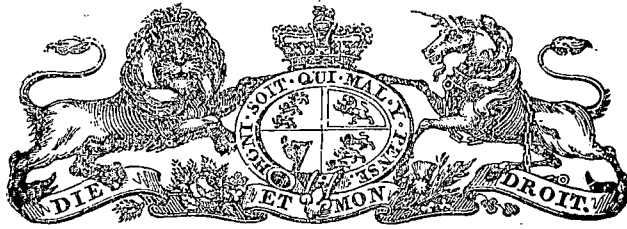


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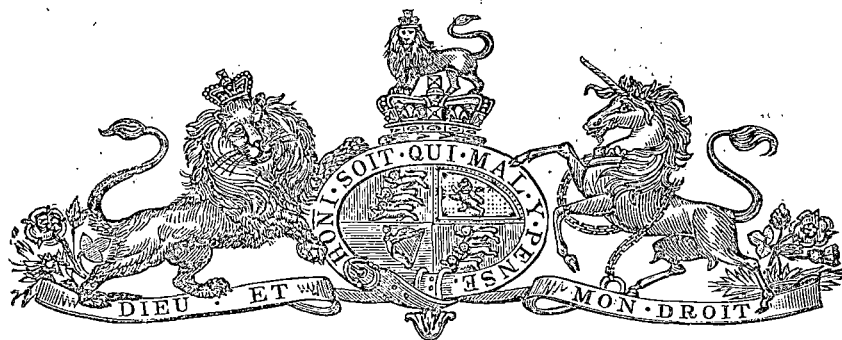
PARLIAMENT OF TASMANIA.

METROPOLITAN DRAINAGE BOARD:

R E P O R T.

Presented to both Houses of Parliament by His Excellency's Command.

Cost of printing—£2 2s.



REPORT OF THE METROPOLITAN DRAINAGE BOARD.

Chief Secretary's Office, Hobart, 2nd April, 1894.

SIR,

SINCE the date of last yearly Report the Metropolitan Drainage Board has been reconstituted, under the provisions of the Act 56 Vict. No. 27.

The progress that has been made with the surveys required to be done by the 11th Section of the Act 55, Vict. No. 27, is set forth in, and other information on the subject furnished by, the Report of our Consulting Engineer appended hereto. Since the date of that Report the skeleton plans of the surveyed portion have been proceeded with, and are now nearly completed, but no further survey work has been done.

In connection with the other duties imposed upon us by the 11th Section of the Act of 1891, we have considered matters having relation to House Drainage, and append hereto a preliminary Report on the matter from the Consulting Engineer.

The portion of the area to be included in the large-scale skeleton plans will occupy 116 sheets when completed. No survey work has been done in connection with the area that will be represented by 29 of these sheets, and in connection with some of the remaining 87 sheets part of the survey work is also incomplete; but during the past year, in consideration of the depressed condition of affairs, we judged it prudent to finish the plans of the surveyed work before incurring further expenditure in surveys.

The same consideration determined our limiting our whole expenditure as far as possible, and consequently we were enabled to reduce the amount of the precepts issued to the rating authorities in the area from that produced by a rate of 2*d.* in the Pound in 1892 to that produced by one of three farthings in the pound in 1893.

A statement of the Accounts of the Board, duly audited, is attached hereto.

I have the honor to be,

Your obedient Servant,

P. O. FYSH, *Chairman.*

The Hon. the Chief Secretary.

METROPOLITAN DRAINAGE BOARD.

PRELIMINARY REPORT ON THE COST OF HOUSE DRAINAGE.

1. In accordance with a suggestion made at the last meeting of the Board, I have endeavoured to make, with the means at my disposal in the shape of detailed plans, as fair an estimate as possible of the cost of the house drainage of the area apart from the cost of the sewers and general works that I have already reported upon. The detailed plans available are shown by the accompanying tracings of three districts situated in various parts of the city of Hobart. These blocks have not been purposely selected, but have been, perforce, taken as being the only ones with respect to which I have the necessary details.

2. The first block may be called the Lower Macquarie-street district, and is bounded by Hunter-street and Campbell-street on the south-west, Lower Collins-street on the north-east, and Park-street and the Hobart Rivulet on the north and north-east. The second block may be called the Antill-street district, and is bounded by that street, Davey-street, Watch-house lane, and Macquarie-street. The third block may be called the Byron-street district, and comprises the houses in that street and in Frances-street, and between Fitzroy Place and Montpelier Road. These blocks have an area of about 40 acres, and contain 164 houses, with a population computed at 902, or about 22.5 to the acre, as compared with 19 to the acre for the whole city.

