

(1) Number of pages 42
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 (3) Initials of the Referencer but

TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU
Public Works DEPARTMENT

G.O. No.	1038-39 W.	Press.
B.P. No.		Mis.
Dated	22-4-1881	

L. Co

Not to be folded or roughly handled

1038-39
1

PUBLIC WORKS DEPARTMENT.

No. 1,039 W.

Buildings and Roads.
Civil Works.

No. 58.

FROM

THE SECRETARY TO THE GOVERNMENT OF MADRAS,
Public Works Department,

TO

THE SECRETARY TO THE GOVERNMENT OF INDIA,
Public Works Department.

SIR,—With reference to your letter, No. 203 W., dated 24th August 1880, I am directed to forward the accompanying copy of Proceedings of this Government, embodying the reports called for by the Government of India in regard to water-supply projects at Madras and on the Nilgiris.

2. It will be seen that the information as to Ootacamund and Wellington is very meagre, but the reason for this is explained by the Superintending Engineer. The survey map of the Nilgiris promised by that officer, which will give further details, will be forwarded on receipt.

I have the honor to be,

Sir,

Your most obedient servant,

Captain, R.E.,
Ag. Under Secy. to Govt., P.W.D.

FORT ST. GEORGE,
22nd April 1881.

Exd. A. F. Goodall.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of (1881) Madras.
PUBLIC WORKS.

To

THE SECRETARY TO THE
GOVERNMENT OF INDIA.

Dated April, 22nd.

Issued

Recd.

Encl.

G. O., 22nd April 1881, No. 1,039 W.

APRIL.
No. 58.

WATER-SUPPLY Projects at Madras and
on the Nilgiris.

Memorandum on Madras Water works.

1039-9
4

G. No. 670

Municipal Office,

Madras, 16th November 1880.

From

A. J. Arundel Esq/
President, Municipal Commission,

To

The Chief Secretary

to Government

Fort St George.

Sir,

I have the honor to enclose
the descriptive Report of Madras Water
Supply scheme called for in G. O. No. 1039
dated 6th October 1880.

I have the honor to be,

Sir,

Yours most obedt Servant

A. Arundel
Acting President

l. b. m.

direction from Madras, the Red Hill 8 miles
and the Cholerae 13 miles. The river is
tapped

BUILDINGS AND ROADS
CIVIL WORKS.

P.W.D.
22 NOV 80

NO 7395

N. No 2638
9-10-80
S.O. 8/18/10/80
12/19/80

Superintendent
Municipal Supply
S.O. 8/18/10/80
12/19/80

Madras Municipal

The Chief Secretary to Govt
Fort St. George

Dated 16 November
1880

No 673. Enc. 1

Madras Water Supply—
Towards a description of
work on — called for in
CO No 2318 M.d. 6-10-80.

Handwritten notes on the left margin, including dates and references to the main text.

Transferred to the Public Works Branch
with reference to go. in that Dept of 6 Oct.
1880. No. 2318. M.
No 2189

Memorandum on Madras Water Works

103-9
4

Madras depends for its water supply on two different sources. One being the Seron Wells Water Works which supply Fort St. George, The Commissary-General's Office, The Powder Mills & the Shipping and a few other Government Buildings, the other being the Madras Water Works which is the main supply of the City.

The former supply is worked by Government and the latter with which this Memorandum deals is under Municipal control.

The immediate source of the Madras Water Works supply is the Red Hills Lake.

This lake is however fed from the Choleraam Lake and this again from the fortification river where an ancient has been constructed to divert water from the river into a Channel leading to the Choleraam Tanks.

These tanks lie in a north-westward direction from Madras, the Red Hills 8 miles and the Choleraam 13 miles. The river is tapped

is at a point $7\frac{1}{2}$ miles west of the Loholuram
m and 22 miles from the sea.

The bed of the Cortelliar River at
the Anicut is 69.30 above the Mean Sea
Level. The full tank level of the Loholuram
Tank is 64.68 and of the Red Hills Tank
46.31 above the same datum to which all levels
in this report are referred.

The works under the control of this
Municipality commences at the south east
corner of the Red Hills Tank, where the mu-
nicipal sluices and Valve House are situated.

The full tank level of the Red
Hills Tank is as before stated 46.31 and
portions of the tank bed are as low as 20.00
The lowest Municipal sluice is 31.31.

