 | 11 it. drift sand. | 270 | 3 ft. pumice sand. | ht. |
| 240 | 9 it. rotten timper. | 276 | 6 ft. rotten timber. | 11 |
| | Total depth, 276 ft. Flo | w, 14,400 gal | llons per day. | |
| ART | TESIAN BORE NO. 53 : SECTION 14, B | LOCK XI. TI | HAMES. (MR. O. A. FRENCH. |) |
| Depth in Ft. | Details. | Depth in Ft. | Details. | 1. 1 1 |
| 42 | 42 ft. clay. | 169 | 29 ft. clay. | - 1944 - 1944 |
| 75 | 33 ft. rotten timber. | 173 | 4 ft. sand. | 5 a 19 3 |
| 101 | 26 ft. clay. | 183 | 10 ft. clay. | 1913) 1919 - 1919 |
| 104 | 3 ft. rotten timber: | 189 | 6 ft. sand. | 1000 1003 |
| 124 | 20 ft. clay. | 199 | 10 ft. clay. | - China - Dhàn |
| 127 | 3 ft. sand. | 202 | 3 ft. sand. | 1115 |
| 131 | 4 ft. clay. | 220 | 18 ft. white clay. | 1.12 |
| 133 | 2 ft. rotten timber. | 245 | 25 ft. black sand. | |
| 140 | 7 ft. pumice sand. | | | |
| | Total depth, 245 ft. F | low, 3,360 ga | llons per day. | |
| ARTH | ESIAN BORE NO. 54 : SECTION 19, BL | оск ХІ, Тн. | AMES. (MR. J. D. CRAWFORD | D.) ^{theofi} |
| Depth in Ft. | Details. | Depth in Ft. | Details. | |
| 69 | 69 ft. clay. | 246 | 2 ft. clay. | |
| 71 | 2 ft. rotten timber. | 252 | 6 ft. drift sand. | |
| 75 | 4 ft. pumice sand. | 254 | 2 ft. rotten timber. | 1.5 |
| ,87 | 12 ft. clay. | 264 | 10 ft. drift sand. | 214 |
| 90 | 3 ft. sand. | 266 | 2 ft. clay. | |
| 103 | 13 ft. clay. | 354 | 88 ft. pumice sand. | 1911 |
| 129 | 26 ft. pumice sand. | 357 | 3 ft. clay. | 41.54 |
| 173 | 44 it. rotten timber. | 361 | 4 ft. pumice sand. | 81. |
| 189 | 16 ft. sand. | 362 | 1 ft. clay. | |
| 192 | 3 ft. rotten timber. | 372 | 10 ft. pumice sand. | (R) = 1 |
| 190 | 4 IU. Sand. | 370 | 4 IU. Clay. | $\langle y \rangle f$ |
| 201 | 5 ft good | 381 | o it. pumice sand. | 2513-1 6117 |
| 200 | 3 ft ratten timber | 402 | 216. rotten timber. | A . I . |
| 203 | 4 ft sand | 413 | 11 ft elsy | $\{i_i,j_i\}$ |
| 216 | 3 ft clay | 419 | 6 ft ratten timber | . LY |
| 220 | 4 ft. rotten timber. | 424 | 5 ft clay | |
| 244 | 24 ft. drift sand. | | 9 | |
| | Total depth, 424 ft. Flo | w, 11,600 ga | llons per day. | an Bayan |
| Авт | restan Bore No. 55: Section 18, B | LOCK XI. TI | HAMES. (MB. A. H. ROGERS | \hat{X}^{G} |
| Donth in Ft | Details | Depth in Ft | Details | - (.)- |
| 83 | 83 ft. clay. | 166 | 7 ft. sand. | 1. |
| 88 | 5 ft. sand. | 174 | 8 ft. white clay. | n agar Tangan |
| 90 | 2 ft, rotten timber. | 184 | 10 ft. pumice sand. | 473 |
| 101 | 11 ft. sand. | 198 | 14 ft. rotten timber. | 414 (1931) |
| 129 | 28 ft. clay. | 203 | 5 ft. sand. | 1997 1997 |
| 135 | 6 ft. pumice sand. | 210 | 7 ft. rotten timber. | |
| 148 | 13 ft. rotten timber. | 224 | 14 ft. pumice sand. | |
| 152 | 4 ft. clay. | 227 | 3 ft. rotten timber. | |
| 153 | 1 ft. rotten timber. | 247 | 20 ft. pumice sand, | |
| 198 | 0 ft. Clay. Total danth 947 ft Ela | 1 mr 9.640 | long ner day | |
| | $\begin{array}{c} 100a1 \text{ depth}, 241 \text{ ft}. \\ \mathbf{P} \\$ | w, 2,040 gai | ions per day. | e . Ježa |
| AR | TESIAN DORE NO. 30: SECTION 7, BI | Denth in Th | THOU. (M.R. W. UNSWORTH.) | 1 |
| Depth in Ft. | 19etalis. | Depth in Ft. | Details. | e .« |
| 43 KO | to 10. Clay. 15 ft potton timber | 104 | 21 10. pumice sand. 2 ft alay | 211 |
| 00 61 | 3 ft clay | 169 | 2 IV. Clay. 2 ft sand | |
| 493 64 | 3 ft rotten timber | 173 | 5 ft clay | 1994 - |
| 88 | 24 ft. clay. | 239 | 66 ft. pumice sand | |
| 91 | 3 ft. sand. | 241 | 2 ft. rotten timber | <u>.</u> |
| 98 | 7 ft. rotten timber. | 248 | 7 ft. clay. | |
| 108 | 10 ft. pumice sand. | 258 | 10 ft. pumice sand. | |
| 132 | 24 ft. clay. | 260 | 2 ft. rotten timber. | |
| 136 | 4 ft. sand. | 290 | 30 ft. pumice sand. | |
| 143 | 17 ft. clay. | 295 | 5 ft. rotten timber. | ÷. |
| | Eleter Total depth, 295 ft. Flo | w, 12,000 gal | llons per day. | · |

