

Local & Munl. (1899) Department.

MISCELLANEOUS.

G.O., No. 623 M.

DATED 6-5-99.

INDEXED.

RECEIVED

[Despatch Abstract.]

Trichinopoly water-works. Approving the recommendation of the Sanitary Board that an experiment should be made on the lines proposed by the Acting Chief Engineer for extending the — & requesting the Sanitary Engineer to take the work on hand without delay.

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

Local & Munl. (1899) Department.

CURRENT No. 11087m



Again G.O. No. 54 M. dated 11th January 99
and C.No. 11087m/99

From

The Secretary, Sanitary Board

Order. No. 623 *revised*
6/5/99 *HA* 25.99

No. 219
5

The recommendation made by
the Sanitary Board in para. 5 of its
resolution read above is approved.
The Sanitary Engineer is requested to
take the work on hand without
delay.

Dated 24th April 1899.

Received 25th

Registered —

Enclosures 16

Spare copies nil.

{ Enclosure 14. Estimate for Rs 196 for repair of wells & hand pump. No. 197. 2. 99. Sent to the Sanitary Board on requisition on the 18.5.99 }

SUBJECT.

Trichinopoly Water Works Extension:

Col Smack who knows the river very well
is almost positive that the pipe system he advocates
will answer. The municipality with the
experience tried. It is estimated to cost with all
materials that 6000 Rs. and if successful the work
will be unnecessary. It is too late this year to get
works done but they intend to push the pipe
down. Submits that his experience is that
the Chairman, Mr. Trichinopoly

Communicating the resolution
of the Sanitary Board recom-
mending that an experiment
should be made on the line
proposed by the Ap. Chief Engineer
with regard to the — and
that the work should be carried
out under the supervision of the
Sanitary Engineer.

Thru the Collector
Sanitary Engineer
Sanitary Comm.
Board
27/4/99

Sanitary Engineer

BACK PAPERS.

G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.

MEMO.

Before we incur a large expenditure in sinking three additional wells to supply more water to the pumping well, it is proposed to try if we could do the same by means of a spring channel dug in the bed of the river of about 500 feet long, about 5 or 6 feet broad and 4 ft deep and made to discharge into the screening well. The proposed channel may be paved both at the bottom and sides by means of big gravel or rough stone to a distance of about 50 ft from the retaining wall to prevent sand from getting into the well-an 18" pipe may be laid from the retaining wall to the screening well with a sluice valve fitting into the same inside of the retaining wall. The valve will be closed during floods. As a further precaution to prevent sand from entering the screening well, we may also place a screen at the mouth of the pipe near the retaining wall. The pipe may be laid about 6 feet below the bed level and the channel may be deepened and lengthened according to our requirements. The pipe laid will enter the screening well west of the screens fixed. If this succeeds, it may be made permanent and as we have to repair, in the hot weather, the well No.1 which is already choked with sand, we may take this opportunity to try this spring channel to keep up the supply of the town. The cost of this trial may not be more than Rs.900 and we may save a good lot of money, if we succeed.

(Signed) N.G. Gopala Iyer.
President.
Water Works Committee

(True copy)

Munl Office,
Trichinopoly,
11th. Nov. 98.)

(Signed) W. O'Hara
Chairman.

(True Copy)
Sanitary Engineer to Govt

Proceedings of the Municipal Council Trichinopoly passed
at the meeting held on the 3rd. November 1898.

P r e s e n t.

- | | | |
|-----|---|-----------------|
| 1. | Lieut. Col. W. O'Hara I.M.S. | Chairman. |
| 2. | J. Juglis Esq., | Councillor |
| 3. | Rev. J. Strewsbury. B.A. | |
| 4. | M.R.Ry. M. Sreenivasa Row Avl, B.A., B.L. | Revenue Officer |
| 5. | " T.V. Annasawny Mudaliar Avl. | Councillor. |
| 6. | " A.C. Chidanbara Mudaliar " | " |
| 7. | " N.G. Gopala Iyer Avl, B.A. | " |
| 8. | " R. Kandasamy Pillai Avl. | " |
| 9. | G.A. Salisbury Esq., | " |
| 10. | " T.V. Marudanayakam Pillai Avl. | " |
| 11. | " T. Venkataramanujam Chettiar Avl | " |
| 12. | " C. Vythilingam Pillai Avl. | " |
| 13. | " J.P. Ramanjulu Naidu Garu | " |

Para No. 377. Read memo of the President, Water Works sub-committee,
suggesting that before sinking 3 more wells in the Cauvery river a
spring channel be dug in the hot weather and made to discharge into the
screening well as an experimental measure.

x x x x

The Council resolves to adopt the suggestion put forward by the Pre-
sident, Trichinopoly water works committee, provided that it meet with
the approval of the Sanitary Engineer.