3. The work to be done in connection with the drainage of the houses may be classed in two divisions : the first comprising work necessarily of one character and quality whatever may be the style of the premises to be drained ; and the second, the work that may vary according to the style of the house or wish of the proprietor, though still to be done in accordance with principles to be fixed by the Board.

4. The necessarily similar work in the first division will consist of (a) laying drains of 4 in. in diameter, with some 3 in. branches, from the public sewers to the premises to be drained, and making the connections necessary for carrying off the sewage from the houses, outbuildings, and yards, together with so much of the rainwater falling thereon as cannot be separated from the sewage ; (b) the construction of such intercepting chambers as may be necessary to separate the ventilating system of the sewers from that of the drains. These chambers will also serve as man-holes, and will have proper valved inlets for the admission of fresh air into the drains ; (c) the fixing of proper outlet ventilating pipes and cowls to prevent the accumulation, and to secure the proper discharge in an innocuous manner, of the foul air in the drains ; and (d) to alter where necessary the position and arrangements of existing surface drains and catch-pits so as to accommodate them to the new drainage system. The works in this division are of such a nature as to vitally affect the proper working of the whole sewerage system ; for upon the manner of their construction will depend its success from both the sanitary and the engineering point of view. At the same time the cost of these works is likely to vary considerably in different cases in consequence of such causes as the varying distances of the sewers from the properties to be drained. For both these reasons it is desirable that these works should be done by the Board under the same conditions as the sewers and paid for by rates. The Board will thus directly control the proper construction of the works, which also will be more economically done in large quantities than in small, both as regards superintendence and supply of materials ; and all owners and occupiers will be equally treated in regard to cost, at whatever distance from the properties the exigencies of the system, or the character of the ground, may have placed the lines of sewers. And it must not be forgotten that such a method of payment for the works is the only one that will be possible to many of the poorer proprietors. Of course, the drainage rates should be kept distinct from the sewerage rates, and only levied on properties after their drainage is completed.

5. In the following estimates of the works required under this division for the drainage of the 164 houses in the three above-mentioned blocks, it is assumed that all of them have some sort of surface drainage, with a catchpit or sink communicating with the street gutter or other outlet. Some of them have underground drains already, but no credit is taken for the material and labour that may thus be saved. The existing privies are in most cases built of wood, and in many cases placed at considerable and inconvenient distances from the houses. The wooden ones in such cases could be easily removed, and thus much of the length of the drains shown on the tracings and estimates below might be saved. Drainage is provided for the schools and churches on the blocks, but as these buildings are not rated, the cost of their drainage has been spread over the rateable property.

6. The following are estimates of the quantity and cost of the work in this division for the drainage of the three blocks :—

	£	s.	d.
3120 yards 3 in. and 4 in. drains, laid complete, at 3s. a yard.....	468	0	0
Additional for 281 bend and junction pipes, at 8d.	9	7	4
Surface alterations in 138 yards, at 10s.....	69	0	0
41 intercepting chambers, with syphons, air-pipes, and valves, 50s.	102	10	0
2190 feet ventilating pipes, with cowls, at 1s.	109	10	0
Add 10 per cent. for contingencies.....	75	16	8
Total Estimated Cost.....	£834	4	0

This makes the mean cost of draining each house to be £5 1s. 9d.

7. If, as above suggested, the cost of these works is to be repaid by rates, the yearly amount to be collected from the property comprised in the three blocks until the capital outlay is repaid, would be £41 14s., being 4 per cent. on the outlay for interest, and 1 per cent. for sinking fund. The yearly value for rating purposes of this property, according to this year's valuation roll, is £5862, upon which sum a rate of 1½d. in the £1 would produce £42 15s.

8. I think it probable that the three blocks herein reported upon will be found to be fairly and safely representative of, at least, the city portion of the area, though the population upon them is denser to the acre than that of the whole city, the mean rateable value of the houses on the block is less, being £35 2s. 8d., as compared with £40 6s. 8d. for the whole of Hobart. These two circumstances balance each other, for the rateable value for each acre is £146 11s. on the blocks, and £146 10s. for the whole city.