1 M. M. 1989

| | ARTESIAN BORE NO. 57: | SECTION 10 | 6, BLOCK XI, | THAMES. (MR. WEST.) |
|--------------------|------------------------------------|-------------|----------------|----------------------|
| Depth in Ft. | Details. | | Depth in Ft. | Details. |
| 64 70 | 64 ft. clay. | | 216 | 3 ft. clay. |
| 70 | 6 ft. rotten timber. | | 229 | 13 it. pumice sand. |
| 01 | 3 ft sand | | 232 | 8 ft sand |
| 90 | 4 ft rotten timber | | 244 | 4 ft. rotten timber |
| 104 | 10 ft. numice sand. | | 274 | 30 ft. pumice sand. |
| 130 | 26 ft. clay. | | 276 | 2 ft. rotten timber. |
| 137 | 7 ft. sand. | | 291 | 15 ft. pumice sand. |
| 143 | 6 ft. clay. | | 299 | 8 ft. white clay. |
| 169 | 26 ft. drift sand. | | 302 | 3 ft. sand. |
| 177 | 8 ft. shingle. | | 306 | 4 ft. clay. |
| 184 | 7 ft. drift sand. | | 329 | 23 ft. hard sand. |
| 180 | 2 ft. rotten timper. | | 002 226 | o it. clay. |
| 190 | 2 ft rotton timber | | 338 | 12 ft rotten timber |
| 190 905 | 7 ft alex | | 367 | 29 ft numice sand |
| 203 | 8 ft. pumice sand. | | 001 | ab it. puillee suid. |
| 2 10 | Total depth. | 367 ft. Flo | w. 4.800 gallo | ons per day. |
| | Ammarus Donn No. 59 | Sporter 4 | Progr IT | WALLOU (MD FLWWY) |
| B | ARTESIAN DORE NO. 30 | SECTION 4 | Denth in Ft | Dotails |
| Beptn in Ft. 54 | 54 ft clay | | 216 | 5 ft. rotten timber |
| 57 | 3 ft. pumice sand. | | 218 | 2 ft. pumice sand. |
| 71 | 14 ft. rotten timber. | | 226 | 8 ft. clay. |
| 76 | 5 ft. pumice sand. | | 230 | 4 ft. rotten timber. |
| 103 | 27 ft. clay. | | 239 | 9 ft. pumice sand. |
| 105 | 2 ft. pumice sand. | | 249 | 10 ft. clay. |
| 111 | 6 ft. rotten timber. | | 252 | 3 ft. pumice sand. |
| 119 | 8 ft. clay. | | 257 | 5 ft. rotten timber. |
| 149 | 30 ft. pumice sand. | | 267 | 10 ft. pumice sand. |
| 159 | 10 ft. rotten timber. | | 269 | 2 ft. clay. |
| · 177 | 18 ft. pumice sand. | | 299 | 30 ft. pumice sand. |
| 180 | 3 It. rotten timper. | | 309 | 15 ft numice sand |
| 190 | 2 ft rotten timber | | 324 | 4 ft rotten timber |
| 194 | 2 ft. numice sand | | 334 | 6 ft. pumice sand. |
| 199 | 5 ft. rotten timber. | | 336 | 2 ft. clay. |
| 211 | 12 ft. pumice sand. | | | 5 |
| | Total depth, | 336 ft. Flo | w, 2,240 galle | ons per day. |