Detailed statement will be submitted.

(Sd) W. O'Hara
Chairman.

(True extract)

Munl office.
Trichinopoly
11th. November 98)

(Sd) W. O'Hara.
Chairman.

(True Copy)

Sanitary Engineer to Govt

S.C. No. 65 of 99.

11/1108/m/99

No. 1428.
17-11-98

Municipal Office,
Trichinopoly, 15th. November 98.

From

Lt. Col. W. O'Hara I.M.S.,
Chairman,
Municipal Council,
Trichinopoly.

To

The Sanitary Engineer to Govt.
MADRAS.

Sir,

I have the honor to send you a copy of the Council's Resolution No. 377 dated 3rd. November 1898 and to request that you will be good enough to favour me with your opinion thereon.

vide sh. note
The Council is of opinion that the spring channel (which costs under Rs. 1,000) should, if possible, be tried as an experiment in the ensuing dry season, and if successful should be made permanent.

I have the honor to be,

Sir,

Your most obedient servant,

(Signed) W. O'Hara,

Chairman.

(True copy)

W. O'Hara

Sanitary Engineer to Government

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S.C. No 65 of 99

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11/08/99

W. O'Hara

S. E. 1,000-17-1-99.
No. 1697.

GOVERNMENT OF MADRAS.

OFFICE OF SANITARY ENGINEER,
Poonamallee Road (Park Town),

Madras, 25th. November 1898.

From

J. A. JONES, Esq. MEM. INST. C. E., F.R.S.E.,

SANITARY ENGINEER TO GOVERNMENT,

To

The Chairman,

Municipal Council,

Trichinopoly.

SIR,

With reference to your letter No. 1428 dated
15th. November. 1898, I have the honor to forward herewith
a note on proposal in re substitution of open channel for
extra wells in Cauvery.

I have the honor to be,

Sir,

Your most obedient servant,

(Signed) J.A. Jones.

Sanitary Engineer to Government.

(True copy)

[Signature]

Sanitary Engineer to Government.

[Handwritten initials]

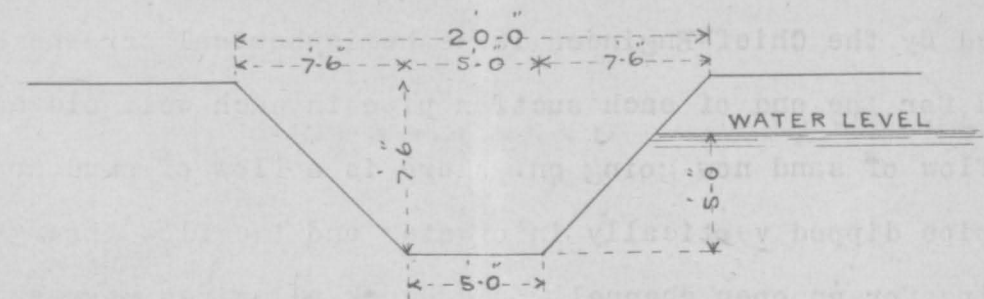
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S.E. No 65 of 99.

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1108/m/99

Note on proposal by the Municipal Council of Trichinopoly re: substitution of open channel for extra wells in Cauvery.

The Sanitary Engineer has carefully considered the proposal made but regrets he is unable to approve of the proposal for the reason given below:-

1. The Councillors propose a channel 4 feet deep and 5 to 6 feet broad. Such a channel to be of use at the time when it is most required must be dug at least 5 feet below lowest water level - which is 336.50 and the bottom of channel must therefore be at 331.50. The very lowest portion of the bed of the river is 329 so that the channel would have at least to be $7\frac{1}{2}$ feet deep. This with a bottom breadth of 5 feet would if revetted have a section of



It need not be remarked that such a channel would be very difficult of execution and even if revetted would not keep out sand. The cost of such a channel 500 feet long with revetment could not be done under Rs 10,000.

