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MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

G.O. No.	667	(IV)	Press
			~~Mis.~~
Dated	27-2-	1877.	

Not to be folded or roughly handled

No. 671. Read the following letter from Major ROSS THOMPSON, R.E.,
Officiating District Engineer, Bangalore, to the Chief Engineer for Roads
and Buildings, dated Bangalore, 22nd February 1877, No. 233 :—

In continuation of my letter No. 222, dated 10th instant, I have the honor to
forward the accompanying copy of my letter No. 473, dated 22nd instant, regarding
the steps taken for sinking wells in Bangalore for the supply of water to the British
troops.

From Major ROSS THOMPSON, R.E., Officiating District Engineer, Bangalore, to the Assistant
Quartermaster-General, Mysore Division, dated Bangalore, 22nd February 1877,
No. 473.

I HAVE the honor to submit, for the information of the Major-General Commanding the
Mysore Division, the following memorandum on the wells which have been constructed or
cleared, or are at present being constructed or enlarged for the European and Native troops at
Bangalore, since the supply of water from the Ulsoor Tank commenced to fail owing to the
failure of the south-west and north-east monsoons of 1876.

I.—A new well has been sunk in the bed of the Dumloor Tank, at high water mark.

Depth below ground-surface, 22 feet.

Diameter, clear internal, 12 feet.

Contents, 9,322 gallons of water.

The yield of this well is very constant and good, and the quality appears excellent.

The water is lifted by means of a picottah and poured into a number of half-casks, connected
by split bamboos. It is then lifted out of the casks by pots and poured into water-carts.
This arrangement appears to be wasteful, a large amount of water being spilled. It would,
I think, be better to have the water-carts filled directly from the well by means of the picottah.
A small tank or large cask could be arranged at such a height that carts could be filled from
it by means of a hose, the tank or cask being kept filled by the picottah.

II.—A new well at high water mark in bed of Dumloor Tank, a short distance south
of No. I.

Depth, 16 feet.

Diameter, clear internal, 12 feet.

Contents in gallons, 4,944.

Supply constant and good.

Quality appears good.

Water raised by picottah and dealt with as at Well No. I.

III.— } Three wells in a group on western margin of Dumloor Tank, constructed some
IV.— } years ago, but lately cleared out.
V.— }

Depth of each, 21½ feet.

Diameter, clear internal, 4 feet.

Contents in gallons, 961.

Supply constant and good.

Quality appears good.

Water raised by hand in pots or leather buckets, and carried away
by puckalies.

The water of Wells Nos. I to V inclusive is, I understand, used by the Field Batteries
of Artillery, and the wells are supposed to be guarded by them.

VI.—A well near a small chuttrum south-west end of Dumloor Tank, lately purchased
from natives by the Madras Government for the troops.

Depth, 12½ feet.

Diameter, clear internal, 8½ feet.

Contents, 1,050 gallons.

Supply constant and good.

Quality appears good.

Water raised by picottah and dealt with as at Well No. I.

Has been hitherto used by the 14th K. Hussars, but I understand they do not do so now.

VII.—Small well in a tope near to, and south of, Cavalry Hospital, constructed some years ago.

Lately cleared out.

Depth, 23 feet.

Diameter, clear internal, 3½ feet.

Contents in gallons, 90.

Supply constant and good.

Quality excellent. Medical Officers are of opinion that it is the best water in or near Bangalore.

This well is now being enlarged to a diameter of 12 feet clear internal diameter, and will be carried down as deep as practicable. It will form a most valuable source of water-supply for the Artillery and Cavalry Hospitals.

VIII.—A small well south of, and close to, No. VII. Constructed some years ago.

Lately cleared.

Depth, 21½ feet.

Diameter, clear internal, 3½ feet.

Contents in gallons, 150.

Supply constant and good.

Quality excellent.

Water used in Artillery and Cavalry Hospitals and by Field Batteries. It is expected that when No. VII. has been enlarged, the yield will be sufficient and that it will be unnecessary to enlarge No. VIII.

IX.—A new well south-east of Agram Barracks, close to the causeway over nullah.

Depth, 28 feet.

Diameter clear internal, 12 feet.

Contents, 12,712 gallons.

