(1) Number of pages

(2) Date of repair

(3) Initials of the Referencer

MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

G.O. No. 916-17 Press Mis.

Dated 28 3 1871.

Not to be folded or roughly handled

No. 81 I.

GOVERNMENT OF INDIA.

PUBLIC WORKS DEPARTMENT.

IRRIGATION.

To

THE SECY. TO THE GOVT. OF MADRAS,
IN THE PUBLIC WORKS DEPT.

FORT WILLIAM, MARCH 7, 1871.

SIR,

I am directed to acknowledge receipt of your letter No. 2117, dated 3rd September 1869, submitting plans and estimates, amounting to Rs. 5,20,260, for the construction of regulating works to control the supply of water to the Cauvery and Vennaur Rivers, upon which the irrigation of the Tanjore Delta is dependent, and in reply to communicate the following remarks and observations.

2. The Governor General in Council observes that in the papers now submitted, the details of the mode in which the regulation of the waters of the Cauvery itself is to be carried out are discussed, the control of the Vennaur, which is the first branch from the Cauvery, having been provided for in the designs and estimates sanctioned by the Government of India in August last.

3. There are seemingly three places at which the Cauvery may be regulated :—

1*st*.—At its bifurcation from the Coleroon at the head of the Delta.

2*nd*.—At the 150 yards waste weir, 3 miles below that point.

3*rd*.—At the Grand Anicut, 17 miles below the same point.

4. Theoretically, the proper place to effect the regulation would be at the immediate point of bifurcation ; but for the reasons specified, which seem to have been carefully weighed, its practicability seems doubtful, and depends on the maintenance of the right bank of the Coleroon intact when double the volume which it has hitherto had to carry off is forced into it. At present it is said to carry during an extreme flood, 112,500 cubic feet per second, whereas, if the whole of the water over and above what is required for the irrigation of the land under the Cauvery and its branches has to be passed over the Upper Anicut, the Coleroon would have to carry off double that volume nearly, or 195,750 cubic feet (but even this is apparently below the mark), and therefore it is concluded that it would not be safe to attempt the regulation of the Cauvery itself at the point of bifurcation.

5. For similar reasons, the second site is considered objectionable, and therefore it has been finally determined to select the third site near the Grand Anicut, on account of its combining the following advantages :—

1*st*.—Actual economy in cost, in saving expensive alterations at the Upper Anicut, and in fitting the Coleroon for a length of 17 miles to carry a great additional volume of flood-waters

2*nd*.—Two powerful existing surplus works are utilized.

3*rd*.—The alterations of the present high-flood levels will be comparatively trifling, and therefore there would be (it is said) less risk of accident.

6. The two first of these advantages are clearly apparent, but His Excellency in Council does not feel so sure that the third has been as clearly established ; at least the data which have been laid before the Government of India are not sufficient to allow of an independent opinion being formed on this point.

Probably, as the regulation of the Cauvery has been so long a subject of discussion, and an Officer has been specially engaged in carrying out the surveys of the rivers, the Local Engineers may have all the requisite data for arriving at a correct conclusion, but His Excellency in Council considers it would have been more satisfactory to have had the surveys, sections and levels on which the relative capacities of the several rivers have been calculated.

7. This seems necessary, because the information which is given both in the Superintending Engineer's letter, as well as in the Chief Engineer's Note, as far as regards the volume conveyed by the Cauvery before the bifurcation of the Coleroon, and of the capacity of the latter below the site of the Grand Anicut, the point at which all the surplus over and above the requirements for irrigation is to be returned to it, is not positive. The plans and estimates for the works sanctioned in August last for the regulation of the Vennaur and its subsidiary rivers, were accompanied by longitudinal and cross-sections of the rivers dealt with, but similar documents are wanting for the Cauvery and the Coleroon. The following information therefore should be supplied :—

Longitudinal and cross-sections of the Agunda Cauvery, with calculations of the discharge during the highest known flood which, as far as can be gathered from the present papers, marked 13·30 feet on the Cauvery dam gauge.