- (2) And even if this channel were built it would have to be re-excavated every season cost say Rs 300 or 400.
- (3) It is doubted however whether any revetment would stand a heavy flood and in any case the annual expenditure would be very great.
- (4) The proposal to connect ~~such~~ such a channel to the screening chamber even by a pipe would be out of the question, it would have to pass below the retaining wall which would have to be taken down for a considerable length and the cutting behind the wall would be over 22 feet deep - this would not only endanger the wall but the screening chamber ~~and~~ but also the pump house because heavy pumping would be inevitable

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S.C. No 65 of 1911

and it is doubted much of the work could be executed at all without enormous expense; divers would have to be entertained &c. The danger to existing works alone however excludes any chance of such a proposal being entertained.

(5) Such a channel might be connected to one of the wells having a pipe from the well into the channel. No revetment which has to be constructed so as to allow the water to pass through it will prevent the channel also filling with sand and sand will be carried down the channel. Quantities would also be blown in as well as other matter. It is suggested that a screen should be placed on the end of the pipe but no effective screen could be placed there because the fineness of the mesh would require a screen of great area as compared with the pipe area and an expensive sump behind it. There is no doubt that sand from an open channel could not practically be kept out of the well and the well would fill with sand and hence the pipes to the screening chamber. This at present is going on to some extent and in the new plans approved by the Chief Engineer large hemispherical screens have been provided for the end of each suction pipe in each well old and new to stop the flow of sand now going on. There is a flow of sand now through the pipe dipped vertically into water and the flow through a horizontal pipe for an open channel would block all pipes very shortly.

(6) Again the proposition is far from a sanitary one as instead of well filtered water being obtained surface water only would flow into the channel.

The undersigned thinks that the proposal, if executed, would endanger the efficiency of the works and decrease the present grade of purity of the supply - the present design requires improvements in minor points and to add an open channel to existing works would be an obvious retrograde step.

11. The undersigned therefore feels that he must reject the proposal as it will neither be economical nor efficient - and will in all probability be detrimental.

(Sd) J.A. Jones,
Sanitary Engineer to Government.

(True copy)

Sanitary Engr. to Govt.

To

The Chairman,

Municipal Council,

Trichinopoly.

Sir,

With reference to the letter of the Sanitary Engineer dated _____ I have the honor to inform you that probably, I have not made myself properly understood when I submitted my former memorandum to the Council. The spring channel I suggested

*vide Chairman's
letter - "if
successful to be
made permanent"*

was only a temporary channel to be dug in the hot weather for the purpose of experiment and it was never intended to be kept open

during the time of floods. For the present we can give up the

idea of connecting the spring channel with the screening well as the Sanitary Engineer thinks that it is beset with difficulties.

The channel water may be let into the well No.1. This should be

repaired and the sand is completely
done after the well is completely removed from it. To prevent sand

from getting into the well we can gravel the bottom and the sides

of the channel to a distance of 30 or 40 feet from the well. The

channel may be 4 or 5 ft deep from the bed level and we can deepen

it if necessary afterwards. We can also put big gravel at the open-

ing in the well, to serve as a sort of filter and also to prevent

sand from getting into the well. If you can, from the spring channel

pump nearly 90,000 gallons per day to supply the town etc, you can

make it permanent afterwards. Practically this method is followed

at present and the surface water of the river is let into No.2 well

and supplied to the town. The cost of digging this temporary channel

in the bed of the river cannot be great and we can do this by directing

our gang coolies to work in the river for a week or so, and by

employing professional men to remove the sand easily. When you

want to make this channel permanent you can make it some what deeper

and lay a perforated pipe of 2 feet in diameter as far as the

well, with a screen ~~never~~ near ~~the well~~ it. The pipe may be covered

with gravel etc. to make it a filter bed. This will give us a good

filtered water and not the surface water as the Sanitary Engineer

thinks. We need not remove the sand every year and the sand

*a very
temporary
arrangement*

finally

not get into the well, if proper screens are provided. If more water is wanted we can widen the channel and lay ^{another} pipe of the same or less dimension. As I am not an expert I feel difficulty in expressing my ideas more clearly and suggest other improved methods to this proposal. I believe this explanation meets with all the objections raised by the Sanitary Engineer and if explained to him, he may not have the same objections as he had before.

I have the honor to be,

Sir,

Your most obedient servant,

(Signed) A.H. Gopala Iyer

A Rate payer.

30th. January '99 }
Trichinopoly. }

(True copy)



Sanitary Engineer to Government.

Extract from the Proceedings of the Municipal Council,
Trichinopoly, passed at the meeting held on the 3rd February
1899.

P r e s e n t

x

x

x

x

para 530. Read letter dated 30th January 1899 from M.R.Ry
N.G. Gopala Iyer Avergal, explaining the objection raised by the
sanitary Engineer to Government regarding the experimental spring
channel to be dug in the hot weather.