This well has not apparently been used yet to any great extent, and does not appear to be guarded. It is conveniently situated for the Cavalry and Field Batteries. As the water now in the well has been in it for some time, I would not recommend its being used for cooking or drinking. It would be better to use it up at once for bathing, washing, &c., and then to keep the well in constant use, when I have no doubt whatever the water will be found of excellent quality and the yield abundant. A picottah is in readiness for this well and can be put in working order at any time.

X.—A new well south of Agram Barracks, close to and north of culvert on Agram road.

Depth, 34½ feet.

Diameter, clear internal, 12 feet.

Contents in gallons, 19,704.

All remarks regarding Well No. IX are equally applicable to this well.

XI.—A new well near Dhobies Pettah on piece of land lately purchased by Madras Government for Rupees 50 from Mr. Standish Lee.

Depth, 27½ feet.

Diameter, clear internal, 12 feet.

Contents, 636 gallons.

Supply good and constant.

Quality excellent.

This well when completed had a depth of 13 feet of water in it or a supply of 11,017 gallons. It was not, however, taken charge of by the troops, and has been constantly drawn upon by the villagers of Dhobypettah, the families of the horse-keepers of both Field Batteries and Cavalry, and the inhabitants of the bazaar in the horse-keepers' lines.

The yield is abundant, and the quality appears to be excellent. This well is, I understand, being now guarded or reserved by the Cavalry, but I would not recommend it or any of the other wells being *allowed to lie idle*, the water would only become stagnant and unfit for drinking or cooking purposes. A picottah is in readiness for this well, and can be put in working order when required.

XII.—A new well in the 36th Regiment N. I. Lines, west of the railway road.

Depth, 46 feet.

Diameter, clear internal, 10 feet.

Contents in gallons, 300.

Supply constant and good.

Quality excellent.

This well has, since its completion, and even when in progress, been constantly drawn upon day and night by families of the Regiment. Water raised by means of pots, buckets, &c., attached to strings.

XIII.—A new well, 36th Regiment N. I. Lines, east of the railway road.

Depth, 62½ feet.

Diameter, clear internal, 10 feet.

Contents in gallons, 300.

The same remarks apply to this well as to No. XII.

XIV.—A new well near solitary cells, 23rd N. I. Lines.

Depth, 65½ feet.

Diameter clear internal, 10 feet.

Contents in gallons, 883.

The same remarks apply to this well as to No. XII.

XV.—A new well, 23rd N. I. Lines, opposite Musjid and near Girls' school.

Depth, 74 feet.

Diameter, clear internal, 10 feet.

Contents in gallons, 588.

Same remarks apply to this well as to No. XII.

The constant drain both night and day which Wells Nos. XII to XV inclusive stand is a proof of their having been well sunk into the present water-bearing stratum of the ground. As an additional proof I may mention that some days ago it became necessary to stop work on Wells Nos. XIV and XV, owing to material for lining not being at hand, the wells were covered over and no one allowed to draw water from them, when the water level rose to over 10 feet above the bottom, showing the contents of the wells to be 5,887 gallons each.

XVI.—A square pit is being dug in the bed of the Ulsoor Tank near tank lane for the supply of the Royal Engineers and Queen's Own Sappers and Miners.

At the surface of the ground, or tank bed, the pit is 100 feet square, it descends towards a central point by steps of 3 feet rise and 3 feet tread. Excavation is going on in it now at a depth of 18 feet below the tank bed. It is impossible to make more than a rough guess as the amount of water daily drawn from it.

The deepening of this pit has been, and is being proceeded with leisurely, the water being removed as it collects by the families of the Sappers and others in the vicinity. The expense of bailing is thus avoided, and the water is all utilized. Judging from the number of water carts, puckallies, and people with pots, who may be seen all day long carrying away water, I should think the yield cannot be less than from 5,000 to 6,000 gallons per day.

XVII.—A pit is being dug in the west side of the Ulsoor Tank bed for the use of the 45th Regiment S. F. Its dimensions and plan are the same as for No. XVI. It has been

excavated to a depth of 15 feet, and the daily yield is now about 2,000 gallons, probably more. The water is at present being removed and used by any one who comes for it, as bailing is thus rendered unnecessary and the water is utilised.

XVIII.—A square pit 60 feet square and descending by steps to a central point has been dug near the calingulah of the Ulsoor Tank in the tank bed to supply the Horse Artillery. The daily yield is about 3,500 or 4,000 gallons.