9. The second division of the works connected with house drainage comprises those necessary to properly fit up water-closets. The style of the fittings may vary in accordance with the wishes or means of the house proprietors, but they will all have to fulfil certain requirements, such as prevention of the pollution or waste of the water, and efficient flushing and ventilation. In the following estimates it is assumed that only such work will be done as will satisfy these requirements, and that existing buildings will serve. As a rule each house will have a separate closet, but in the case of groups of small tenements and of schools the estimates are made for trough closets.

10. Each separate closet, if fitted with a plain earthenware basin and trap with branch pipe for ventilation, 15 ft. of service-pipe, a waste-preventing syphon cistern with large flushing pipe, and after-flush to make the most efficient use of the two gallons of water allowed for each flushing, will cost £3 6s. The trough closets will be arranged in groups, with from two to six compartments in a group, and if fitted with a properly trapped trough and an automatic flushing syphon cistern out of the control of the persons using the closet, and set to flush the troughs any desired number of times a day, will cost £2 a compartment. These prices are based generally upon those of a local tradesman for fittings, such as those manufactured in England and Scotland, taken as a standard fulfilling the requirements of sanitary authorities and water companies there, but not with the intention of excluding other efficient fittings. If necessary in any cases for the Board to get this fitting work done for any properties, the payment for the cost thereof should not be spread over more than four or five years.

11. The above are the closest estimates I can make until detailed surveys are completed for larger portions of the metropolitan area. It results from them that the additional cost of the house drainage work, being those comprised in the first division of the classification adopted in this report, will be about £28,500 over and above the cost of the sewerage works. This sum taken with those mentioned in my former report as the cost of the sewerage works will make the total capital outlay for both sewerage and house drainage work (roundly), £100,000 for the system of discharge without treatment; £115,000 for the precipitation system; and £155,000 for the irrigation system. And the annual rating, until the capital was repaid by the Sinking Fund would be 8d. in the £1 for the first above-mentioned system; 10½d. in the £1 for the second; and 11½d. in the £1 for the third, exclusive of the working expenses on the farm.

A. MAULT, *Consulting Engineer to the Metropolitan Drainage Board.*

METROPOLITAN DRAINAGE BOARD.

MR. MAULT'S REPORT.

Mr. MAULT read a Report on the present position of the survey as follows :—

"In accordance with the resolution passed at your meeting of the 24th March last, I have the honour to report to you as follows :—First: As to the present position of the survey. The triangulation upon which to complete the survey of the whole area is finished, and all the relative positions of the trigonometrical stations, both principal and secondary, fixed by calculation. The survey for making a skeleton plan has been done over about 2005 acres of the area, of which nearly 1630 have been drafted, and of these the finished plans have been made of 847 acres. There are also finished in detail—that is, completed in every respect in the manner in which all the plans will have to be done in order to lay out the sewerage and house drainage—maps of 66 acres more, of which the surveys for more than one-half were paid for by the Central Board of Health. There remain to be surveyed, to complete the skeleton plan, about 570 acres of the least densely peopled part of the area.

"The survey work has been distributed thus:—In the City of Hobart 1115 acres have been surveyed, and the draft plans of the surveys made, and fair copies made of 699 acres of skeleton plan and of 44 acres of detailed plan, and there are about 72 acres to be surveyed. In New Town 507 acres have been surveyed, of which the draft plans of 144 acres have been made, and the fair copies of 46 acres of skeleton plan and 22 acres of detailed plan, and there are about 240 acres to survey. In the Queenborough District 102 acres have been surveyed, and the plans drafted, and about 70 acres remain to be surveyed. The whole of Glebe Town has been surveyed, and the plans drafted. Of Glenorchy about 35 acres have been surveyed, and the plans drafted, and about the same area has yet to be surveyed. In the District of Wellesley about 112 acres have been surveyed, and the plans drafted, of which fair copies have been made of 61 acres, and 10 acres have yet to be surveyed. In the Mount Stuart District 6 acres have been surveyed, and about 110 acres remain to be surveyed. In the Leslie District about 48 acres have been surveyed, and the plans drafted, and there are yet about 8 acres to survey. In the Lower Sandy Bay District about 40 acres have been surveyed, and the plans drafted, and about 10 acres remain to be surveyed.

