

(1) Number of pages 3 sheets (6 Pages)
(2) Date of repair 13-3-84
(3) Initials of the Referencer g/g

TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

Rev.

DEPARTMENT

G.O. No.	2956	Press.
B.P. No.		Mis.
Dated	4-12-1878	197

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Archives 1-5,806-24-2-78.

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GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

14th November 1878, No. 924 I.

Irrigation.

Read the following papers :—

No. 76. From J. O'SHAUGHNESSY, Esq., District Engineer, Nellore, to the Chief Engineer for Irrigation, dated Nellore, 2nd July 1878, No. 810.

In reference to your memorandum No. 18 NL, dated the 21st June last, I have the honor to inform you that the map of the Bapatla taluk, received from the Deputy Chief Engineer for Irrigation on the 4th May 1878, was returned to that officer on the 14th instant.

2. I enclose a tracing of that portion of the map of the locality in question, which shows the navigable route from the present terminus of the Buckingham Canal to the salt-pans at Chinna Ganjam. The depth of water along this line was no where less than 3 feet, and it was as much as 7 feet deep inside the bar when I inspected it on the 22nd May last. The tide was very low at the time, and from the register kept by Colonel Hasted's orders near the mouth of the Commamoor Canal, the range of the tides in May 1878 was from 3 feet in spring to 1 foot 5 inches in neap tides, so that the estuary was then (about the most unfavorable season of the year) navigable for boats drawing from 3 feet to 4 feet of water.

3. I now venture to state my objections more fully to the arrangements sanctioned in G.O., No. 239 I, of the 21st March 1878, for such consideration as may be considered necessary. It is, in my opinion, a question of very great importance, involving a large and heavy expenditure and creating great delay in the completion of a project so long and so anxiously looked for by Government.

4. I wish to mention before stating my objections to the arrangements referred to that, by the present arrangement, the drainage of the Pedda Ganjam creek will be shut out of the canal and turned into the Romperu in the direction of the Upperkundur Vagu bringing its silt into the Romperu to be carried off at the time or afterwards by the Romperu floods.

5. By the present arrangements the communication with the estuary to the vicinity of the Chinna Ganjam salt-pans as well as to the terminus of the Commamoor Canal is already complete.

6. My first objection to the proposed arrangement is that the drainage of the Upperkundur Vagu as well as of the Pedda Ganjam creek is turned into the canal, and to prevent the canal south of the creek being completely choked by silt the construction of a lock at C. on the sketch will be immediately necessary.

My second objection is that the communication with the estuary will be choked up also, and, if it is found necessary to keep this open for navigation, it will be a constant source of expense.

7. The proposed removal of the junction lock from the site originally proposed to the left margin of the Peddaganjam creek involves therefore an extra expenditure of—

1st.—Extending the Commamoor Canal	RS.
2nd.—A lock to keep out the drainage of the Pedda Ganjam creek, say, and	11,750
3rd.—The probable clearance of the channel between the canal and the estuary 2,500 Rupees a year capitalized at 5 per cent.	25,000
	50,000
Total ...	86,750

8. It is said on the other hand that even if the junction lock is built on the original site a lock would be necessary at the present junction of the Buckingham Canal with the estuary, in order to keep out the Romperu floods and to keep the water at a convenient level in the canal. In this case the difference between the two schemes would be—

The extension of the Commamoor Canal	RS.
And the probable cost of having to keep communication with the estuary open	11,750
	50,000
Total ...	61,750

which is a considerable amount in favor of the original design.

9. I have already reported that I do not consider a lock at the junction of the Buckingham Canal necessary or desirable; I am still of this opinion for the following reasons:—The Romperu floods cannot at a point so near the sea rise more than 2 or 3 feet above tide level. The influx of water to this extent can do no harm in the canal. The nearest point of exit by the canal would be the Gundlakamma river which is about 9 miles south of the Romperu, and a rise of even 3 feet in the canal at the Romperu would be only about 4 inches a mile in this distance causing a velocity of about $1\frac{1}{2}$ miles an hour. This velocity would no doubt retard, but it would not by any means stop, navigation while the flood continued, and it would act most beneficially on the bed of the canal.

10. If there was a flood in the Gundlakamma at the same time as in the Romperu the water would be banked up in the canal and there would probably be some slight deposit of silt, but it is seldom that even adjacent rivers are in flood at the same time and for the same exact period, and the instant the level of one flood falls below the level of the other a current will be generated in the canal proportional to the difference of level in the two rivers and sufficient to remove the silt previously deposited when the water was at a dead level.

11. The consideration of the question thus far, not only shows that a lock at the junction with the Romperu estuary is unnecessary, but that it would be positively of great injury or entail much heavier expense, a flood in the Gundlakamma for instance would be banked up in the canal by such a lock depositing its silt in still water during the duration of the flood, and to avoid this evil the construction of another lock would be indispensably necessary on the left bank of the Gundlakamma.