Letter will be sent to the sanitary Engineer.

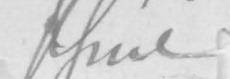
Municipal office,
Trichinopoly,
3rd February 1899. }

(Sd) W.O'Hara,

Chairman.

(True Copy)

lib



Trichinopoly

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1108/m/99

No. 193.
3-2-99.

Municipal Office,
Trichinopoly, 3rd. February 1899.

From

Lt. Col. W. O'Hara I.M.S.,
Chairman,
Municipal Council,
Trichinopoly.

To

The Sanitary Engineer to Govt.
M A D R A S.

Sir,

With reference to your letter No. 1697 dated 25th.
November last, I have the honor to enclose ^xtwo Resolutions
of the Council passed at this morning's meeting.

*one unconnected
with the Spring Channel
proposal*

I have the honor to be,
Sir,
Your most obedient servant,
(Signed) W.O'Hara.
Chairman.

(True Copy)

W.O'Hara
Sanitary Engineer to Govt

hch

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5
1108/99/99

finally

Very Urgent.

S. E. 200-25-11-98
38.

N:160

GOVERNMENT OF MADRAS,

Office of Sanitary Engineer to Govt.,

Poonamallee Road (Park Town),

Madras, 9th Feb. 1899.



OFFICE NOTE

BY

THE SANITARY ENGINEER.

In enclosing the accompanying paper regarding a suggestion by a member of the Municipal Council, Trichinopoly, the undersigned begs to remark that it is evidently the desire to substitute the arrangements proposed instead of the three additional wells sanctioned by Govt. and for which works Government has approved of a loan and has ordered their execution on funds being placed at disposal of the undersigned.

2. Some of the objections to the open channel are stated in the reply attached No. 1697 and with reference to the second letter on the subject, it does not appear to meet the objections in any way, for, no open channel of the depth can be maintained without revetment and unless the revetment is sand tight the sand will enter with the water and sand ^{can} not be excluded from the wells (with which there is already trouble) even though filtered through considerable depth of metal at the bottom of the wells. More open channel in the bed of the

Canvery will be subject to pollution by hobies and persons walking through the bed and the waters obtained will undoubtedly be surface water which cannot be pure or at any rate nearly as pure as water drawn from wells.

3. What is being done now as a very temporary expedient viz. admitting flood water into No. 2 well (because the sand cannot at present be removed from Nos. 1 & 5) is no argument in respect of an open channel even in the dry weather. An open channel can only be of a temporary nature during the dry season and cannot be used during floods, when it will inevitably fill in but this is just the time when the extra wells are much required because by lowering the water unduly during floods the floods force the sand into the wells and with a view of avoiding this and giving an extra supply during the dry seasons the three extra wells have been sanctioned and ordered for execution.

4. Seeing that this is the case it would hardly seem necessary for this matter to come before the Sanitary Commissioner and the Sanitary Board at all, the matter having been already decided, but as it is possible that the matter may be delayed pending a final decision as to the scheme now put forward, this note with the papers is forwarded for consideration and it is requested as the matter is very urgent (indeed works ought to have been begun now for the working season will be lost) that this reference may receive speedy disposal.

[Signature]

Sanitary Engineer

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S.E. No 65499

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1108/1m/99

To

The Secretary,

Sanitary Board

through the Sanitary Commissioner for
MADRAS.

P.S.

The supply was continuous during last hot weather and there are no grounds for assuming it will not be so this year; of course if an absolute necessity ^{arise} for an open channel for a month or so, there would be no objection but it should in no way be considered as an experiment in view to a permanent one which is what the undersigned is strongly averse to.



No. 667

NOTE by the Sanitary Commissioner for Madras, dated 26 Feb 1899.

Reference.—

Proposal by the Municipal Council Trichopoly re substitution of open channel for extra wells in the Cauvery.

Forwarded.

2. The objections to an "open" Channel are obvious and indubitable. It does not however appear from the specimen letter by the Councillor making the proposal that he really contemplates an open channel. What he has really attempted to describe is a shallow infiltration gallery of which his conception seems crude. The system is largely pursued in American practice and I think the same idea carried out at Cojaveeram in modified conditions. Loosely joined pipes covered with gravel and rough stone and finally

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1108/m/99

Sanitary Current No. 65.
Read 28 Feb 99
Encls: 9.

covered over with the sand of the
bed would serve requirements.
The water received into the well
at present presumably does not
exclude the upper stratum of
the sub-stream, which water
collected by a shallow infiltration
gallery would really ^{be}. Whether
this is as sound a financial or
engineering proposition as the
making of new ^{wells} is a matter
I do not discuss.