There is every reason to believe that this supply will continue and will be sufficient if the water is taken care of and not wasted. Hitherto the native sentries or guards put over this pit and the horse troughs by the Royal Horse Artillery have been useless, they have been constantly absent, the water as constantly stolen or wasted, and the troughs used for bathing by the inhabitants of the Ulsoor village or any one who choose to get into them. These are facts which have come under my own personal observation.

XIX.—Deep excavations are being made in the tank bed, along the foot of the Ulsoor rock, from which water will be passed to the well of the suction pipe of the steam pump. The yield is at present between 3,000 and 4,000 gallons per day, but I have no doubt, when the excavations have been deepened and extended, this yield will be doubled or trebled.

Advantage has been taken of the Ulsoor Tank being quite dry to arrange the suction pipe of the steam pump, and the pipe leading from the pump to the clear water basin at the Ulsoor rock, on better supports than they have hitherto had. Their supports are now all founded on the solid rock.

I have no doubt that the water now obtainable and to be obtained from the wells and pits above enumerated will, with the small daily yield from the Dhobies wells, say 1,000 gallons, and the water already stored in cisterns at the barracks, prove sufficient for the troops for the next four months, say to end of June; even if no rain were to fall in the meantime; but it is to be hoped that before the end of June the Ulsoor tank will have received a supply sufficient to remove all further anxiety and to render the excavation of further wells or pits unnecessary.

In the meantime, however, economy should be exercised in the use of water. The supply now available is only sufficient for the troops, and if water is taken from the Military wells indiscriminately by the troops and the civil population the wells cannot possibly be expected to hold out.

The "contents in gallons," given with each well, are the amounts of water actually found at the time of sounding them, and do not indicate the amounts which would collect in them if allowed to remain idle.

No. 672.

ORDER THEREON, 27th February 1877, No. 667.

MILITARY WORKS, No. 11.

RECORDED in continuation of G.O.,
No. 509, of the 15th February, and com-
municated to the Military Department.

(True Extract.)

Colonel,

Acting Joint Secretary to Government.

To the District Engineer, Bangalore,
" Military Department.

Exd. S. T. Austin.

Spare Copies

1873. District Engineer's Office
Bangalore 22 February 1877
Grounds for the construction of the
dams and the District Engineer
Bangalore
To
The Assistant Quarter Master General
Mysore Division
Sir,
I have the honor to submit
for the information of the Major
General commanding the
Mysore Division the following
Memorandum on the wells
which have been constructed or
are
cleared or at present being con-
structed or enlarged for the
European and Native troops at
Bangalore. Since the supply
of water from the Ulsoor Tank
Commenced

Commenced to fail owing to the failure of the South West and North East Monsoons of 1846.

I. A new well has been sunk in the bed of the Dumbor Tank, at high water mark.

Depth below ground surface 22 ft

Diameter Clear internal 12 feet

Contents 9322 gallons of water

The yield of this well is very constant and good and the quality appears excellent.

The water is lifted by means of a picottah and poured into a number of half casks connected by split bamboos. It is lifted out of the casks by pots and poured into water carts. This arrangement appears to be wasteful, a large amount of water being spilled. It would, I think, be better to have the water carts filled directly from the well by means of the picottah

a small tank or large cask. Could be arranged at such a height that carts could be filled from it by means of a hose - the tank or cask being kept filled by the picottah.

II.

A new well at high water mark in bed of Dumbor Tank, a short distance South of No. I.

Depth 16 feet

Diameter Clear internal 12 feet

Contents in gallons 4944.

Supply Constant and good

Quality appears good

Water raised by picottah and dealt with as at well No. I

III
IV
V

Three wells in a group on Western margin of Dumbor Tank. Constructed some years ago, but lately cleared out.

Depth of each $21\frac{3}{4}$ feet

Diameter Clear internal 4 feet

Contents in gallons 961.

Supply, Constant and good

Quality

Quality appears good.

Water raised by hand in pots or leather buckets and carried away by bucket.

The water of wells No. I to V in

= Chosive is understood used by the Field Batteries of Artillery and the wells are supposed to be guarded by them.

VI A well near a small Chutrum South West end of Dumlur Tank. Lately purchased from natives by the Madras Government for the Troop.

Depth $12\frac{1}{2}$ feet

Diameter clear internal $8\frac{3}{4}$ feet

Contents 1050 gallons.

