2579 W 1.10.86.
2337 W 15.9.86.
903 C. 12.5.85.
257 E. 22.6.85.
180 E. 3.6.85.
321-2 D. 30.6.86.
380 D. 12.7.86.
1325 W 27.5.86.

P.W.C. No 2579 W

B

From

The Supt. Engineer
6 circle.

To

The Chief Engineer
P.W.D.

Communicated
to the Financial
Dept. in continuation
of G.O. No 2337 W
dated 15th Septr
1886.

No 350 M.D.

Dated 1st }
Recd 2nd } November 1886.

Dindigul water supply:
Reports on the —

J.H.
4/11/86.

W.C.B.
4/11/86

To the Finl Dept
" S.E. VI Circle

Despd
10/11/86

15/11 12/11

Dw/W

with orders

well – Rs. 421-3-6; service Rs.1,500.
reservoir – Rs. 2,965; contgs. – R
The total – Rs. 31,551.

4. It will be found that though levels are alluded to, and the relative heights of points spoken of, no plotted lines of levels have been submitted. – They are essential in a project of the nature of that now under examination. – It is difficult to reconcile the amounts of estimates as shown at heads of reports and specifications with those derived from the abstract estimate – This apparent difference may be due to the non-professional preparation of the present estimate

8th May/85

by branch pipes, 3" dia., to the various parts of the town. – The total length of branch piping allowed is 7,704 feet. – Stand Pipes and sluice valves have been provided.

3. The abstract estimate runs as follows: –

2 Steam engines (capable of lifting 10,000 galls. per hour, each) at Rs. 3,950 each – Rs. 7,900; 3,402 feet, running, of cast iron piping, 6" dia., – Rs. 5,953-8-0; 7,704 ft. running of cast iron piping, 3" dia, – Rs. 5,296-8-0; curved pieces of piping – Rs. 220; 3 tons of lead for pipe joints – Rs. 600; 2½ ft. sluice valves – Rs. 160; 7¼ ft. sluice valves – Rs. 350; 20 Stand pipes – Rs. 600; laying piping and fitting up the stand pipes – Rs. 1,022-10-0; for filling in gaps – Rs. 1,000; compensation for land – [illegible] &c. – Rs. 1562-6-5;

a service reservoir, 2,080 ft. east of the well and on a rock which places it 84.38 ft. above the mean water level in the well, and from 54.97 ft. to 68.60 ft. above the levels of the different portions of the town. – The reservoir is to measure 40 ft. square with a depth of 20 ft. – It is expected to hold one and a half days supply of water for the town, or 200,000 galls. The population of the town is set at 14,000, of whom 13,000 are expected to make use of the water at 10 galls. a day per head. – The water is to be pumped through cast iron piping 6 inches in diameter. – From the reservoir the water will be conveyed by a main pipe, 6" dia., 1,322 feet northwards up to the Main Bazaar Street, and from the main [illegible] the water will be

1

The first thing to be done in connection with this is to forward the project to S.E. for early scrutiny & report. Please draft memo. to this effect & forward to W for approval.

C.A.
9.5.85

According to para 13 of the report Col: Meade would appear to have given a kind of general support to the Scheme, but this is not sufficient. His analysis of details, rates, &c. seems called for, before E.W. can pronounce judgement. The note by S.E. on the file, which apparently was written previous to Collectors Report is not sufficient. We should have his opinion now on all the papers & details submitted to Govt.

*Sacred tanks near Hindu temples are, very often, termed "theppacolum".
B.H.

Public Works Department, 1885-86

Current No. 3816
Letter No. 26
Dated the 29th April/85
From the Secy to Govt. - Finl. Dept.

Note of Remarks.

1. The accompanying plans and estimate have been submitted in connection with the Dindigul Water Supply Scheme. — The estimate amounts to Rs. 31,551.

2. In the scheme it is proposed to obtain what is termed a "practically inexhaustible" source of water supply by sinking a well (Sippamuthu) in the bed of an abandoned *theppacolum tank which is situated south west of Dindigul. — The well is to measure 21 ft. x 17 ft., and 19 ft. deep. — From this source the water is to be pumped

B.H.

ius engine up to

No. Public Works Department
Chepâk May 1885

1

Memorandum.

