

(1) Number of pages _____

(2) Date of repair 2.12.1937

(3) Initials of the Referencer _____

MADRAS RECORD OFFICE.

Government of Madras.

Public Works **DEPARTMENT.**

G.O. No. <u>2038</u>	Press Mis.
<u>89-60</u>	
Dated <u>7-8</u>	18 <u>7</u>

Not to be folded or roughly handled

7
170

No.. 59. Read the following letter from the Superintending Engineer, 6th Division, to the Secretary to Government, Public Works Department, dated Camp at Mannargudy, 15th June 1871, No. 272:—

With reference to G. O., No. 1,491, dated 22nd May, I have the honour to

1 Letter No. 18, dated 3rd June, to be returned.	enclose an original report from the Executive Engineer, Trichinopoly, relative to the injury done to the Tirumungalum dam by the heavy rain which fell in the Trichinopoly District early last month.
1 Abstract Estimate.	
1 Plan.	

2. The dam, as will be observed from the plan, is an old native work, consisting of retaining walls in front and rear with a body 63½ feet broad, the space between the retaining walls consisting of a mere flooring of cut stone over a layer of 1½ feet or 2 feet of brick-in-chunam. The lower 24 feet of the dam is broken into steps and acts the part of an apron, breaking the overfall which, from the crest of the dam to the rear apron, is 14 feet in height.

3. Some years ago it would appear that the dam was extended 72 feet, and the foundations of the old wing (B) appear to have been made use of. These foundations consisted of large boulders of rough stone, and at this spot a leak occurred last season, and a portion of the surface of the dam was blown up or broken up by the washing away of the soil from beneath it.

4. An estimate for restoring the dam was duly sanctioned, but when the foundations were opened out, it was found that the soil on which the front retaining wall stood consisted of "slimy blue clay mixed with sand." I then proposed to form an artificial foundation by means of piles with a wooden platform resting upon them (to this Captain Vertue refers in his last paragraph), as I deemed it undesirable to attempt to excavate below the level of the bottom of the foundations of the adjacent retaining walls.

5. The dam now requires restoration for a length of 86½ feet, and Captain Vertue proposes to carry down the foundations 3 feet deeper than the original foundations by means of sinking boxes, and he provides a broad footing for the foundations, which will be 12 feet below the existing bed of the stream, and this will probably be sufficient, the original bed having probably been some 5 feet lower than the present bed.

6. The estimate provides a new extended rough-stone apron, 12 feet broad, along the whole length of the work, this being extended to 24 feet opposite to the new vent or sluice it is proposed to provide, as there is at present but one vent in the dam, and the bed above had become much silted. The opening of the new vent and the supply of the rough-stone apron were provided for in the original estimate, hence the cost of the damage done by the floods may be said to be Rupees 3,815, to which Rupees 1,405 must be added for the front embankments destroyed and for the enlarged channel for passing water round the work, and Rupees 1,485 for the revetment, etc., referred to in paragraphs 24 and 25 of Captain Vertue's letter, or Rupees 6,705 in all.

7. The estimate of Rupees 6,270 was passed by the local authorities under the head of Repairs, under G. O., No. 751, dated 10th March 1870, but the allotment for Agricultural repairs can ill bear so large a demand upon them; I beg, therefore, that the restoration of the dam may now be regarded as a new work, and that the funds required for it, namely, Rupees 11,490, may be provided from the Reserve under Agricultural.

From Captain J. VERTUE, R. E., Executive Engineer, Trichinopoly, to the Superintending Engineer, 6th Division, dated Trichinopoly, 3rd June 1871, No. 18.

I HAVE the honour to submit a revised estimate of Rupees 11,360 for the repair of the Tirumungalam calingulah.

	Rs.
Repair of calingulah	9,335
Constructing a vent in do.	600
Forming bunds across river	900
Forming cuts for diversion of river	505
Total...	11,360

2. The estimate is made up of the items marginally noted.

3. I may well preface this report by a brief notice of the mishaps which have attended the work.

4. The accident of 2nd ultimo has already been reported in docket No. 31, of 4th May 1871.

5. The news of this reached me on the night of the 3rd, when I was on my way to the work, which I reached the following morning, and left on the 12th, when fine weather seemed to have set in.