The tank contains when full —
101,981,115 cubic yards and at a level of
31.31 — 20,477,034 cubic yards. The total avail-
able supply for the Municipality is therefore
31,504,081 cubic yards; but the greater portion
of this is used for irrigation purposes and
the amount used during 1879 by the City
was only 5,362,185 cubic yards.

The

The tank for some considerable
time during the famine was below the level of
31.31 and pumping had to be resorted to.

The lower Municipal sluices are
below the bed of the tank at the point where
they stand and a channel constructed in
the bed conveys the water to them. The sluices
are at the following levels: —

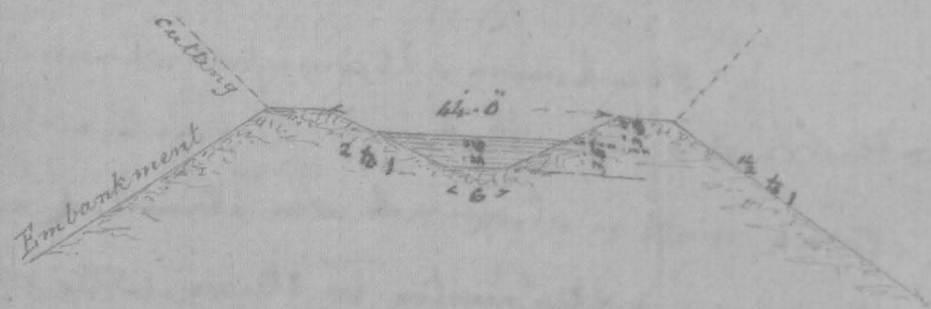
No 1	31.31	There are three pipes at this level.
No 2	35.31	
No 3	39.31	
No 4	43.31	

The water from these sluices
is discharged into a basin 80 feet in diameter
which is divided by two parallel walls six
feet apart. The space between was intended
to be filled with charcoal and thus act as
a filter but as this horizontal filtration
proved to have no effect whatever on the
water the filtering medium was removed.
The water in this basin is usually at a
depth of $2\frac{1}{2}$ feet.

From the basin the water falls
over an ordinary shutter weir into the channel
now to be described.

The

The Channel as designed was of the following section.



The level of its bottom at its commencement near the basin was to have been 31.31 the same level as the low water level.

It follows a south easterly course through cuttings and on embankments for six miles and five furlongs.

The gradient proposed for the Channel was 3" per mile and the level of the bottom of the channel where it ends at Madras is therefore 29.61.

I have stated above what was the intention but the works through faulty construction were not brought into agreement with the design. The channel bed is irregular and has a level of 33.00 in some portions. The breadth of the channel also varies and is in some places considerably below the dimensions given.

The water from the channel at

at Madras is delivered into a circular well 22 feet in diameter (called the Masomys Shaft). From this well the Main Pipes proceed towards the City, the well itself being within Municipal limits.

The depth of water allowed in the Channel is 3' 6" and the greatest head available therefore at Madras (Masomys Shaft) is 29.61 + 3.50 = 33.11 feet above Mean Sea Level.

Sometimes however the draught on the Main is greater than the amount coming down the Channel and this happens usually between 6 a.m. and 10 a.m. and between 3 and 6 P.M. so that immediately after the earlier of these hours the head rapidly falls and by noon sometimes there is very little water above the Trunk Main which issues from the side of the so called Masomys Shaft.

The Channel thus acts partially as a reservoir which gets filled during the night and the midday interval above noted.

There is telegraphic communication between the two ends of this open Channel, but when ^{water} extra is admitted ~~the water~~ from the tank it takes 10 hours before it affects the Madras end.

This gives an apparent velocity of 58 feet per minute, but if the amount of water drawn per day be divided by the sectional area of water in the Channel the average velocity is 6 feet per minute and when the heavy draught is on the Channel the velocity will be 24 feet per minute and at other times the water is being hoisted up.

The Trunk Main which issues from the Masonry Shaft is 42" in diameter and extends for 1485 yards from which latter point Mains of 36" and 30" respectively proceed.

An appended Table shows the extent of the Mains with the values &c attached to each.