With reference to No. 26 dated 29th April 1885 from the Secretary to Govert. Financial Department, forwarding the documents in connection with the Dindigul Water Supply Scheme, it is to be remarked that according to para 13 of the report Col. Meade would appear to have given a kind of general support to the Scheme, but this is not sufficient. His analysis of details, rates, &c. seems called for, before E.W. can pronounce judgement.

The note by S.E. VI on the file, which apparently was written previous to Collectors Report is not sufficient. E.W. should have his opinion now on all the papers & details submitted to Govt.

Col. R.E.
Secretary to Government P.W.D.

B.H.

S.A.W.

This seems to me needlessly long & elaborate. I would simply forward the papers to [illegible] for [illegible] of estimate & [illegible] for [illegible] of project

CJ

[illegible]-5-85

[illegible] the [illegible] [illegible] [illegible] [illegible] will suffice.

R.M.

Please put up letters referred to by D.W.

S.G.W. JB

Papers are at Ooty with No. 8 & 12 E of 28-4-85

D.W.

Please see the [illegible] [illegible]

JP 31.5.85

---

that everything has been done that can be done, that the project must prove a success, & that it is so to speak, beyond the criticism of the P.W.D. I do not see how it can be recommended to Govt for sanction in its present shape.

That what has been done & what is being done are steps in the right direction is clear — but the details of a project which Govt are asked to contribute portion of the cost require to be more thoroughly worked out & the data more accurately tested & recorded.

CS.
29.5.85

P. W. Dept.

Note by the Chief Engineer, P.W.D.

In his letter No. 38C/M.D. d/ 23rd May 1885, ~~on the subject of~~ reporting on the water supply scheme for the town of Dindigul, the Supdg Engineer VI Circle deals first with the important points of quality and quantity of the water in the source whence it is proposed to supply the town of Dindigul, and he rightly remarks that further and more definite information on those points is necessary before the expenditure of a large sum can be recommended.

With respect to quality, the adjective used by the Chemical Examiner to Govt in describing the water ~~as~~ in the "Sippanuttu" wells is "bad"; and he adds "if carefully guarded from "dangerous organic contamination, "they may be usable, but in "their present state they cannot "be regarded as safe for drinking "without boiling." Mr. Crole states that the conditions affecting the wells have been improved since that analysis was made, but I strongly advise that a second analysis under those improved conditions be made, and the opinion of the Sanitary Commissioner obtained thereon, before sanction is accorded to the scheme.

With respect to quantity, there appears to be nothing on record except Mr. Crole's statement that he has "discovered "inexhaustible subterranean supplies", and the opinion expressed by Mr. Crighton that there "will be ample quantity for "the town supply during the "dry years." I concur in Colonel Mead's opinion that more definite and accurate information on this important point is necessary.

With respect to the general details of the scheme, I entirely concur in Col: Mead's remark that the project is at present incomplete. Until it is thoroughly worked out in all details, and the data ~~actually~~ accurately tested and recorded, it is impossible to form an opinion upon its merits, or upon the probable cost.

It is to be hoped that further investigation of the project will bear out all that Mr. Crole expects from it; but in its present shape it is impossible to recommend it for sanction, or for the grant of a large contribution from Provincial funds in aid of the cost.

I regret to observe that there are parts of Mr. Cole's letter to which I must take exception. Some of his observations appear to be uncalled for, and to be not founded on facts.

W.S.
2.6.85
E.W.

No. 180 E d/ June 3rd 1885

P. W. Dept

No. 180 E d/ June 3rd 1885.

Memorandum.

Letter from the S.E. VI Circle No. 38C/M.D. d/ May 25th 1885

Note by the Chief Engr., P.W. Dept d/ June 2nd "

C No. 3816
" 4707

Transferred to the Financial Dept. with advertence to its endorsement No. 26 d/ 29th April 1885, the original papers received with which are herewith returned.

W.S.
2.6.85
W.

To,

The Financial Dept

with 22 Enclosures

i.e. S.E.'s letter — 1.
Enclts. in Finl. dept. of 20 Enclos. [illegible] 20 — 22

Despd 4/6.

No 903 Cd/12.5.85

CHIEF SECRETARIAT,
Ootacamund,

C.No called for
22/

S & C No 5536

OFFICE NOTE.

From

THE CHIEF SECRETARY,

To Chief Engineer P.W.D.