6. We had heavy rain on the night of the 5th; the river began to rise on the following morning and continued rising till 12, but all the water was diverted, and did not interfere with the construction of the principal bund, nor the cut through the bank intended to divert the river.

7. These were proceeded with rapidly, and by the 9th the bund had been raised nearly 4 yards, and faced with darbah in front.

8. This bund had a puddle wall in the centre, 2 yards wide at bottom, and intended to taper to 2 feet at top, the height proposed being 6 yards.

9. The dimensions of the bund were to be 4 yards wide at top, with slopes of 2 to 1, and a height of 6 yards.

10. On the 9th, when the day closed, this had been raised as afore-mentioned to a height of 4 yards, but the cut was unfortunately not ready to carry off much water.

11. Towards evening there were some threatening symptoms in the north, but not of such a nature as to lead me to expect what happened.

12. At midnight I was aroused by the roar of the river distinctly audible several miles distant, and was obliged to take refuge in a village half a mile distant.

13. By 5 o'clock in the morning when I visited the work every vestige of the bund had disappeared, and the river (by that time much fallen) was tearing along at the rate of 7 or 8 miles an hour, its surface raised into huge waves by the resistance of the bed.

14. As soon as possible we began to repair damages; the smaller bund below the Pungoonny head-sluiice was restored, and the larger bund to the height of nearly 2 yards had been carried almost across, when, on the 12th, there being every promise of fine weather, I left having given full instructions to the Overseer.

15. That very night another fresh came down and carried away the first bund and 20 yards of the second.

16. As soon as possible the restoration of the bunds was again commenced, and at the time I write the larger has been raised and faced with darbah to a height (vertical) of 5 yards, and a cut 20 yards in bottom width, and with its bed 1 foot above the floor of the Thamboy of the dam has been opened out, its down stream angle being faced with darbah.

17. During all this time the preparation of the cut-stone apron and vent, the making of cubes and boxes for the foundations, the minor works of pointing, plastering, laying concrete over the sound portions of the work, and the demolition of the enormous masses which had to be removed before the foundations could be commenced, were actively prosecuted.

18. The last is by far the heaviest and most tedious part of the work, and, indeed, had I fully realized the difficulty of it when I commenced, I hardly think I would have this season attempted the restoration of the dam.

19. Two things mainly impelled me to make the attempt, first, the probable loss of the revenue* from the failure of the Pungoonny irrigation; second, the fact that still more serious damage might probably be caused to the dam, and that, in particular, the left wing might

* Rupees	31,130
Inam...	1,721
	32,850

give way, there being only 14 feet of the dam left at that side.

20. It is by no means certain that we shall now succeed, but at any rate no effort has been spared, nor means untried, to ensure success.

21. The broken masses of masonry have now been almost removed, and the sinking of boxes to contain cubes for the foundations has been commenced.

22. It will give some idea of the enormous force of the stream when I mention that one of the enormous detached masses, 36 feet in length and weighing about 360 tons, was slewed round several degrees from its normal position.

23. The only other damage done by the flood of the 9th is the partial destruction of the revetment and tail groyne near the Pungoonny head-sluiice, and the serious erosion of the bank about 200 yards lower down.

24. The revetment and tail groyne must be re-built, the latter is indeed in progress, the former cannot be proceeded with till the raising of the dam has attained some height, and we can afford to dispose of the water now standing in front of the head-sluiice.

25. The erosion alluded to is serious; all the Padugay and front slope, and half the width of the embankment having gone in a length of 70—80 yards; to check further evil, and to recover the ground lost, I have commenced the construction of a groyne.

26. So much for the evil results of the very unusual freshes, but the evil is not unmingled with good, for the bed of the Oopaur above the dam has had a scouring such as it never had before; many many thousands of cubic yards of deposit have been lodged in rear of the dam to the great prospective benefit of irrigation, and serving, moreover, as a protection against further damage in rear.

27. Should no further mishap occur, and I conceive we are secure against any but a very extraordinary fresh, I anticipate that the work—all the important part of it at least—will be completed this month.