"With regard to the levels of the area, the whole of the necessary work has been done in the 66 acres of the detailed survey, partly at the expense of the Central Board of Health. The necessary bench marks, numbering 245, have been fixed, marked, and levelled in the City of Hobart; and levels have been taken along the watercourses of Hobart, Mount Nelson, and Wellesley Districts.

"Secondly: As to the sufficiency of the survey, as far as it has at present been carried out, to form the basis of a definite recommendation of a particular sewage scheme for your adoption, I think that the information obtained is quite sufficient to enable you to decide on the general principles of the system you will adopt, but altogether insufficient to enable anyone to carry out any system whatever as regards the best

location of the lines of sewers, their depth, their construction; in short, every detail needful to properly carry out the system you may adopt. You can now decide that you will or will not have an underground system of sewers; that you will or will not separate as far as practicable the sewage proper from the rain-fall; that you will or will not depend as far as possible upon gravitation for the flow of sewage in the sewers; that you will or will not provide for carrying off all faecal matter by water; and all such general principles, including the disposal of the sewage. But when you have so decided the completion of the survey will be necessary, in order that your decision can be carried out, whatever it may be. It naturally follows from what I have said that no such estimate as will be necessary to enable you to obtain a loan under the Public Works Loans Act can be made until the survey is completed.

"In the third place: I strongly advise the immediate continuation of the survey. The completion of the skeleton plan should be first undertaken, and thus place all parts of the district on an equal footing as regards the information that local bodies may obtain from the survey. When this is done I would recommend the completion of the fixing of bench marks all over the district; and then the filling in of the details of the skeleton plans, beginning at the various outfalls. To do this I would recommend the employment of surveyors and chainmen by day work, and in number dependent on the income you propose to raise. I would take care that you should get work of the value of your outlay. I need not say how unfavourable a time the present is to try to raise money on loan for works, but that fact should not prevent you from getting the precise information you need, and preparing all your plans so as to be able to proceed when the proper time comes.

"As regards the drafting staff, a great deal of time was occupied in the preparation of the plans necessary to accompany my Report, so that now we shall be able to get on faster with the permanent work. I will try and make the present staff suffice.

The present engineering staff consists of Consulting Engineer with	£	s.	d.
And a Draftsman at	250	0	0
	192	0	0
TOTAL	£442	0	0
The preliminary triangulation cost, for Surveyors	235	15	0
Other expenses.....	47	8	9
TOTAL	£283	3	9
Boundary survey cost.....	52	2	0
Levelling and fixing of bench marks cost.....	98	1	3
Survey and rough drafting skeleton plan so far as surveyed will cost.....	1497	6	1
Levelling of watercourses cost.....	69	6	0

"The cost of the survey of the 570 acres remaining to be done, so as to complete the skeleton plan of the urban part of the district, at the same rate as that at which the present surveys have been done, would be £480, but as it is much more sparsely occupied I estimate that the actual cost will be £350.

"My former estimate of the cost of a detailed plan was £4300. The total cost of the skeleton plan, apart from departmental expenses, has been about £1700, of which, as I have explained before, probably £300 will not count as permanent work in diminution of the ultimate cost. I still hope that the former estimate will not be greatly exceeded by having the detailed survey completed for about £3000.

"Probably £1000 more will have to be expended for levelling."

A. MAULT, Consulting Engineer.

Hobart, May 20, 1893.

METROPOLITAN DRAINAGE BOARD.

STATEMENT of RECEIPTS and EXPENDITURE from January to December, 1893.