| | ARTESIAN BORE NO 59 | : SECTION | 5. BLOCK II. | WAIHOU. (MR. WEST.) |
| Denth in Ft. | Details. | | Depth in Ft. | Details. |
| 64 | 64 ft. clay. | | 239 | 5 ft. sand. |
| 70 | 6 ft. rotten timber. | | 243 | 4 ft. rotten timber. |
| 75 | 5 ft. sand. | | 256 | 13 ft. pumice sand. |
| 102 | 27 ft. clay. | | 258 | 2 ft. rotten timber. |
| 105 | 3 ft. sand. | | 267 | 9 ft. pumice sand. |
| 115 | 10 ft. clay. | | 271 | 4 It. rotten timber. |
| 151 | 36 ft. drift sand. | | 209 | A ft rotten timber |
| 104 | 10 ft numice sand | | 255 317 | 24 ft numice sand |
| 166 | 2 ft rotten timber | | 319 | 2 ft. clay. |
| 171 | 5 ft numice sand. | | 327 | 8 ft. pumice sand. |
| 175 | 4 ft. rotten timber. | | 331 | 4 ft. clay. |
| 184 | 9 ft. drift sand. | | 334 | 3 ft. pumice sand. |
| 188 | 4 ft. shingle. | | 335 | 1 ft. elay. |
| 190 | 2 ft. rotten timber. | | 339 | 4 ft. pumice sand. |
| 196 | 6 ft. pumice sand. | | 342 | 3 ft. rotten timber. |
| 203 | 7 ft. clay. | | 345 | 3 it. pumice sand. |
| 208 | 5 ft. rotten timber. | | 349 | 4 IL. Clay. |
| 218 | 10 ft. sand. | | 384 | 3 ft notton timber |
| 228 | 10 ft. white clay. | | 301 | 33 ft numice sand |
| 232 994 | 4 10. Salla. 9 ft notten timber | | 120 | os in puinto sana. |
| 204 | 2 It. rowen timber. | 100.0. 771 | | 1 |

Total depth, 420 ft. Flow, 9,120 gallons per day.

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Approximate Cost of Paper .--- Preparation, not given; printing (1,300 copies; including plan and illustrations), £35.

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| Boundaries of H | lauraki Plain | s - | • | • | • | - |
|-----------------------------------|--------------------------------|-------------------|---------------------|--------------|--------------|-----------|
| Lands disposed | of on optiona | t syste | m - | • | - | |
| Lands being sur- for selection | veyed and dri during next | ained a financ | nd proj ial year | posed t | o be op - | ened - |
| Crown and Lan rouded for | d for Settler settlement pu | nent L poses | ands u - | nder si - | irvey l | o ba |
| Drains now in c | peration - | • | - | | - | - |
| Drains under co | onstruction | | | - | - | |
| Stop-banks - | | - | | - | | |
| Artesian bores | | | | | | - • 5 |