Adverting to the last para of your note of the 2nd Inst on the water project for Dindigul I shall be glad if you will refer me to the particular passages in Mr Crole's letter which, in your opinion, are not founded on facts. and write at the same time tell me whether such passages are likely to affect in any degree the merits of the scheme which Mr Crole has put forward for sanction.

E.F.W
19/6/85

[illegible]

No 257 E d/ June 22nd 1885

To,

The Chf Secy,

In reply to your office note dated 19th current, I have the honour to state that, in drawing attention to some of Mr Crole's observations as being "uncalled for, and as not being founded on facts," I had in view especially the last part of paragraph 29 of Mr Crole's letter d/ 31.3.85, No 31.

In stating that I considered those observations "uncalled for", I intended to represent them as unnecessary to the proper consideration of the scheme for the water supply of Dindigul, and as altogether beside that scheme.

In stating that those observations were "not founded on facts," I intended to challenge the accuracy of his statement that the details of a project for water supply do not come within the operations of the P.W.D, and that the officers in that Dept. have "no experience whatever" in such matters.

In my position as head of the P.W.D, it was impossible for me to allow such statements to stand unchallenged.

(S.) J.S.S.
Ed

despd 22/6/85

№ 257 Ed/ June 22nd 1885

FINANCIAL DEPARTMENT.

W.

The reference and reply referred to in your note of 25th inst will be found in No: 257. E. of 22. June 1885 now submitted

F.B.
29.5.

Please [illegible] these papers at [illegible] on my return about 2 6 [illegible] 26.5

CHIEF SECRETARIAT, MADRAS.

No. 400

FINANCIAL DEPARTMENT.

Official Memorandum.

Dated the 26th June 1886.

Chairman Munl. Council Dindigul
Secretary, P.W. Department.
Sanitary Commissioner

The officers noted in the margin are requested to return all the copies of G. O. dated 1st May 1886 No. 411 M, regarding the Dindigul water supply.

(By order)

Ag. Under Secretary.

To

The Chairman Munl. Council, Dindigul
thro' the Collector of Madura.
" Secretary. P.W. Department.
" Sanitary Commissioner.

B. No 1325 W. 27-5-86

No. 321 Dd/ June 30. 1886

Copy to the S.E. VI Circle, with request that G.O. No. 1325 W dated 27th May 1886 may be returned to Ootacamund.

(Sd.) J.S.

S.E. VI Circle

Despd 30/6

No. 322 Dd/ June 30. 1886

Memo

With advertence to memo from the Financial dept No. 400 dated 25 June 1886, the undersigned has the honor to return seven of the eight spare copies of G.O. No. 411 Md/1.5.86 received in this office. The officer to whom the eighth copy was communicated has been asked to return it.

The signed copy of the G.O. was handed by the undersigned to the Hon: Mr Master on the 9th June 1886.

30-6-86

No. 903 Cd/12.5.85
" 259 E d/22.6.85
" 180 E d/3.6.85

To, The Finl dept ✓
with 7 copies of G.O.

Ackd. 15/5/6

Despd. 30/6

M.C. No 4907

Recd 28/6/86

No. 321-322 Dd/ June 30. 1886

Despd 30/6/86

With [illegible] B

No. 350 MD Supg. Engrs. Office 6 C.
Trichinopoly 1st November 86
Despd 2nd

From.
The Supg. Engineer
6th Circle.

To,
The Chief Engineer
P. W. D.

4/11/86

Sir,

Adverting to G.O. No. 1325 W dated 25th May 1886, regarding water supply in Dindigul, I have the honor to report as follows.

On the 28th Ultimo, I met, by appointment, at Dindigul the Collector and Mr. Crighton; the Sub-Collector and Tahsildar, Saravanamuthu Pillai, who was Tahsildar of Dindigul from the time the water works were commenced until recently, were also present.

The

The well from which it is proposed to supply the town is situated at south east* corner of Sippanuthu tank. The tank is an ordinary village tank. The sides are revetted with stone, except at a few places where the revetment has fallen down. The sides measure 192 feet by 127 feet, and the deep bed is about 14 feet below the average level of the adjoining land. At the time of inspection the bed of the tank was covered with water except near the well where the bed has been raised by the spoil taken from the well. The depth of water in the centre of the tank was about 5 feet. It is said that Mr Crole had the whole tank cleared out as far as practicable by coolies. The Tahsildar and several other persons stated that the tank never goes dry, and that during the famine years of 1877-78 it was well supplied and was the chief source of supply for the town, because during that time —— several of the other wells went dry. The tank is situated at the southern side of the town where all the wells show that water is much nearer the surface than at the northern end of the town. The natural slope of the country, and the comparatively nearness of the Sirumalai mountains point to this conclusion also. So I am inclined to think the tank is well supplied at all times.

