

MADRAS RECORD OFFICE.

Government of Madras.

Revenue DEPARTMENT.

G.O. No.	388	Press Mis.
219-20 Dated	12-2-	1868.

Not to be folded or roughly handled

*Proceedings of the Madras Government, Revenue Department,
12th February 1868.*

No. 219. Read the following Proceedings of the Madras Government in the
Public Works Department:—

Communicating orders to the Revenue Department regarding the repairs required to the Nundial tank in the Kurnool District. } (Here enter 5th February 1868, No. 400.)

No. 220. ORDER THEREON, 12th February 1868, No. 383.

Irrigation, No. 6.

Communicated to the Revenue Board.

(True Extract.)

(Signed) F. BRANDT,

Under Secretary to Government.

To the Board of Revenue, with Proceedings Public Works Department, No. 400.

Exd. F. R. Bantleman.

*Proceedings of the Madras Government, Public Works Department,
5th February 1868*

No. 97. Read the following letter from the Consulting Engineer for Irrigation and Canal Company, to the Secretary to Government, Department Public Works, dated Madras, 20th January 1868, No. 133:—

1. I have the honor to submit, with reference to Proceedings of the Madras Government, of the 22nd November last, No. 3,611, a letter, No. 1,006, of the 8th instant, from the Chief Engineer, Madras Irrigation and Canal Company, pointing out that the Nundial tank is much in need of repair, and requesting therefore that it may be at once decided what the arrangements of the Main Canal near the tank are to be.

2. The Chief Engineer wishes sanction to be given for carrying the canal through the tank, and he has replied to the objections against this arrangement,

which were stated in my letter * forwarding the revised masonry estimates of the 7th section for the consideration of Government.

* Paragraph 18.

3. It appears to me that the objections virtually remain undisposed of, and that, so far from their being a matter of detail (Chief Engineer's paragraph 8), they affect in a very important degree the interests about to be created under 33 miles of the Main Canal, and on account of which an expenditure of about Rs. 3,65,243 has been already incurred.

4. The interposition of a tank holding more than $7\frac{1}{2}$ millions of cubic yards between two portions of the Main Canal is not a matter of small moment, and such an arrangement should not, I think, be carried out, unless it can be clearly shown that it will not interfere with the efficiency of the canal. The object of the Company is to make a canal for certain purposes, and the attainment of that object should be the first consideration, but this would not be the case were the tank incorporated with the canal, and the latter closed by a stanch, so soon as the leaving it open would lower the level of the tank.

5. The Chief Engineer says that the canal which is to carry 100,000 cubic yards could fill the tank in four days, or in a week if the tank were quite empty. Supposing, however, and this would be a very probable occurrence, the canal were carrying only 20,000 or 25,000 yards an hour, the delay in commencing cultivation under the canal would amount to from twenty to thirty days, and this time would inevitably be lengthened still more by the consumption of water stopped by the tank for cultivation under it. Again, at the end of the season, although the canal above might be carrying several thousands of cubic yards an hour, it might be quite impracticable to send any water at all to the canal below the tank; because it is evident that, before any such supply can be passed on, the tank must be kept up to canal bed level, and must also be receiving more water than the tank cultivation may require.

6. Moreover, suppose the tank to be filled by canal water. Every thousand cubic yards is worth about 1 Rupee, and to fill the tank 7,593 Rupees worth would be diverted from its proper object; while, on the other hand, when the tank channel brought down its proper supply, the tank would be already full, and probably one-half to three-fourths of the water would go to waste over the tank calingulabs,

7. The Chief Engineer puts the average evaporation from the tank at 1,250 cubic yards an hour, which are equivalent to quarter of an inch a day. The value of the water so lost would be 1½ Rupees an hour, 30 Rupees a day, and 900 Rupees a month. The tank by its own channels gets a sufficiently abundant supply for its cultivation, and the loss by evaporation is of comparatively little consequence and entails no loss; but had it to be made good constantly by the canal, it is clear that there would be a direct loss of 1 Rupee for every thousand cubic yards evaporated.

8. Mr. Latham thinks that the convenience of having the canal brought to within one mile of Nundial would be considerable. This is a very minor point; but it may be noticed that all merchandise taken to the canal from Nundial will, in any case, have to be carted; that if carted, it is not of very much moment whether the lead be somewhat more or less; that a tank bund is not a convenient place for a wharf; and that the Ayalore station, at the intersection of the Cumbum and Cuddapah roads, is about three miles from Nundial, and that it, for the greater part of the traffic, will be as convenient as, if not more so than, a station on the tank bund.

9. The Chief Engineer states that, for the safe keeping of the present ordinary supply of the Nundial tank, an outlay of Rupees 25,000 on repairs will be necessary, and he adds this sum to the probable cost of any scheme for passing the tank supply across the canal by means of sluices. Mr. Latham also objects to sluices, on the ground that the transmission of the tank supply across the canal would lead to the deposit of much silt in the latter. I have nothing to add on this point to the remarks contained in paragraph 21 of the letter above quoted.