The water is supplied to the Pub. by through fountains of various descriptions but these may be classified under

- Cistern Fountains
- Wall Taps
- Pillar Fountains

The parish were adopted with a view to retain a quantity of water should any accident happen to Channel or pipes. The cistern fountains have not been a success. They certainly collect

collect a large amount of deposit, but when they are opened for cleaning the smell is unbearable and all water passing through them must be considerably tainted.

$$\frac{10389}{7}$$

Wall Taps are those fixed in walls of Buildings or in masonry built against walls.

Pillar Fountains are usually of cast iron, of a pattern procured from England and sometimes form part of a lamp post.

The following are the number of each class of fountains:

Cistern Fountains	42
Wall Taps	84
Pillar Fountains	113

Large numbers of people who are in the vicinity of water mains take advantage of being so, to lead the water into their houses and the following table shows the rapid increase in the construction of house services which are paid for by the house owners & which cost from £50 to 200 and in some cases rise to 700 £ each.

Up to 9 months April 1878	1879	First 9 months 1880	Total
240	52	136	574

Several persons have joined together and paid the total cost of the main in their street and afterwards paid for the separate branches to their houses. The amounts paid in certain instances have been up to Rs. 4000, 1500, and 1000.

Water for non-domestic purposes is charged at 2 annas per 1000 gallons and persons are allowed for domestic purposes an amount the cost of which at 4 annas per 1000 gallons equals the amount paid for Water Tax on the property they occupy at the rate of 4% per annum calculated on the rental.

About Rs. 1200 to 1500 yearly is collected for water used for non-domestic purposes.

The original estimate for the works was Rs. 13,10,000 in addition to which Government made a grant of Rs. 30,832. The works however cost Rs. 14,30,000.

It would be out of place in a descriptive report to comment on the present state of the Water Works. This has already been set forth in my report of July 1877. I may

may however report that scour valves are now being put in which tend to clear the mud from the pipes. The quality of water shows a little improvement. A closed pipe from the Led Hills Lake combined with filtration works, if possible, are, in my opinion, works much needed to improve Madras Water Supply.

1038-9
8

J. J. M. C.
Vice President

L. M.
C. M.

12
1038-9
9

July
1331

10

1038-9
11

July 1831

P.W.D.
22 NOV 80

N.D. 7395

the File: 3072/80

No. 4092

717
MADRAS,
Chepauk, 9th Feb 1880.

From

THE SUPERINTENDENT OF WORKS,
PRESIDENCY,

To

THE Chief Engineer,

P. W. Department.

Sir,

Enclosures.

With reference to G. O. No. 2076 W. of
2nd September 1880, I have the honor to forward
herewith a statement giving ^{the} information called
for regarding the Seven Wells Scheme. There is
no data available for ascertaining the number
of people supplied with water, a List of the
Several Departments supplied is attach-
ed to the statement.

I have the honor to be
Sir,

Your Most Obedt. Servant

Henry M. Stuart
Major A.C.
Superintendent of Works, Presidency

J.W.C. 852

From

The Superintendent
of Works, Presidency

No. 4092

Dated 9th }
Recd 10th } February 1881

Recd: 2

Green Wells Water Scheme
Forwards Statements
giving the information etc
for regarding the

Approved by
from 2nd Div.
(6)

Statement showing the details of the Presidency Green Wells Water Scheme,
as called for in G.O. No. 2076 W. dated 22 September 1880, Levels taken on 21st January 1881

No.	Difference between M. S. L. and the sur- face of water in the wells when nothing drawn on the 21 st Jan'y 1881	Depth to which water surface is lowered when the supply is being drawn off	Height of lift from wells
1	2' 83"	1' 25"	17' 76"
2	3' 03"	1' 06"	16' 73"
3	3' 20"	"	16' 66"
4	3' 52"	"	17' 00"
5	3' 13"	"	16' 50"
6	3' 04"	1' 00"	17' 00"
7	3' 10"	1' 00"	11' 00"
8	2' 24"	1' 00"	11' 00"
9	2' 93"	1' 10"	11' 00"
10	2' 98"	"	11' 00"

Water in this Well condemned as
unfit for drinking.
Prof. J. Labret
Public Engineer.

Prof. A. B. Plummer, Lieut.
Res. Engineer
1-2-81

Superintendent of Works, Presidency
21st January 1881
Accepted for the
Hon. Secy. P. W. S.

140,000 gallons.