28. The sketch forwarded with this will show the state of matters after the fresh of the 9th, also the section which I propose for the dam.

29. That of the extended dam has now been correctly ascertained, and is also shown in the sketch.

30. That which I propose is intended, as far as possible, to economize material, and yet to give a great width of foundation.

31. It will also be observed that it is proposed to carry the foundations 3 feet lower than in the original.

32. This, combined with the great width of foundation, will, I conceive, obviate all necessity for providing a front apron and retaining wall, the latter of which, to be of any real advantage, must go considerably lower than the body of the work, and would be a very costly affair.

33. I would mention that, immediately on receipt of your letter No. 75, of 25th April 1871, timber for the platform therein alluded to was ordered, and when, owing to the accident of the

Proceedings of the Madras Government, Public Works Department,
7th August 1871.

9th, the necessity for it no longer existed, the order had been almost completed, and could not therefore be countermanded.

34. I beg therefore to request your sanction to charge to "Stock Rupees 272-2-0," the amount of the under-mentioned :-

18 1/2	Cubic feet piles, No. 12.
14	" " sleepers, No. 3.
45	" " planking.
77 1/2	" " at Rupees 3-8-0 = Rupees 272-2-0.

No. 60. ORDER THEREON, 7th August 1871, No. 2,038.

IRRIGATION, No. 3.

THE Superintending Engineer of the 6th Division will observe from G. O., No. 1,803, dated 7th July 1871, that the

Reserve under Agricultural has been fully appropriated; but if an application which has been made to the Government of India to supplement that head by transfer be sanctioned, the Government will be prepared to take into consideration the question of allotting funds for the restoration of the Tirumungalam anicut across the Oopaur in the Trichinopoly District.

(True Extract.)

(Signed) A. deC. SCOTT, Captain, R.E.,

Under Secretary to Government.

To the Superintending Engineer, 6th Division
" Controller of Public Works Accounts.

Exd. E. C. Shunker.

Agricultural Trichinopoly District New Work
Trichinopoly Taluk or Area 1 Range
Abstract Estimate No. of 1871-72
Work Restoring the Calingulak across the
Oopaur River in the limits of Tirumungalam

Quantity	Description of Work	Rate	Amount	Amount of each part.
29,221 3/4	Cft. Brick in Churnam	at 2	58,443	11
16,000	Sprft Plastering	at 2	32,000	..
4,621 1/4	Cft. Old Cut Stone	at 4	18,485	6
5,759 1/4	Sprft Pointing Cut Stone	at 2	11,518	3
9,397 1/4	Do. Concrete 3" thick	at 1	9,397	14
38,406 1/4	Cft. Demolishing	at 4	153,625	24
207 1/4	Cyds New Rough Stone	at 2 1/2	517	..
8 1/4	Boxes for foundations	at 14	112	..
2 1/4	Do. Do.	at 12	28	..
15	Do. Do.	at 10	150	..
20	Do. Do.	at 9	180	..
67	Boxes Sinking	at 2	134	..
	Excavating foundation & scaffolding		250	..
	Filling wings with earth		100	..
	Removing dam and filling		250	..
	Baling		750	..

Sundries and contingencies 9027 5 7
457 10 5
9485 ..

Add Cost of Opening Vent as per memo attached in Original Estimate 600 ..
Do Do Opening New Cut as per Do Do 500 ..
Do Do Forming bund as per Do Do 900 ..

Total Estimate Rupees 114,900 ..

Signed James Vertue Captain R.E.
Executive Engineer Trichy

Supd Engineer to District
Camp all work arend in
15th June 1871

A. T. Bates Captain R.E.
Superintendent to District

No 272

Supg Engineer's Office b D

Camp Marmagudy 15 June 1871

From

Captain R. J. Baker R E

Supg Engineer b Division

To

Colonel J. Baird R E

Secretary to Government R E

Sir

With reference to G. O. No 1401, dated

2nd May, I have the honor to enclose an

original Report from the Executive Engineer

Trichinopoly relative to the injury done to the

Tirumangalam Dam by the heavy rain which

fell in the Trichinopoly District early last

month.