10. The objections to passing the canal through the tank appear to me to be of so radical a nature, that I regret my inability to recommend the adoption of the Chief Engineer's proposal, and as he is averse to the use of sluices with or without a weir, there appears to be no alternative but to revert to the original arrangement of crossing the supply channels of the Nundial tank by aqueducts. This is the more expensive plan, but at any rate an efficient canal may be obtained by it, and there will be no loss beyond the interest on the additional outlay required. Should the Government approve of this recommendation, the Company will not require to interfere in any way with the Nundial tank, and the duty of carrying out such repairs as may be needed will devolve upon the Public Works Department.

From the Chief Engineer, to the Agent and Manager of the Madras Irrigation and Canal Company, dated Kurnool, 8th January 1868, No. 1,006.

Nundial Tank.

1. In reference to G. O. No. 3,611, of 22nd November last, by which part of the 7th section estimates are sanctioned, but the sanction of Nundial tank is deferred, I have the honor to submit that the matter of Nundial tank is so pressing that I hope Government will decide upon what is to be done there at once.

2. Last year many furlongs of the banks were awash during the rains. In some places the water flowed over. It is therefore incumbent upon those who may have the management of the tank to raise the banks at once, and to alter the calingulahs, so as to prevent risk next year. When I passed the tank on the 28th November, water was still flowing over the lower calingulah.

3. I will therefore take the Consulting Engineer's remarks in order, and reply to them. They are found in paragraphs 18 to 22 in his letter attached to the Government Order.

4. The cost of raising the tank banks, so as to make them fit to contain the water, as at present, with perfect safety, may be stated as Rupees 25,000. For it will nearly require as much expenditure on the upper tank as if it were made part of the canal. The full water of canal is 193 feet below Hindry datum. That of the calingulah is crests of the upper tank 194.51 and 195.53, with stones to raise the water 18 inches or 2 feet higher, and in fact when the stones are in, and surplus water flowing freely over them, the surface of the water is raised as high as it would be by the canal. In the lower tank the calingulah crest is 197.75 below Hindry datum, and the highest water level is probably 195 feet, or only two feet below the water level of the canal. The Company requires to have the banks secure, since it cannot control the village labor at critical times as Government can.

5. Hence the comparative estimate becomes as follows:—

(1.) To divert the canal into the tank and raise the bunds.

This is estimated to cost Rupees 58,144, and the Company retain the tank, and pay its present average assessment to the Government.

(2.) To retain the present line, and pass the supply channel by aqueducts 45 feet wide.

This is estimated to cost the Company above a lac. The Government will retain the tank in this case.

(3.) To retain the present line and cross the calingulahs with sluices.

6. The Company must retain the tank in this case. The estimated cost of the canal to the Company is Rupees 52,000. To which add the strengthening of the present tank, Rupees 25,000. Total Rupees 77,000. There will also be a heavy yearly charge for clearing the canal of silt. The Consulting Engineer would alter the sluices so as to reduce this to about Rupees 68,000.

7. Considering that the assessment under the tank averages Rupees 11 or 12 an acre, and that this must be reduced to Rupees 8 or 9 when the Company is supplying water in the neighbourhood at Rupees 6 an acre, I do not think that it would be prudent of the Company to adopt this alternative in preference to the second, the aqueducts, which leaves them free from all liability regarding the assessment now levied under the tank.

8. If the tank arrangement, No. 1, be adopted, I think, the objections, as stated by the Consulting Engineer, may be shown to be matters of detail, which can be easily incurred and dealt with.

9. The tanks will contain when full—

	Cubic yards.
Lower tank 1,839,200 square-yards area, and averaging one and a half yards deep	2,758,800
Upper tank 2,420,000 square-yards area, and averaging two yards deep	4,840,000

Total cubic yards ... 7,598,800

which the canal could fill in four days, and probably would fill if empty to start within a week.

10. The average daily evaporation would never exceed 1,250 cubic yards of water per hour. The copious and widely sacred Mahannudy springs, and other supplies, will make up for most of this. Indeed this year, notwithstanding that full irrigation was going on, the water had not fallen below the crests of the calingulahs on the 23rd November, nearly three months after the rains, and about six weeks before our supply will stop: thus supposing the stanch (I propose) had been closed below the tank when navigation ceased, and that on the 23rd November only eighteen inches depth of water were running in the canal above the interference caused by the tank, and that no more irrigation were going on under the tank than at present, then the whole of the canal water would flow over the stanch, and supply the lower part of the canal. I do not, therefore, think that the lower part of the seventh and the eighth sections would suffer materially from the tank arrangement. The height of the stanch might be made just that at which navigation must cease, and the water would then flow over it immediately it was closed; experience must determine the most useful height for it.

*Proceedings of the Madras Government, Public Works Department,
5th February 1868.*

11. As to the deviation lengthening the canal half a mile for steam boats, or for any boats whose boatmen care to punt them three furlongs across the upper tank, or one mile for boats towed, it must be considered that Nundial will be the most convenient halting place on the canal between Kurnool and Cuddapah. It is a centre of trade, and the deviation will bring the boats two miles nearer the town, to a broad part of the present tank bank about quarter of a mile outside the fort, close to the Police Station and Post Office, and where there is a large tope of magnificent trees. I think it far better to bring the canal to such a town than to hope that the merchants and tradesmen will move their stores and shops to the canal.