Longitudinal and cross-sections of the Coleroon from the Upper Anicut to the sea.

Longitudinal and cross-sections of the Cauvery from its head at the Upper Anicut to the Grand Anicut.

Surveys of the same portions of those rivers showing where the respective sections were taken. The sections should be plotted on a less exaggerated scale than those previously forwarded with the Vennaur designs, and should be accompanied with tabulated discharges of the rivers in question, calculated for each cross-section.

8. Some more precise information than that which has been furnished on the following points is evidently required.

9. In para. 7 of his Note, the Chief Engineer states the capacity of the Coleroon to be 20·190* millions of cubic yards per hour in a 12-feet fresh, adding, in a maximum flood it is *supposed* from this point to carry 22·5 to 23 millions, so that taking 26 millions for the future maximum, the addition would not be very "serious." Other surplus works† on the left bank of the Cauvery below the Grand Anicut discharge 1·526 millions. It is not quite clear whether it is intended to be understood that this 1½ millions are inclusive or exclusive of the 26 millions just mentioned.

* 151,800 cubic feet per second.

† Coviladdy Calingulah	. . .	·988
Vadavagudi sluices	... ...	·538
		1·526

10. It appears, however, that a 12-feet fresh is not the highest on record, for one has occurred as high as 13·30 feet, but how much additional water was conveyed in that fresh is not stated. The only information is given in para. 5, from which it is inferred that "the last flood" of this kind had gone all over the country." The Superintending Engineer, Captain Oakes states* that in a 12·3-foot fresh, the Main Cauvery carries 32,350,000 cubic yards† per hour, but does not say how much the additional foot in height would add to the volume. It is scarcely possible to guess what it might be with any degree of certainty; but probably it would add 10 per cent., making a total of nearly 36 millions. Of this quantity, it seems that 4·44 millions are to be conveyed by the Cauvery, and 2·69 millions by the Vennaur, in all 7·13 millions. The balance, 28·87 millions, is to be conveyed by the Coleroon, which, "it is supposed," carries now in a maximum flood 22·5 to 23 millions, so that the duty imposed on the Coleroon will apparently be increased by 6 millions, or 27 per cent., instead of only 14 per cent. In the absence of any sections of the Coleroon below the Grand Anicut, it is impossible to judge whether its present capacity will admit of its carrying off such additional volume safely.

* No. 1464, dated 7th January 1868, para. 8 (Proceedings, Madras Government, dated 18th March 1868.)
† 213,233 cubic feet per second.

11. There is another point which is not adverted to in these papers, but which it appears to His Excellency in Council should receive careful consideration, and that is, the effect which may be produced on the *Lower Anicut* and the adjacent embankments by so large an additional volume of water.

12. If this point has been considered and settled to the satisfaction of the Madras Government, the arrangements which are proposed in the present designs seem unobjectionable, as they appear to be a practicable solution of the problem. If not, there will probably be further outlay required in fitting the Coleroon itself, and in additions to the Lower Anicut, so as to allow of the increased volume being discharged with safety; otherwise it would be only transferring the injuries now caused by the excess floods in the Cauvery and its affluents to the Coleroon, and losing on one side what is gained on the other. It is important that decided assurances should be received on these points, for the returns on the outlay are based on the saving to be effected on repairs and in future remissions of revenue, and therefore it is incumbent to see that similar repairs and remissions of revenue may not hereafter be required on the Coleroon side.

13. It is not meant to be implied that they will be, or that the points now mooted have not already been thoroughly considered by the Local Officers. Moreover, it is possible that the statements made in the papers which have been submitted have not been quite understood; but nevertheless, His Excellency in Council considers it desirable that precise information should be furnished, and that the drawings which have been enumerated above should be forwarded to the Government of India.

14. Of the necessity for some system of regulation there cannot be any doubt. Still His Excellency in Council is not altogether convinced that what is proposed will in the end prove thoroughly successful: and though the Madras Engineers may be right, and doubtless are fully acquainted with the subject in all its details, the condition of the Cauvery above these regulating works should certainly be very narrowly watched in future, and proper bench-marks fixed and exact levels obtained periodically to test the facts as to the flood-levels and silting of bed, &c. If the regulation at the Grand Anicut leads to the deposit of silt above it, some further relief will evidently before long be required above that point.