The Dam, as will be observed from

the Plan, is an old Native work, consisting

of retaining walls in front and rear with a

body 63 ft broad, the space between the retain-

ing walls consisting of a mere flooring of

cut stone over a layer of 12 or 2 of brick

in Chunar. The lower 24 of the Dam is

broken into steps and acts the part of

an Apron breaking the overfall which

from the Crest of the Dam to the

rear Apron is 14 in height.

Some years ago it would appear,

that the Dam was extended 72 feet and

the foundations of the old retaining (B) appear

to

G.O. No 2789/71

to have been made use of - These foundations consisted of large-boulders of tough stone, and at this spot a leak occurred last season and a portion of the surface of the Dam was blown up or broken up by the washing away of the soil from beneath it.

4 An Estimate for restoring the Dam was duly sanctioned, but when the foundations were opened out, it was found that the soil on which the front retaining wall stood consisted of "slimy blue clay mixed with sand." I then proposed to form an artificial foundation by means of piles with a wooden platform resting upon them. [This Captain Vertue refers in his last para] as I deemed it undesirable to attempt to excavate below the level of the bottom of the foundations of the adjacent retaining walls.

5 The Dam now requires restoration for a length of 86½ feet and Captain Vertue proposes to carry down the foundations 3' deeper than the original foundations by means of sinking boxes, and he provides a broad footing for the foundations which will be 12' below the existing bed of the stream and this will probably be sufficient the original bed having probably been some 3' lower than the present bed.

6 The Estimate provides a new extended tough stone Apron 12' broad along the whole length of the work, this being extended to

to 24' opposite to the new Vent or sluice it is proposed to provide, as there is at present but one Vent in the Dam and the bed above had become much silted - The opening of the new Vent and the supply of the tough stone Apron were provided for in the original Estimate, hence the cost of the damage done by the floods may be said to be Rs 3815 to which Rs 1405 must be added for the front embankments destroyed and for the enlarged channel for passing water to the river 18 and Rs 1285 for the [?] referred to in paras 24 and 25 of Captain Vertue's letter, or Rs 6705 in all.

7 The Estimate of Rs 6270 was passed by the Local Authorities under the head of Repairs, under G.O. No 754 dated 10th March 1870, but the allotment for Agricultural Repairs can ill bear so large a demand upon them, I beg therefore that the restoration of the Dam may now be regarded as a New Work and that the funds required for it, viz, Rs 11490 may be provided from the Reserve under Agricultural -

I have the honor to be
Sir

Your most obedient servant.

J. F. [Signature] Captain R.E.
Superintendent B.D.

P. W. Department.

No 2038
Proceedings of the Madras Govt
Under date the 3rd Aug 71
Read the following

From The Subg Engineer
H. E. No 272 of 15 June 71

The Superintending
Engineer of the 5th Div
will observe from G. O.
No 1803 dated 7th July
1871 that the Revenue
under Agricultural has
been fully appropriated
but if an application
which has been
made to the Govt
of India to supplement
that head by transfer
be sanctioned, the
Government will be

No 10 Forward No 225-224
No 225-224

No 10871 Madras
No 10871 Madras
No 22789

The Subg Engineer

To
The Secretary to Govt
Madras

Dated 15th June 1871
Recd 17th June 1871

No 2038-7
No 2038-7

Requests that the Govt
of its restoration may be
provided from the Revenue
under Agricultural

be prepared to take
into consideration
the question of allotting
funds for the re-
storacion of the
Tirumangalam
ancient across the
Gopuram in the
Tiruchinopoly District

And
[faint handwritten notes]

30
46

6 To the Supdt Engineer with an encl. letter ✓
5 Controller ✓
Desps 8/8/71 + Desps 9/8/71

C. No. 2789.

Govt. of 1871 Madras.

PUBLIC WORKS.

To the Superintending Engr,
6th Division

Dated

Recd.

Encl. 2

G. O. 7th Aug 1871. No. 2038.

Nos. 59 & 60

Mamangalam Calijulah

— I, under promise for
the restoration of the
Mamangalam Calijulah
in the District of D. an
the receipt of orders
from the Govt. of India
to supplement the
allotment under the head
Agriculture —