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## MADRAS RECORD OFFICE

Government of Madras

*Public Works* DEPARTMENT

|          |           |       |
|----------|-----------|-------|
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Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,  
16th May 1874.*

Read the following papers:—

No. 356. From Lieutenant-Colonel W. T. F. FAREWELL, Inspecting Engineer for Ports and Communications, to Colonel G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Chepauk, 24th March 1874, No. 750-71.

Wrrn reference to G. O., No. 363, dated 14th February 1874, I have the honour to submit, for the sanction of Government and provision of funds, an estimate for Rupees 2,860 for further

inside of the backwater; the necessity of the work is as follows:—the portion of the dam shown as revetted in the copy of sections C, herewith forwarded, is found to be carried to an insufficient depth to secure the work; the current down the backwater from the point A, on the survey attached, passes the points of the revetted returns and impinges on the face of the dam below the stone pitching, washing it away and causing the pitching to slip, exposing the sand slope of the dam to the full force of the ebb current, by which it has been damaged and will continue to be so unless protected as proposed; it would appear, on looking at the survey, that a groyne at  $\frac{1}{2}$  of 200 feet in length might deflect the current so as to pass the dam, but the point, I fear, is too far to immediately influence the dam to of them so as to deflect the current from the dam would, in consequence of the depth of water at these points, be very expensive.

2. I believe, however, a groyne at  $\frac{1}{2}$  would have the effect of causing the old channel, which is in a line with it, to scour and deepen, and thus in time tend to protect the whole of the beach seaward of it; it is, however, essential for the security of the dam that the work provided for in the estimate submitted should be carried out as soon as possible, in order that the work may be completed before the heavy floods of June come down the backwater and considerably increase the velocity of ebb tide.

MEMORANDUM.

No. 227.

The estimate of Rupees 2,860, herewith submitted, provides for facing with rough stone the inner slope of the Cruz Milagre Dam, where at present so unprotected, along its entire length of 300 feet; the average breadth of such unprotected part being stated at 52 feet; and the necessity for the work being based on the slipping of former pitching for a length of about 30 feet at a point 90 feet from the southern end of the dam.

2. The Chief Engineer must object to the work on the grounds of its necessity not only not being proved, but being, on the contrary, quite inconsistent with the facts of the case as shown by the sections taken on 4th January and entered in the specification of the estimate. He objects, moreover, that the estimate bears date antecedent to the sections last taken, with which it is inconsistent; was in

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possession of the Inspecting Engineer at the time his letter of the 17th January was written; and has not been corrected by subsequent observations ordered to be taken in G. O., No. 308, of 14th February, and which might advantageously have been anticipated during his late trip to Cochin.

3. The greatest extent of work that the sections of the 4th January, compared with the statement of the specification of the estimate, will bear out, is the pitching of the dam for one-third of its length only, nearest the northern end, where the sections show that the original pitching stopped at the water-line. Its stop accordingly may have been due to more surface action of water raised by the easterly winds. If due to impingement of tidal current in the backwater, erosion would have been shown in the sections taken a little later and would be proved beyond a doubt by repetition of the sections, time for taking which has now come round.

4. The expenditure on these protective works has been so heavy, and the funds available are so limited, that the Chief Engineer cannot approve of any additional outlay, unless proved to his satisfaction as absolutely necessary. And as he cannot unfortunately trust to the discretion of the Range Officer to make use of a maintenance allowance, he must request that Mr. Grimes be ordered down to Cochin at once to take a fresh set of sections from which final conclusions may be drawn.

March 26th, 1874.

(Signed)

G. W. WALKER, Colonel, R.E.

Chief Engineer

No. 356-A. From Lieutenant-Colonel W. T. FAREWELL, Inspecting Engineer for Ports and Communications, to Colonel G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated 16th April 1874, No. 32-11.