12. I do not think that if the sluice scheme were adopted it would be safe to depend entirely on sluices, without any calingulah. Nor do I think it necessary to have a length of weir sufficient to do without any sluices. When the water begins to run over the weir, the sluice-keepers are roused to commence opening their sluices, and the rise of the water, though rapid, would not be likely to be more rapid than they would control with the weir to help them.

13. If the sluices were adopted, the tank might certainly be left empty when the canal is opened. The first fresh would then come down the vagoo into the full canal, highly charged with mud. Supposing that for four or five days only 40,000 cubic yards an hour came down, the chances are that the whole would go down the canal (which carries 160,000 cubic yards an hour), and that canal water mainly would run out through the partly opened sluices into the tank. Thus I feel sure that a large amount of silt would enter the canal.

14. Although the alternative of crossing the vagoo by sluices would be a practicable scheme, as the Consulting Engineer well shows were there no alternative, I think that it is not one to be chosen when a safe and cheaper alternative exists. The former would be an experiment, and as the Consulting Engineer has observed of similar cases on the present Wullavapoor channel, one likely to cause considerable and endless trouble, owing to the silting, the overlooking, and the ticklish balance required to be kept up between the two supplies of water which would there intermingle and cross one another.

15. I hope that the Consulting Engineer will be now able to come to a decision in favor of the deviation, so as to enable me to repair the tank at once.

No. 427.

Communicated to the Consulting Engineer.

MADRAS,
17th January 1868.

(Signed) F. H. HENSLowe,
Agent and Manager.

No. 98. ORDER THEREON, 5th February 1868, No. 400.

IRRIGATION, No. 3.

1. Adverting to the Orders of Government of the 22nd November last, No. 3,611, the Consulting Engineer

submits a letter from the Chief Engineer of the Madras Irrigation and Canal Company, in which that Officer represents that the Nundial tank in the Kurnool District is much in need of repair, and requests that no time may be lost in determining the arrangement which should be adopted for the completion of the Company's Main Canal near the reservoir in question.

2. Three expedients for effecting this object have been proposed, viz.:—

(a.) To divert the canal into the tank, and raise the bund and calingulahs of the latter to a higher level.

(b.) To retain the present line of canal, and pass the supply channels of the tank by means of aqueducts.

*Proceedings of the Madras Government, Public Works Department,
5th February 1868.*

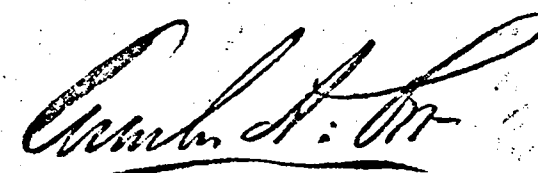
(c.) To retain the present line of canal, and pass the tank supply across the canal by a calingulah, with sluices.

3. The Company's Officers are in favor of the first of these expedients, but the Consulting Engineer objects to the arrangement of passing the canal through the Nundial tank, and, for the reasons set forth in paragraphs 4 to 10 of his letter above recorded, is unable to recommend it for the sanction of Government. In substitution of that plan, Captain Mullins proposes the adoption of the arrangement whereby the supply channels of the Nundial tank would be crossed by aqueducts, and states that, although it would be more costly than the other two plans, it would secure the formation of an efficient canal, and prevent any loss beyond interest on the additional outlay required for the work. The Chief Engineer is also of opinion that this arrangement, if followed, would be more favorable to the interests of the Company than that of passing the tank supply across the canal by a calingulah, with sluices, as the Company would then be freed from all liability in connection with the Nundial tank.

4. The Government are quite satisfied from all that is urged by the Consulting Engineer that the arrangement by which the present line of canal will be retained, and the supply channels of the Nundial tank passed by aqueducts, is the best that can be followed under the circumstances, and they accordingly sanction the adoption of that arrangement.

5. These orders will be communicated to the Revenue Department, and the Superintending Engineer of the 3rd Division will be called upon to submit without delay an estimate of the cost of the repairs required to the Nundial tank.

(True Extract.)



Colonel, R. E.,

Secretary to Government.

To the Consulting Engineer for Irrigation and Canal Company.

.. Manager for do. do.
.. Revenue Department.
.. Superintending Engineer, 3rd Division.

Exd. S. T. Augustin.

Revenue 1868. Q^y 11.
No of Govt & Army.

Proceedings of the
P. M. Department.

Notes by G. H. G.
Received Jan 1868.
No. 400.

Commissary General
to the Rev. Dept. regarding
the Re-Entry of
to the Rev. Dept.
and out the
General District

With District
1868-12-12

1869-220

Private

Commissary to the
Revenue Board.

No. 388

125. Q^y 11/68

134. Q^y 11/68. Revenue. No. 388. 1868. 12-12