W. H. King
Lieut Col. Rms.
Sanitary Commissioner
for Madras

The Secretary Sanitary Board.

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1108/m/99

money for the works there might
be some excuse for Col. Smart's
proposals but, seeing that Trichi-
nopoly is a growing town and
that as much water as possible
should be secured when funds
do permit, a policy of frittering
away that money in small
tentative schemes is not one
that can possibly be justified.

The undersigned is
moreover still of opinion that
the wells as sanctioned by
Government are the best &
proper plan & method of
obtaining the additional supply;
the question which was placed
before the Board by the under-
signed was the question of the
advisability of allowing the
Council to construct an open
channel and to this both the
Sanitary Commissioner and the
undersigned object most
strongly. The question of pipes
against wells is one raised
by the Chief Engineer & as to
this of course the final decision
rests with Government after
decision by the Board which
the undersigned most earnestly
trusts will be for the proposals
as already put forward by
the undersigned.

It is noted that Col. Smart
proposes that his high level
pipe should be carried out by
the Municipality; to this the
undersigned, as Engineer of the
works & maintenance, would
enter a most respectful
protest, for, if municipalities
are to be allowed to interfere
with works under his charge
it would then become a
question whether it would not
be the undersigned's duty to
request to be relieved by
Government from the care
of works which the undersigned
would then be no longer in
a position to control.

Alfred
Sanitary Engineer
to Govt

plus the present deficiency
number of people, and the length
of the pipes at present proposed
is two rows of 350 against 4 rows
of 500 at Compiègne.

The undersigned regrets
that he is unable to concur
in the proposal of Col: Smart
for which no reasons whatever
have been given; whereas the
proposals made by the under-
signed are based on figures &
experience.

The undersigned desires
most strongly to urge on the
Board the necessity for the
immediate carrying out of the
works in such a manner as
will ensure their permanency &
sufficiency, and not in a
tentative manner as otherwise
proposed. There is no harm in
getting too much water but
there is a very great harm in
getting too little & then having
to do the work again.

The undersigned, being
responsible for the maintenance
of the works as he was for their
construction, feels it necessary
therefore to do his utmost to
secure their success - were there
a great difficulty in getting

through the Sanitary Commission
this proposal was offered & in this
the undersigned is fully backed
up by the Sanitary Commission.
The proposal is one fraught with
danger to the works & inimical
to the purity of the supply. It is
therefore not understood in what
grounds Colonel Smart in his note
under reply still supports that
proposal & in a conversation on
the subject the undersigned
understood that he concurred
in the inadvisability of any
such course.

About the same time that
the above note re: the Spring
channel, was sent to the Sanitary
Board, the Chief Engineer requested
the undersigned to consider whether
instead of constructing three wells,
the supply might not be increased
by pipes laid in the bed of the
river. In deference to his views on
the matter, the undersigned went
carefully into the matter after
a conference with Col: Smart.

In sending forward the
results of a detailed consideration
of the subject, the undersigned was
not able to completely meet
Col: Smart's views and has clearly
shown in the note that to obtain
the supply required about 1143 feet

of pipes are required. This state-
ment is not controverted & unless
it can be shown that the calculations
made are incorrect, this figure
should be accepted.

It is not desired that the
whole 1134 feet should be laid
new and only two lines each 350
feet are proposed at present, this
length will certainly not give the
amount of water required but in
deference to Col: Smart the
length was so limited.

From Col: Smart's note it
appears he wants a channel to cost
Rs 5000 but this seems to be a proposal
without any basis - Why Rs 5000 &
not Rs 6,000 or Rs 4,000? What is
required is a certain amount of
water for a certain number of people
& the whole population of Trichinopoly
will have pipes before next cold
weather on that basis the under-
signed's proposals were put
forward & this is the only basis
on which the extent of the works
necessary can be decided.