With reference to your memorandum No. 337, dated 25th ultimo, I have the honour to forward a letter from the District Engineer of Malabar, with the sections of the Cruz Milagre Dam corrected to the 5th of April. The District Engineer now states that the works for necessary, but proposes to forward a maintenance estimate for the present official year. An expenditure of Rupees 515-15-5 was incurred in the last three months of 1873-74 partly for revetment works, and partly for establishment. A bill for this amount is forwarded, and the District Engineer requests that it may be sanctioned.

From W. S. HARRINGTON, Esq., District Engineer, Malabar, to Lieutenant-Colonel W. T. FAREWELL, Inspecting Engineer for Ports and Communications, dated Cochin, 10th April 1874, No. 320-A.

Your No. 783-62 (in red ink) dated 29th ultimo, attached to the Chief Engineer's memorandum No. 327 of the 29th idem.

2. I have the honour to return herewith the paper marked C,\* on which the sections of the Cruz Milagre Dam, taken in July and October 1873, and January and 29th March to 8th April 1874, are shown, being delineated in black, red, burnt sienna, and blue respectively.

\* Also two copies of B, Survey Paper (No. 2) marked C, showing continuation of slope of bank in yellow. Estimate for prolonging revetment on east slope of Cruz Milagre Dam.

3. On referring to Sections F, G, H, I, J, and K, (I have lettered them for easy reference,) it will be seen that except at its extreme outer toe, where it is unprotected by any stone pitching, the slope of the bund on the east side has not very materially differed since the 4th January, and I submit that whatever sinkage has taken place in the revetment is due to the natural settling of the bund, this settling tendency being increased by the weight of the superincumbent stone; it will also be observed that except at Sections B, in particular, (the soundings being taken at the corner of a return,) E, K, and N, the slope of the bund has altered but little, but I must here

remark with regard to E that a mistake was made in the section last submitted by Mr. Grimes, the Draughtsman having neglected to depict as revetment the portion (then completed) which I have now marked in dull yellow.\*

4. In the face of the Chief Engineer's remarks, and in deference to his better judgment and greater experience, also after a very careful investigation both in the field and in office of the soundings taken, I do not attempt to urge the absolute necessity for the work advocated by me in January, and for which an estimate, amounting to Rupees 2,860, was submitted on the 3rd of that month. I am free to confess that except at Sections B and E, the latter being that referred to in the specification drawn out by Mr. Grimes, which accompanied the above estimate, and was framed after a careful inspection of the work by that officer and myself, my reasons for urging the prolongation of the slope of the pitching were founded a good deal on theory, and on the idea that a scour if established along the unprotected bank would cause the stones to topple over and the whole bank to slide.

5. As remarked by you in your memorandum under notice an additional sum has been spent partly on the revetment ordered by me to be done and partly on superintendence, watchmen, etc., during the three months ending 31st ultimo, and not included in the bill already submitted for the whole cost, amounting to Rupees 72,313. I forward a bill herewith for this amount,\* and solicit sanction for an allotment of funds. It will now be necessary to forward a maintenance estimate for the work for the present official year.

\*Rupees 315-15-5.

No. 357.

CIVIL WORKS, No. 41.

ORDER THEREON, 16th May 1874, No. 1,315. THE actual outlay of Rupees 516 incurred in the maintenance of the Cruz Milagre Dam in the last three months of 1873-74 is passed; but the District Engineer will take care that no abuses are allowed to creep in unnoticed in connection with this work, which, valuable as it is, has cost a much larger sum than was anticipated and can well be spared. The items of the petty establishment maintained, consisting of storekeepers, boatmen, boat watchmen, store watchmen, watchmen, head coolies, are suggestive of abuses which must be vigorously repressed.

2. The proposed maintenance allowance will be accounted for in detail. A fresh section paper need not be submitted until it is required as the basis of an application for funds. Making allowance for the soundings not having been taken at the identical same state of tide, the variations shown on the sections already received are of no significance. But the special officer will carefully watch the

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16th May 1874.

action both of sea and backwater on the dam during the ensuing monsoon, and to  
ready to guard against damages from either quarter.