12. It may be said that similar arguments may be used to show that the diversion of local drainage into the canal by the Peddaganjam creek would be equally harmless or even beneficial and that the construction of a lock at C to keep this drainage out of the canal would be equally unnecessary and injurious.

13. But the cases are quite different. The Romperu brings down a large volume of water which will cause such an effectual current in the canal as to prevent the deposit of silt. The Peddaganjam creek will throw in a comparatively small quantity of water from an adjacent drainage more heavily laden with silt and insufficient in volume to create but a most feeble current which would be checked even by the tides of the Gundlakamma and be merely sufficient to extend its injurious effect along a length of perhaps 4 or 5 miles of the canal.

14. My opinion then is and for the reasons given above—

1st.—That even if the junction of the canal with the Romperu is not necessary through navigation would not be more easily nor so cheaply maintained by the proposed direct junction, but as a matter of fact communication with the estuary *must* be maintained even in the proposed scheme for the purpose of letting off the drainage of the Peddaganjam creek.

2nd.—If communication be made by the estuary, that is to say if the original design is adhered to, a lock at the junction of the Buckingham Canal with the estuary is not necessary, and it would be ineffectual to maintain any particular level of water in the canal without another lock at the Gundlakamma river.

3rd.—The surplus of the Commamoor Canal could be of no utility in a tidal canal which has a rise and fall of about 4 feet by the action of the tides alone.

4th.—The lower sill of the junction lock should be at the same level whether it is built at the original or at the proposed site, and this level should not in my opinion be less than 7.50 below high tide level.

15. The practical necessity for locks at the junction of the canal with rivers was discussed 24 years ago; and Colonel Chambers, R.E., who was then Superintendent of the canal, considered them, so far as his experience then went, unnecessary; he preferred leaving the canal to be acted on by the flux and reflux of the tides and to be scoured where opportunity offered by the action of the river floods; so far as my experience goes, I am also of the same opinion, more especially in reference to the section of the canal from Kristnapatam to the Romperu, 108 miles in length, which is crossed by 15 rivers and large streams, and which, if the construction of locks was decided upon, would require 28 locks at a cost of about 7 lakhs of Rupees and an annual expenditure for establishment and maintenance of about Rupees 14,000, that is to say Rupees 500 for each lock.

16. I am very reluctant to offer unsolicited and unbidden opinions on this subject; but, considering its great importance and my connection with the work, I feel that no excuse is necessary for doing so.

No. 76-A. From Lieutenant-Colonel J. O. HASTED, R.E., Superintending Engineer, Kistna, to the Chief Engineer for Irrigation, dated Masulipatam, 8th July 1878, No. 75.

With reference to your memorandum No. 56 KS, dated 21st June 1878, I have the honor to observe that there is apparently some misconception as to the proposed junction canal between Feringhidibba and the Buckingham Canal.

2. The estimate sanctioned by Government provides for an inlet and outlet on the junction canal to pass the drainage, which at present falls into the Romperu below Feringhidibba, and which, I conclude, is that referred to, as the Upperkundur Vagu, and it will therefore make no difference as regards the drainage water that will be discharged into the Buckingham Canal, whether the lock is built at Feringhidibba or near Peddaganjam.

3. In my opinion, the navigation will be improved by making a direct junction between the canals, and the improvement is well worth the extra cost. The position of the tidal lock is altogether independent of the connection between the Buckingham Canal and the Romperu; if a lock is necessary at this point, it must be built, irrespective of the position of the tidal lock.

4. I am not acquainted with the design of the Buckingham Canal lately excavated, but I was under the impression that the connection with the Romperu was desirable as a means of supplying the canal with tidal water. I see no reason why a lock should be needed at the entrance of the canal to the creek more at this place, than at any other connection of the canal, with the estuaries, it crosses, though,

if the canal is to be enlarged to the dimensions of a first-class canal, I think it probable that a lock will be necessary at every junction with an estuary.

5. The question of excavating a channel from the Romperu to the salt-pans at Chinnaganjam can best be decided by the salt department. At present the only salt platforms in direct connection with the canals are those at Nizampatam, the salt from which place is taken to Bezamada and Mukhtiala, 40 miles above Bezamada by boat. I understand that here the supply is much in excess of the demand, and therefore it appears that, so far as the Kistna Canals are concerned, there is no necessity for further connecting links with salt platforms.

No. 207 I.

No. 76 B.

Note by the Chief Engineer for Irrigation.

THE correspondence now submitted is in continuation of that* printed in Proceedings of the Madras Government,

* From District Engineer, Nellore, 14th June 1878, No. 648. To do. do. 21st June 1878, No. 18 NL. and refers to the arrangements approved in G.O., No. 239 I, of the 21st March 1878, for connecting the Commamoor and Buckingham Canals.