Supply constant and good

Quality appears good

Water raised by pulley and dealt with as at well No. I.

Has been hitherto used by the 11th Rs. Nipars, but I understand they do

do not do so now.

VII

Small well in a tope near to, and South of Cavalry Hospital. Constructed some years ago.

Lately Cleared out

Depth 23 feet

Diameter, clear internal $3\frac{3}{4}$ feet

Contents in gallons 90

Supply constant and good

Quality excellent. Medical

Officers of opinion, that it is the best water in or near Bangalore.

This well is now being enlarged to a diameter of 12 feet clear internal diameter, and will be carried down as deep as practicable. It will form a most valuable source of water supply for the Artillery and Cavalry Hospitals.

VIII

A small well South of, and close to No. VII. Constructed some years ago. Lately Cleared.

Depth $21\frac{1}{4}$ feet

Diameter clear internal $3\frac{3}{4}$ feet.

Contents in gallons 150.

Supply constant and good
Quality excellent

Water used in Artillery and Cavalry
Hospitals, and by Field Batteries. It
is expected that when No. VII has been
enlarged the yield will be sufficient,
and that it will be unnecessary to
enlarge No. VIII.

IX. A new well South East of
Agram Barracks, close to the cause-
way over nullah.

Depth 28 feet

Diameter clear internal 12 feet

Contents 12712 gallons.

This well has not apparently
been used yet to any great extent
and does not appear to be guarded. It
is conveniently situated for the Cavalry
and Field Batteries. As the water
now in the well has been in it for
sometime, I would not recommend
its being used for cooking or drinking.

It would be better to use it up at once
for bathing, washing &c. and then
to keep the well in constant use
when, I have no doubt whatever, the
water will be found of excellent quality
and the yield abundant. A picotta
is in readiness for this well and can
be put in working order at any time.

X. A new well South of Agram
Barracks close to and North of Culvert
on Agram Road.

Depth $34\frac{3}{4}$ feet

Diameter clear internal 12 feet

Contents in gallons 19704.

All remarks regarding well No. IX
are equally applicable to this well.

XI. A new well near Phobies
Pettah on piece of land lately pro-
vided by Madras Government for
Rs. 50 from Mr. Hindich Lee.

Depth $27\frac{1}{2}$ feet

Diameter clear internal 12 feet

Contents 636 gallons

Supply good and constant
Quality

Quality excellent

This well when completed, had a depth of 13 feet of water in it or a supply of 11017 gallons. It was not however taken charge of by the troops, and has been constantly drawn upon by the Villagers of Dhoby Peltah, the families of the Horse keepers of both Field Batteries and Cavalry and the inhabitants of the Bazaar in the Horsekeepers Lines.

The yield is abundant and the quality appears to be excellent. This well is, I understand, being now guarded or reserved by the Cavalry but I would not recommend it or any of the other wells being allowed to lie idle, the water would only become stagnant and unfit for drinking or cooking purposes.

A picottah is in readiness for this well and can be put in working order when required.

XII

6
A new well in the 36. Regiment N. I. Lines, West of the Railway Road.

Depth 46 feet

Diameter clear internal 10 feet

Contents in gallons 300

Supply constant and good
Quality excellent.

This well has since its completion, and even when in progress, been constantly drawn upon day and night, by families of the Regiment. Water raised by means of pots, buckets &c attached to strings.

XIII

A new well 36. Regiment N. I. Lines, East of the Railway Road.

Depth 62 $\frac{3}{4}$ feet

Diameter clear internal 10 feet

Contents in gallons 300

The same remarks apply to this well as to N. XII.

XIV

A new well near solitary Cells 23. N. I. Lines

Depth 65 $\frac{1}{4}$ feet

Diameter clear internal 10 feet

Contents in gallons 883

The same remarks apply to the well as to No. XII.

XV. A new well 23 ft. deep opposite Imajid and New girls school
Depth 44 feet

Diameter clear internal 10 ft.

Contents in gallons 588.

Same remarks apply to this well as to No. XII.

The constant drain both night and day which wells Nos. XII to XV incline, stand, is a proof of their having been well sunk into the present water bearing stratum of the ground. As an additional proof I may mention that some days ago it became necessary to stop work on wells No. XIV and XV, owing to material for lining not being at hand, the wells were covered over and no one allowed to draw water from them - when the water level rose to over 10 feet above the bottom showing the contents of the wells to be 588 gallons each.