1028-9
13

Statement showing the names of Departments, Supplied by the Seven Wells Water Works.

No. Names of Departments.

1038-9
14

- 1 Fort St. George
- 2 General Hospital.
- 3 Military Hospital.
- 4 Sprack Distillery.
- 5 Private individuals.
- 6 Shipping (Private)
- 7 Commissary General's Office.
- 8 Commissariat Granary.
- 9 — D^o — Shooby Shed
- 10 — D^o — Cattle.
- 11 — D^o — Granary & Cooperage, Military Guard.
- 12 Warrant & hon. Comd^g Officers, Comd. Dept.
- 13 Master Attendant's Office & Pier.
- 14 Stamp Office.
- 15 — Military Guard.
- 16 D. P. W. Lascars on the Beach.
- 17 Madras Bank, Military Guard
- 18 Marine Police.
- 19 Justice Jail
- 20 High Court.
- 21 Camp Equipage Depot.
- 22 Governor's Body Guard
- 23 Collector Sea Customs.
- 24 Ordnance Store Lascars on the Beach.
- 25 Grand Jail
- 26 Bullet Factory
- 27 Medical Stores.
- 28 Goat Line Kilns & Buckingham Canal.
- 29 Ordnance Lines
- 30 Gun Powder Factory.
- 31 Medical College.

Chepauk. }
24th January 1881

Sof. J. P. Plummer & Co. Ltd.

Asst. Secy. to the Govt.

Sof. J. Labot
Sub. Secy. to the Govt.

Superintendent of Works, P. W. D.
Major H. C.

No. 157

Supp. Engr's Office, 2nd Circle
Camp Cotaicamund 6th April 1881.

From.

The Supp. Engineer

2nd Circle

172

1028⁹/₁₅

To The Chief Engineer

P. W. Department.

Sir,

With reference to G. O. No 20764

Enclosure 1

1 Copy of letter No.

504 of 21-8-79 from

Engr H.C. Esq.

Dated 2nd Sept 1880, I have the honor
to report the following with regard
to the Cotaicamund and Wellington
water supply.

Forwarded with
No. 609 of 27th Sept 1880

2. Major Morant's report dated Sept 1879 describing the nature of the works
show clearly that the information
asked for by the Govt of India cannot
be given and the waste of water is so
great that any calculation of the quantity
expended however rough would be useless.

3. The quantity of water discharged from
the Cotaicamund reservoir cannot be
even approximately calculated owing to
the nature of the valves of the sluice
(see para 6 of Major Morant's report) and
as the supply in the channel varies
gauging

For

gauging the quantity passing any point at certain terms is useless unless done regularly.

From the above it will be seen that it is impossible to give the information called for in para 3 unless some expense is incurred in gauging & registering the discharge from the reservoirs and unless this is done at least a year it would be useless.

4 With regard to Wellington water supply, I have the honor to point out that the supply both for drinking & ablutionary purposes is in excess of what is required and in both cases a large quantity is superfluous and there is no means of finding out the actual quantity that is used.

5. The ablutionary supply was gauged last November the quantity passing into the reservoir was $\frac{1}{2}$ C.F. per 1" and with this supply during the night and at times when water was not being used the reservoir was superfluous.

6. The drinking water supply was measured in November, it was running into the reservoir at the rate of about .011 C.F. per 1", but of course during the greater part of the day and the whole of the night this water was superfluous.

7. When the Barracks are full of men there are about 1500 souls European and Native who use the drinking water and of them it may be said 1400 use the ablutionary supply, the reduction of 100 is made on account of servants & others who only attend the barracks &c during the day.

8. I have applied to the Supt of the Revenue Survey for a copy of the map of the Ootacamund settlement on a scale of 2 inches to a mile and on its receipt will forward it; it shows clearly the sites of the Reservoirs & the line of the channels.

9. I regret much the delay in the submission of this report and as directed in your Memo No 857 of 31st March 1881 have to report that

Mr. Pringle Engr. Engineer West Coast
 was ordered in Sept. to give the
 information called for; on the 26th
 December he forwarded a report
 which was not complete and was
 utterly useless without a copy of
 Major Inoué's report on the water
 supply which copy had been called
 for in November. It was not until
 January that he sent it and then
 gave no explanation of his first
 report. I have sent constant
 reminders, but without any effect;
 on the 21st March he forwarded
 the enclosed letter in explanation
 of the delay.