Col: Smart evidently proposes
to make a very much shallower
channel but, apart from the
fact that such proposal has not,
as far as shown, been designed
with any reference to requirement,
there are other very strong reasons

against such a proposal - In the first place the pipe must be laid not only below lowest water level in the river but must be below the level to which we reduce water by pumping, that is 5 feet lower, and the pipes as proposed by the undersigned are only 2 feet ^{below this level} below; this is a very small margin indeed & to this level they must be laid if they are to supply water in any appreciable quantity - again there is the variation in the level of the river to be considered, for instance, last year the sand was 3" above No 3 well, this year on the up stream side of the well the sand is 5 feet below top of well. This is only one instance but the alteration in level of river bed annually is considerable. A similar work at Bangalore exists where the pipes are 10 feet below the lowest water level & where there are four rows of 9" diameter pipes, while here at Trichinopoly it is proposed to have only two. The pipes at Bangalore are more too low nor the supply more than ample for the number of people the works are designed for. Here at Trichinopoly only two rows at some 3 feet less in depth are proposed to supply about a similar

No. 287

Sanitary Current No 100.
Recd. 11th March 1899.

Government of Madras,
OFFICE OF SANY. ENGR. TO GOVT.,
Stowe Hall, Poonamallee Road,
Madras, 10th March 1899.

OFFICE NOTE.

From

THE SANITARY ENGINEER TO GOVT.,
Madras

To

The Secretary,
Sanitary Board,
Madras.

Trichinopoly water works.

Reference - Sanitary Board's
No. 80/5 dated 3rd March 1899.

At present sanction has been given by Government for the construction of three wells estimated to cost Rs 46,000; the money for this has been provided as a loan by Government.

Some time ago a councillor of the Municipality proposed an open spring channel; for reasons set forth fully in the undersigned note sent to the Sanitary Board

Urgent

Government of Madras.

SANITARY BOARD OFFICE.

PROCEEDINGS OF THE SANITARY BOARD, No. 219/8, DATED 24th April

LOCAL & MUNICIPAL DEPT.
CURRENT No. 1108M

Read the following:-

Office note from the Sanitary Engineer to Govt. No. 197 of 17 February 1899.
Office note from the Sanitary Engineer No. 160 of 9th February 1899.
Note by the Sanitary Commissioner

No. 667/8 of 26 February 1899.

Office note by the Sanitary Engineer No. 287 of 10 March 1899.

Resolution:-

In G.O. 54 M of 11 January 1899, Govt sanctioned the construction of 3 additional wells to the existing water works at Trichinopoly at an estimated cost of Rs 46,380. This money was promised by Government as a loan.

2. The work has not yet been commenced. Meanwhile three alternative proposals have been put forward:-

(i) The construction of an open Spring channel 500 feet long - by the Municipal Council of Trichinopoly.

(ii) The laying of 1 line of pipe 500 feet long on the bed of the Cauvery.

by the Acting Chief Engineer in
super session of above, and

(iii) the laying of two lines of
pipes of 350 feet - by Mr. Jones
with an estimate for Rs 21420.

3. The Sanitary Engineer objects
to (i) on the following grounds:-

(a) That a channel like the one
proposed would be 5 feet broad at the
bed, 20 feet at the top and $7\frac{1}{2}$ feet deep;
that it would be very difficult of execution;
that it could not be maintained without
revetment, and ^{that} the cost of such a channel
would not be less than Rs 10000.

(b) That it would have to be re-
excavated every season at a cost of
Rs 300 to Rs 400.

(c) That it is doubtful whether
any revetment would stand a heavy
flood, and that in any case the annual
expenditure would be very great.

(d) That the cost of connecting such
a channel with the screening well
would be enormous, and that the measure
is attended with risk to the existing
work.

(e) That it would tend to a greater
quantity of sand entering the well,
and that any precautions that may
be taken would not be effective
in

in preventing the entry of sand.

(f) That the scheme is objectionable
from a sanitary point of view as the
water would be subject to pollution
by dhobies and persons walking
through the bed of the channel.

4. The Sanitary Engineer objects
to proposal (iii) for the following reasons:-

(a) That there would be difficulty
in satisfactorily working the pipes

(b) That there would be trouble
with sand, notwithstanding the
precautions that may be taken to
prevent its entry.

(c) That the supply of water
that will be derived through the
proposed length of pipes would be
insufficient unless the head be in-
creased.

(d) That the cost of laying a
longer length of pipes to get the
same area of admission for water
as through a well would far exceed
that of the original proposal.

(e) That water will enter with
less head into the pipes than into the
well whenever the water in the existing
wells is drawn down lower than the
pipe

pipe level.

5. After careful Consideration
the Sanitary Board decides to recommend
that an experiment should be made
on the line proposed by the Asst Chief
Engineer, and that the work should be
carried out under the Supervision of
the Sanitary Engineer, who should use
every means to keep the expenditure
down to the lowest possible figure.

(True Extract)

R. Farquhar
Secretary Sanitary Board.

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