Now turning to the well, it is situated at the south-east corner

* Described in Mr Crole's report south west which is incorrect

of tank as noticed already. At the time of inspection the water in it was 14·9" deep, or the surface was about the same level as the surface of the water outside in the tank. Mr Crole in his report states that the well is 19 feet deep, but this is not the case unless he refers to the top of the parapet which at the time of inspection was 4'-6", above surface of water in well. Mr Crole in para 11 of his report states that the well is lined with masonry pointed with Porland cement, but only the top of the lining was visible at time of inspection owing to the well being full. As the well is situated in a tank which all available evidence goes to show never

becomes

becomes dry, I think it is highly probable the well will give, at all times, an ample supply to the town, unless the population increases very much beyond the present number. It is rather unfortunate that Mr Crole in paras 6 & 11 used the expressions "pure uncontaminated source in the waters under the earth"; again "I have been so fortunate as to discover inexhaustable subterranean supplies", and again "after much toilsome search I struck upon a comparatively thin skin of Kunker". These expressions are apt to lead one to suppose that Mr Crole found water in a locality where very few would expect to find it, and, therefore, it is possible the supply is limited. As a matter of fact however Mr. Crole found water where any man with ordinary capacity would naturally look for it, because all the surrounding existing circumstances point strongly to a good supply being available. Not only is the tank itself well supplied, but there are at least three wells not a 100 yards off which show that there is plenty of water comparatively near the surface, while beyond this limit there are several other wells not far off.

Referring to the unfavorable results of the analysis of the samples of water taken from Mr. Crole's well, Mr. Crighton has already reported to the Collector that he considers the water available has not been properly

tested yet, because the well has never been pumped dry on account of the Pulsometer hitherto used not being sufficiently powerful. It seems that at first the lining of the well was not raised high enough to prevent the tank water submerging the well when the water in the tank rose rather high, and that the first set of samples were taken while the well was in this state. Subsequently a parapet was built all round on the top of the lining, so now water from the tank cannot enter except by percolation if this is possible. But the well was not pumped dry before the parapet was built nor since, and, consequently, the second set of samples were taken when the circumstances were practically the same as when the first set were taken. For this reason, Mr. Crighton considers, the best water available has not been obtained yet. The Collector agrees with him, and I concur, and I may add the late Superintending Engineer considered it would be advisable to pump the well dry. Mr. Crighton suggests the well should be pumped as follows. Pump the water until the depth on floor is nine inches which is the least depth that will suit the Pulsometer; then allow water to rise 10 feet; then pump it out until depth is reduced to nine inches; let it rise again 10 feet and then pump again and so on for ten days. At the end of this time take samples when the water is nine inches deep and after it rises to full height, that is, the height it will rise to if pumping is stopped altogether. If this experiment is carried out properly the water at the end of ten days ought to be free from local impurities at all events, and the then quality will, I think, represent very fairly the true working quality of the water.

The present is a favorable time to carry out Mr. Crighton's suggestion, for we have at the Vaigai Bridge works a powerful Pulsometer which is not required at present; nor is it likely to be wanted for some time. Mr. Crighton said this Pulsometer will pump the well dry easily, while the

Collector said, he would be able to get either from the Municipality or from the people, Rs. 800, the amount of the estimated cost, of carrying out the experiment. Under these circumstances we agreed to start the work as soon as funds are provided, the Collector and Mr. Crighton agreeing to be responsible for the working and safety of the Pulsometer; while the Sub-Collector agreed to look after the pumping and see that it is done as described above. This experiment will give also data for determining whether the well is likely to be able to supply the town, for if we know the length of time it takes to pump water out until the depth is reduced to nine inches, and the time the water takes to rise 10 feet we will be able to calculate the rate of inflow to the well and quantity of water taken out.