15. Regarding the designs themselves, the following suggestions are offered for consideration. Instead of the arrangement proposed by Major Mullins for the shutters on the Grand Anicut, the shutter lately designed by Mr. Fouracres, Executive Engineer, Soane Workshops, for a similar purpose, and which is at work on the dam across the Cossye in the Midnapoor District, might be substituted; a plan, or if required, a model could be sent to the Chief Engineer at Madras. The plan adopted at the Mahanuddy head-sluices, of shutters running on an inclined rail, might be tried for the head-sluices across the Cauvery and Vennaur if Major Mullins, who, it is understood, has recently visited Cuttack, should think them an improvement on the old method. The wing-walls of the head-sluices appear rather slight for a height of 25 feet, and the apron at the Vennaur Dam would be rendered more secure if its length were increased and a lower retaining wall added to it.

16. In conclusion, I am to add that, before according final sanction to the estimates, the Governor General in Council invites the attention of His Excellency the Governor in Council to the foregoing observations, and considers that, for the reasons stated, further information on the points noticed should be laid before the Government of India.

I have the honour to be,

SIR,

Your most obedient Servant,

F. W. Ruendall *Colonel, R. E.,*

Offg. Depy. Secy. to the Govt. of India.

Rev 18 March 68-920 388 C 398
3 September 70 — 37 C 39.

Pub. Wks Dept. for March 1871 No 1143.

GOVERNMENT OF INDIA.

PUBLIC WORKS DEPARTMENT.

IRRIGATION.

To

SECY. TO THE GOVT. OF MADRAS,
IN THE P. W. DEPT.

No. 81 I.

Dated March 7, 1871.

Received 13 March 71.

Communicates remarks and observations on the plans and estimates for the construction of regulating works to control the supply of water to the Cauvery and Vernaur rivers, upon which the irrigation of the Tanjore Delta is dependent.

P. W. D. Press—7-3-71—12.

Ch 657

No 916 & 917-8 Inclo 1/1

Public Works Department

No 916.

Proceedings of the Madras Government

Read the following

Secy. to Govt. of India in the P. W. Dept. } (No. C. 81-I dy 7th March 1871.)

Ordered that the above letter from the Government of India be communicated to the Chief Engineer for Irrigation, who will, in communication with the Superintending Engineer of the 6th Divn. now obtain and submit the additional information called for by the Government of India, in connection with the works proposed for

for the regulation of the
Cauvery near the Grand
Anicut.

2 Application will
be made for a plan of
the Shutters lately designed
by Mr Fouracred.

To The Chief Engr
for Irrigation

Despd 30/3/71.

No 917.

To
The Secretary to the
Government of India
&c &c &c.

Sir,

With reference to
para 15 of your letter, No
81 I. dated 7th Instant, I
am directed to request
that a plan of the Shutter
designed by Mr Fouracred,
and therein referred to,
may be furnished for
the

for the information of the
Chief Engineer for
Irrigation.—

14. 13/4/71

Despd 30/3/71

28/10 Sent
24-nil sent
28/5/24 Bill ✓

C/C-1143

Govt. of 1871 Madras.

PUBLIC WORKS.

To The Actg Chief Engineer for Irrigation.
and
To The Secretary to the Govt of India

Dated
Read. Feb.

G. O. 28 March. No. 916 & 917

Nos. 657-658 & 659

Regulating Works. Letter from
the Govt of India requesting
additional information in
connection with the ~~Regulating~~
Works for the Regulation
~~The~~ Supply of water
in the Cauvery near the
Grand Anicut, Com^d to the
Chief Engr for Irrig^n with
instructions.

letter

Requesting to be fur-
nished with a plan of the
Sluices designed by Mr.
Lovaceres.

Ltr 15 March 71 R. 165
Ltr 15 March 71 R. 166