6 Nov 80
 25 - do
 10 January 1901
 14 Feb -
 12 March -

x No 584

10. I now find that he referred
 the matter to Mr. Inoue Sub Officer
 Ootacamund and was content
 in forwarding last December
 an echo of Mr. Inoue's report and
 of course was unable to explain
 any thing regarding it and as he
 did not know how the figures
 had been obtained.

11. I feel I have been wrong
 in not reporting Mr. Pringle
 for

for delay and want of attention
 to his duty before in this and in
 other matters, but I hoped that
 some improvement would take
 place which hope I regret today
 has not yet been realized.

1038-9
 17

I have the honor to be
 Sir
 your most obedient servant
 M. M. Major R.E.
 Supg. Engineer, 2nd Div.

29

P. H. C. 2269
From
The Superintendents
Second Circle.



Dated 6th
Recd. 8th } April 1881.
Recd. 9th

No. 107
Enc. 1

Water supply at Ootca.
Carnarvon & Wellington.

Reporters regarding
the —

Dec 21-3-81
C. E. P. 851.

Cis 13-4-6 L. P. 4. R 21/6.

for

AP 30

No 584

From The Executive Engineer
West Coast D.

To. The Superintending Engineer
2nd Circle, Lambhore

Sir, In reference to your memo
dated 14th February 1881 and reminder
No 142 dated 12th Inst, I have the honor
to state that I have requested Mr. W. C. D.
Milne to answer the query direct
as I regret to find that the letter I
stated to have been sent to him before
has through an unfortunate omission
in the office never been sent. Until
the reminder was received and enquiry
made this was not discovered.

I have Yours
(signed) E. H. Pringle
En. Engr W. C. D.

(Lower copy)

M. M. Major R. E.
Supg. Engineer, 2nd Circle

Executive Engineer's Office
West Coast Division
Babins 21 March 1881.
1038-9
19

Encls. No. 1

In a letter No. 157 of 6th
April 1881 from the Suptg Engrs
2^d circle

Copy of letter No. 584 of
21st March 1881 from the
Suptg Engrs West Coast Div.

No. 1038 W

PUBLIC WORKS DEPARTMENT

1038-9
10

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Under date the 22nd April 1881

Read the following:

From the Encl. Dept (H E No. 2189 of 19 Nov/80
Suptg Engrs, Presidency (H E No. 4092 of 9 Feb/81
From the Suptg Engrs
2nd Circle } H E No. 157 of 6th April 1881.

Ordered to be for-
warded to the Govt
of India.

2. The further de-
tails in regard to the
Potacamund Water
supply project pro-
mised in para 8 of
the Suptg Engrs letter
will be awaited.

3. The explanation
of the Executive
Engineer West
Coast Division in
regard to his omission
to furnish the
report

33
report required of
him ^{very} satisfactory.

H. E. No 1039 Wd / 22/4/81

No 1039 Wd / 22 April / 81

To
The Secy to the Govt of India
D. W. Dept.

Sir,

With reference to
your letter No 203 M.
dated 24th August 1880, I
am directed to forward
the accompanying
Copy of Proceedings
of this Govt. embodying
the reports called for
by the Govt of India,
in regard to water
supply projects at
Madras and on the
Nilgiris.

To

The Civil Dept. ✓
Capt. W. Presidency ✓
Capt. R. 2 Corps ✓

Recd

9-5-81

Des 103
10-5-81

34
2 ¹⁰³⁸⁻⁹ ₈₁ It will be seen
that the information
as to Cotacamund
and Wellington is
very meagre, but the
reason for this is
explained by the
Capt. Engineer. The
Survey Map of the
Nilgiris promised
by that Officer, -
which will give you
the details, will be
forwarded on re-
ceipt.

On ^L _{11/4}
Desd ₁₀₋₅₋₈₁

11/7/29 BTL

2269

Gobt. of 1881 Madras.
PUBLIC WORKS.

To
Dated
Issued
Recd.
Encl.

11
23

G. O. 22 April 1881, No. 1038
1039

Nos. 58

Water supply Projects at
Madras and on the Nilgiris
Reports regarding the
forwarded to the Govt. and

Water supply Projects at
Madras and on the Nilgiris

50
10

30
10