With reference to para 9 of the Sanitary Commissioner's report, pending the result of the experiment about to be made, it is not necessary nor desirable to suggest any thing that would involve expense, but I may state now that, I am not hopeful better water than the water of Mr. Crole's well will be found within a reasonable distance of the town, because the stratum which the Sanitary Commissioner calls "marl deposits" and Mr. Crole "Shaley kunker" seems to me to run under the whole town and to extend beyond it on all sides. I inspected several wells in and round the town;

also two wells at Nagalnaickenpatti which is about a mile off, and I noticed that in all cases the stratum under the surface soil is apparently similar to what is usually described as Shaly kunker, and apparently the water flows from this stratum. The kunkur may of course differ in quality in different places about the town, but I think there is a good deal of lime in it every where. In fact about 200 yards to the south of Mr Croles well there are lime kilns in which the kunkur which is picked up there is burnt for lime. The Sanitary Commissioner has not stated in his report to what extent, in his opinion, the impurities exhibited in the results of the analysis are derived from the "marl deposits"; but in the absence

of

4

of a better opinion to the contrary, I cannot help thinking it is impossible to get in or near the town water — which will come up to the standard the Sanitary Commissioner considers necessary for potable water. However if it is only a question of finding another source of supply away from Sippanuthu tank, my opinion is that if a well is sunk any where to the south of the tank or in the direction of the road to Kannivádi water will be found. But before going to any expense in this direction, I think the Sanitary Commissioner should be asked to report to what extent he considers the impurities shown in the results of the analyses are derived from the "marl deposits."

With reference to the scheme to bring a supply from the Kodavanar river, I inspected the river at the site selected. This place seems to the nearest point to the town; it is where a bandy track leading to Kannivadi crosses the river. The Municipal Overseer, K. Arasa Pillai, informed me he measured, for Mr. Crole, the distance from the town to the river and made the length 4 1/8 miles. A six inch diameter pipe is the smallest it would be advisable to lay. Mr. Crighton's estimate for a pipe of this size delivered in the town is Rs. 1-12-0 per foot run. To this should be added the cost of carting to site, leading, and laying, which would probably bring the cost up to Rs. 2. per foot run. Four and one eighth miles are equal to 21,780 feet. So the cost for laying a six inch pipe would amount to 21780 × 2 = Rs. 43,560 a sum which is altogether beyond the means of the people or Municipality. Moreover from levels furnished by Mr. Target, Executive Engineer, to the Chairman, Municipal Council, it seems the bed of the river is 93.59 feet below the parapet of Mr. Crole's well; while some levels which I have had taken show the height from the parapet to the rock selected by Messrs. Crole and Crighton for a site for a Service reservoir, is 80.47 feet which makes the reservoir site 174 above the bed of the river. To pump water to a height of 174 and drive it 4 1/8 miles would of course require a powerful pump and considerable expense in the way of fuel. Again it may be asked whether water might not be brought from the river in either an ordinary earthen channel or in a masonry one. This cannot be done for the country from the town to the river falls or slopes towards the river. Besides the bed of the river is a considerable depth below the adjacent ground, and, therefore, a supply could not be obtained unless the water is raised by some artificial means. Taking all these circumstances into consideration, I think the conclusion is, that the

scheme

scheme to bring water from the Koddavanar may be abandoned for it is impracticable on account of the great outlay it would involve.

In conclusion I may refer to a subject brought out during my enquiry which is to say the least peculiar. It is ~~this~~, that according to local opinion, the water in Gópálasamudram tank (sample No 4 para 7 Mr Croles report) is the best in the town and the next best is the Dindigul rock water. In fact most of the better classes take water, for drinking from these tanks, but Pariahs and other low caste people are not allowed to draw water from them. On the other hand the Chemical Examiner has deprecated the water of the former taste hopelessly bad and the water of the latter suspicious. Gopalasamudram tank is said to be rain fed; it certainly receives a good deal of rain water, for when I inspected it the water was discolored and muddy; the Dindigul rock tank is, as far as I could ascertain, fed entirely from the rain water which flows off the rock and old fortifications. Another peculiarity in connection with this subject is, that from all the information I have been able to get including vital statistics, Dindigul appears to be a very healthy town, and I could not discover that the people suffer from any local or peculiar disease derived from drinking water, which, judging from the results of the analyses, must be bad. While as regards Mr Crole's well water from it has been supplied continuously (I believe) to parts of the town for the last two years and as yet there appears to be no evil results.

I have the honor to be
Sir
Your most obdt. servt.

L W Martin
Offg. Supg. Engineer
6th Circle