XVI

XVII.

A square pit is being dug in the bed of the Meror Tank near Tank Lane for the supply of the Royal Engineers and Queens Own Cavalry and Miners.

At the surface of the ground, or tank bed, the pit is 100 ft. square. It descends towards a central point by steps of 3 feet rise and 3 feet head. Excavation is going on in it now at a depth of 18 feet below the tank bed. It is impossible to make more than a rough guess at the amount of water daily drawn from it.

The deepening of this pit has been and is being proceeded with leisurely, the water being removed as it collects by the families of the Sappers and others in the vicinity. The expense of bailing is thus avoided and the water is all utilized. Judging from the number of water carts, pushcarts, and people with pots, who may be seen all day long carrying away water, I should think

XIX

XX

the yield cannot be less than from 5000 to 6000 gallons per day.

XVII. A pit is being dug in the West side of the Uleor Tank bed for the use of the 45 Regiment S.F. Its dimensions and plan are the same as for No. XVI. It has been excavated to a depth of 15 feet and the daily yield is now about 2000 gallons probably more. The water is at present being removed and used by any one, who comes for it, as baiting is thus rendered unnecessary and the water is utilized.

XVIII. A square pit 60 ft square and descending by steps to a central point has been dug near the leahin gulch of the Uleor Tank, in the tank bed to supply the Horse Artillery. The daily yield is about 3500 or 4000 gallons.

There is every reason to believe that this supply will continue and will be sufficient, if the water is taken care of, and not wasted. Hitherto

the Native sentries, or guards put over this pit, and the Horse troughs by the Royal Horse Artillery, have been useless, they have been constantly absent, the water is constantly stolen or wasted, and the troughs used for bathing by the inhabitants of the Uleor Village or any one who chose to get into them. These are facts which have come under my own personal observation.

XIX. Deep excavations are being made in the tank bed, along the foot of the Uleor Rock, from which water will be raised to the well of the suction pipe of the steam pump. The yield is at present between 3000 and 4000 gallons per day but I have no doubt, when the excavations have been deepened and extended this yield will be doubled or tripled.

Advantage has been taken of the Uleor Tank being quite dry, to arrange the suction pipe of the steam pump, and the pipe leading from the pump to the clear water basin,

at the Moor Rock on better supports than they have hitherto had. Their supports are now all founded on the solid rock.

I have no doubt that the water now obtainable and to be obtained from the wells and pits above enumerated, will, with the small daily yield from the Phobies wells, say 1000 gallons, and the water already stored in cisterns at the Barracks, prove sufficient for the troops for the next four months - day to end of June - even if no rain were to fall in the meantime; but it is to be hoped that before the end of June, the Moor Tank will have received a supply sufficient to remove all further anxiety and to render the excavation of further wells or pits unnecessary.

In the meantime, however, economy should be exercised in the use of water. The supply now available, is only sufficient for the troops

and if water is taken from the military wells indiscriminately by the troops and the civil population, the wells cannot possibly be expected to hold out.

The "contents in gallons" given with each well, are the amounts of water actually found at the time of sounding them, and do not indicate the amounts, which would collect in them, if allowed to remain idle.

I have the honor to be
Sir

Yours Most Obedt Servant

J. J. P. Thompson Major R. E.

Off: District Engineer

C. R.

"True copy"

R. Thompson Major R. E.

Off: Dist: Engineer

C. R.

No. 1992

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No. 1992

8. 2. 77. No 136 Kun
14. 2. 77 " 498.
15. 2. 77 " 509.

No. 667 of 27 Feb/77
Recorded in continuation
of G. O. No. 509 of the 15th
February, and communicated
to the Military Department.

20.277

B. Eng. Bangalore ✓
 Phil. Dept. ✓
 Arch 16-3-77

P. 27: Feby/77 I.D. 2.66

Gen 26.2.97

1992

Govt. of 1877 Madras.
PUBLIC WORKS.

To the R. & Bangalore

Dated

Issued

Recd.

Encl.

G. O. 27th Feb 1877, No. 667

Nos. 671-72

Wells in the vicinity of
Artillery & Cavalry Lines
at Bangalore - Report
from the Druggs of the steps
taken in sinking -
Recorded & commd to the
Minty Dept.

But no app.