1893.		RECEIPTS.	£	s.	d.
January	6.	By Hobart Corporation on account	432	9	11
	6.	Government contribution	800	0	0
April	10.	Glenorchy Local Board of Health	11	12	4
	10.	Jas. Griffiths, refund	0	10	0
June	8.	Refund, messenger's uniform	0	0	8
	15.	Exhibition Association, rent	20	0	0
Oct.	28.	Glebe Town contribution	9	18	3
Nov.	6.	Queenborough Town Board	29	1	10
	14.	Corporation, Hobart, on account	200	0	0
Dec.	22.	Ditto, balance	389	6	7
			<u>£1892 19. 7</u>		
1893.		EXPENDITURE.	£	s.	d.
January	1.	To balance from last account	335	8	2
Feb.	10.	112. A. Mault, salary	20	16	8
	10.	113. T. C. Just, ditto	8	6	8
	10.	114. J. F. Ainslie, skeleton plan	16	0	0
	28.	115. Repayment of advances, Treasury	600	0	0
March	4.	116. A. Mault, salary	20	16	8
	4.	117. T. C. Just, ditto	8	6	8
	4.	118. J. F. Ainslie, skeleton plan	16	0	0
	21.	119. Geo. Whittington, fuel	1	18	0
	21.	120. J. Goodwin, office expenses	0	7	6
	21.	121. Davies Bros., printing and advertising	1	7	0
	21.	122. Gas Co., skeleton plan account	40	10	8
	21.	123. Stephens, ditto	2	2	0
	21.	124. J. Rometch, office expenses	0	6	0
	21.	125. J. Walch & Sons, ditto	5	18	0
	21.	126. Hon. A. I. Clark, professional services	13	4	6
	21.	127. Jas. Griffith, skeleton plan	66	11	9
	21.	128. Jas. Griffith, ditto	1	12	0
	21.	129. R. W. Giblin, ditto	15	8	0
	27.	130. C. J. Barnard, ditto, on account	25	0	0
	31.	131. A. Mault, salary	20	16	8
	31.	132. J. F. Ainslie, skeleton plan	15	8	2
	31.	133. T. C. Just, salary	8	6	8
April	7.	134. A. Stewart, skeleton plan	55	8	0
	8.	135. W. W. Hardy, ditto	43	19	0
	14.	136. C. W. James, ditto	89	12	1
May	1.	137. A. Mault, salary	20	16	8
	1.	138. J. F. Ainslie, skeleton plan	16	0	0
	1.	139. T. C. Just, salary	8	6	8
	19.	140. Messenger's uniform, contribution	1	3	6
	31.	141. A. Mault, salary	20	16	8
	31.	142. T. C. Just, ditto	8	6	8
	31.	143. J. F. Ainslie, ditto	16	0	0
June	9.	144. Government of, Tasmania— Rent for 1892	£26	18	8
		Caretaker's salary	8	7	0
			35	5	8
July	1.	145. A. Mault, salary	20	16	8
	1.	146. J. F. Ainslie, ditto	16	0	0
	1.	147. T. C. Just, ditto	8	6	8
	18.	148. G. C. Bernard, skeleton plan	20	10	6
	18.	149. Gas account	0	10	1
	18.	150. J. Walch & Sons, stationery	5	12	3
	18.	151. C. J. Tolman, fuel	0	10	9
August	1.	152. A. Mault, salary	20	16	8
	1.	153. T. C. Just, ditto	8	6	8
	1.	154. J. F. Ainslie, ditto	16	0	0
Sept.	1.	155. A. Mault, ditto	20	16	8
	1.	156. J. F. Ainslie, ditto	13	0	0
	1.	157. T. C. Just, ditto	8	6	8
October	2.	158. A. Mault, ditto	20	16	8
	2.	159. T. C. Just, ditto	8	6	8
	2.	160. J. F. Ainslie, ditto	13	10	9
Nov.	3.	161. A. Mault, account contract plans	33	0	0
	3.	162. T. C. Just, salary	4	3	4

			£	s.	d.	£	s.	d.
Dec.	1.	163. A. Mault, account contract plans	30	0	0			
	1.	164. T. C. Just, salary.....	4	3	4			
	9.	165. Insurance, Commercial Union	1	8	0			
	30.	166. A. Mault, account contract plans	30	0	0			
	30.	167. T. C. Just, salary.....	4	3	4			
						1534	4	2
						1869	12	4
1893.		<i>Bank Book items—</i>						
June	30.	Interest	3	6	2			
July	30.	Stamp on cheque	0	0	1			
Dec.	30.	Interest	15	13	0			
						18	19	3
						1888	11	7
		Balance.....				4	8	0
						£1892	19	7

P. O. FYSH, *Chairman.*
Hobart, 21st March, 1894.

Examined and certified to be correct.

W. LOVETT, *Auditor-General.*
22nd March, 1894.

Chief Secretary's Office, Hobart, 3rd April, 1894.

SIR,

I HAVE the honour to acknowledge the receipt of the Report of the Metropolitan Drainage Board, dated 22nd March, 1894, accompanied with a statement of Receipts and Expenditure from January to December, 1893, and two Reports by Mr. Mault.

I have, &c.

ADYE DOUGLAS.

The Honorable P. O. FYSH, M.L.C.,
Chairman Metropolitan Drainage Board, Hobart.