(True Extract.)

(Signed) G. W. WALKER, Colonel, R.E.

Secretary to Government.

Inspecting Engineers Office for  
Ports & Communications.

St. Paul's, Madras.

24<sup>th</sup> March 1874.

From

The Inspecting Engineer for  
Ports & Communications.

To

The Chief Engineer and  
Secretary to Government  
Public Works Department.

Sir,

With reference to G.O. No.  
360 dated 14<sup>th</sup> February 1874, I  
have the honor to submit for  
the sanction of Government and  
provision of funds an estimate for  
Rs 2000 for further revetting the  
Cm. Nilagiri dam on the inside  
of the backwater, the necessity  
of the work is as follows:- The  
portion of the dam shown as revetted  
in the copy of sections C herewith  
forwarded is found to be carried  
to an insufficient depth to secure  
the work, the current down the  
backwater from the point A  
on the survey attached, passes the  
points of the revetted returns

and impinges on the face of the dam below the stone pitching washing it away and causing the pitching to slip, exposing the sand slope of the dam to the full force of the ebb current by which it has been damaged and will continue to be so unless protected as proposed; it would appear on looking at the survey that a groin at *A* of 200 feet in length might deflect the current so as to pass the dam, but the point *A* seems to influence the dam to any great extent, and lengthening the piers either of them so as to deflect the current from the dam would in consequence of the depth of water at these points, be very expensive.

2. I believe however, a groin at *A* would have the effect of causing the old channel which is in a line with it to scour and deepen and thus interfere and to protect the whole of the bar and seaward of it, it is however essential for the security of the dam that the work proposed for the

estimate submitted should be carried out as soon as possible in order that the work may be completed before the heavy floods of June come down the Poakwater and considerably increase the velocity of the ebb tide.

I have the honor to be  
Sir,

Yours most Obed Servant.

*W. H. Link*  
Link Floral  
Inspecting Engineer for  
Ports & Communications

2088

2088

submitting for  
the sanction of  
Government and  
permission of funds  
as herein set forth  
to 2088 for further  
working the same  
Milagie dam  
has been started

submitting for  
the sanction of  
Government and  
permission of funds  
as herein set forth  
to 2088 for further  
working the same  
Milagie dam  
has been started

No. 320  
A  
Malabar Dist. Engrs. Office  
On Circuit  
Cochin 10 April 1874

From  
The District Engineer.  
Malabar  
To,  
The Inspecting Engineer for  
Ports & Communications.  
Madras.

Sir  
Your No. 463/82 (in red ink) dated  
28<sup>th</sup> ultimo, attached to the Chief Engineer's  
Memo No. 224 of the 26<sup>th</sup> Idem.

in copies  
to the  
C  
D  
K  
note  
longing  
to the  
C  
K  
dam

2. I have the honor to return here  
with the paper marked C on which the  
sections of the Cruz Milagie dam taken  
in July and October 1873 and January and  
29<sup>th</sup> March to 8<sup>th</sup> April 1874 are shown  
being delineated in black, red, Burnt  
Sienna and blue respectively.

3. On referring to sections F, G, H,  
I, J and K (I have lettered them for  
easy reference) it will be seen that  
except at its extreme outer toe where it  
is unprotected by any stone pitching,  
the slope of the Burnt on the east  
side has not materially differed  
since the 4<sup>th</sup> January and I submit  
that whatever sinkage has taken place



be ready to guard  
against damage  
from either quarter.

Encs

To the B. C. Railroad  
Contractor with no answer  
of course kept the office.

356-357

be ready to guard  
against damage  
from other quarters.

2287

Govt. of 1874 Malabar.

PUBLIC WORKS.

Genl

The Dist. Inq.  
Malabar

Recd

1874

256-357

1874

1874

1874

1874

1874

To the B. & C. Malabar  
Controller with no trace  
of copies kept till 11/3/74

256-357

1874