2. Mr. O'Shaughnessy is mistaken in supposing, paragraph 5, that under what he terms present arrangements the connection between the two canals is complete. Not only has a tidal lock to be built, but a sufficiently deep channel, between the formerly intended entrance of the Commamoor Canal into the estuary of the Romperu and the end of the Buckingham Canal, has to be obtained.

3. Mr. O'Shaughnessy goes on to state that he has two objections to the arrangement—

First that by it the drainage of the Upperkundur Vagu and of the Peddaganjam creek would be turned into the (Buckingham) Canal, and that to prevent the canal south of the creek being completely choked by silt a lock at C, a little south of the mouth of the creek, would be necessary.

He is mistaken as shown by the Superintending Engineer's Kistna letter in supposing that the drainage of the Upperkundur Vagu will be turned into the Buckingham Canal, the sanctioned arrangement providing for discharging it across the lower reach of the Commamoor Canal. The telegram from the Superintending Engineer, Kistna, states that the area drained by the vagu is 24 square miles, and the maximum

450 × 8.32 = 3,744 cubic feet a second. flood discharge may be taken as 3,744 cubic feet a second. It will be desirable therefore to make the inlet and outlet longer than the 180 feet mentioned in the Superintending Engineer's letter printed in Proceedings, Madras Government, No. 239 I, of the 21st March 1878, and 400 feet would be the proper length. Or it may be found to be desirable to construct a

+ About 2 vents of 7½ feet span each. small culvert† under the Commamoor Canal to discharge, say, 750 cubic feet a second, and prevent any obstruction of drainage of lands above the canal, and then the inlet and outlet would be 320 feet long. It will be necessary for the Superintending Engineer to examine fully into the requirements, so that the details of the cross drainage works may be efficient. The position of the Buckingham Canal as regards drainage will be entirely unaffected by the approved arrangements for a direct junction, and the first objection is therefore groundless.

The second objection, viz., that the communication with the estuary will be choked up also, is necessarily groundless, as the circumstances will remain unchanged.

4. The only modification of arrangement recommended is the placing of the lower sill of the Commamoor Canal tidal lock at 7.50 instead of 6.50 below datum, so that no inconvenience may result should it be found unobjectionable to leave the communication of the Buckingham Canal with the estuary open as at present. The

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Superintending Engineer has been requested to design and estimate for the lock accordingly.

5. The question as to whether it will be found desirable hereafter to lock the Buckingham Canal into and out of the several estuaries with which it is connected, is a separate matter altogether, and must necessarily be determined after some practical experience of the results of freshes in those estuaries. The manner of connecting the Commamoor and Buckingham Canals is in no way affected thereby.

6. The undersigned entertains no doubt whatever as to the arrangement for a direct junction of the Commamoor and Buckingham Canals, as already approved, being substantially better than the superseded communication *via* the estuary of the Romperu, and he recommends therefore that no alteration should be made.

OOTACAMUND,
16th July 1878.

(Signed) JOHN MULLINS, Lt.-Col., R.E.,
Chief Engineer for Irrigation.

To the Joint Secretary to Government, Public Works Department, Irrigation Branch.

No. 77. ORDER THEREON, 14th November 1878, No. 924 I.

THE arrangements approved in G.O., No. 239 I, of the 21st March 1878, will be carried out with as little delay as possible.

2. The Superintending Engineer, First Circle, will give attention to the remarks of the Chief Engineer for Irrigation as regards the level of the lower sill of the tail or tidal lock, and he will further consider the subject of the disposal of cross drainage, and submit for sanction as soon as practicable such modifications of this part of the arrangements as may be found requisite, arranging in the mean time for the construction of the cross drainage works directly the estimate has been approved.

(True Extract.)

John Mullins

Lt. Col., R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, First Circle.
" " " Second Circle.
" " " Third Circle.
" Chief Engineer for Irrigation.
" Examiner of Public Works Accounts.
" Revenue Department.

Exd. E. C. Shunker.
Spare Copies

Revenue Department

IRRIGATION.

No 5322.

Govt. of (1878) Madras.

PUBLIC WORKS.

To

THE SUPERINTENDING ENGINEER,

FIRST CIRCLE,

Secy, Secy, Secy.

Dated November 14th.

Isued

Recd. 3 December Encl.

G. O., 14th November 1878, No. 921

Des. No.

NOVEMBER.

Nos. 76-77.

Commamoor and Buckingham Canals.—The arrangements approved in G.O. No. 239 I of the 21st March 1878 for connecting the — to be carried out with as little delay as possible.

Communicated to the Board of Revenue.

4. Dec 78

By the Board of Revenue on 14 Dec