

(1) Number of Pages.....⁶
(2) Date of repair.....²⁵⁻⁷⁻⁶⁸
(3) Initials of the Referencer.....^{30.1.68}

MADRAS RECORD OFFICE

GOVERNMENT OF MADRAS

Revenue.....DEPARTMENT

G.O. No.	1623.	☒ Press
B.P. No.		☐ Mis.
Dated	2-8-1875 ~196 .	

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
20th July 1875.*

No. 491. Read the following Proceedings of the Government of India in the Public Works Department, (Civil Works—Miscellaneous), dated Simla, 27th April 1875, Nos. 129—31 M.:—

Proposed Harbour at Madras.

Read again—

Public Works Despatches to Her Majesty's Secretary of State for India, Nos. 4 and 118, dated respectively 8th January and 17th August 1874.

Read also the following reply:—

From the Secretary of State for India, to the Government of India, dated 11th March 1875, No. 20 P.W.

I HAVE considered in Council Your Excellency's Despatches, Nos. 4 and 118, dated 8th January and 17th August 1874, referring to the proposed harbour at Madras, together with the despatches of the Madras Government of the numbers and dates noted on the margin relating to the same subject.

No. 36, dated 16th December 1873.	
" 1, " 9th January 1874.	
" 7, " 12th February "	
" 23, " 29th June "	
" 26, " 13th July "	
" 32, " 14th September "	

2. In accordance with the suggestions of Your Excellency's Government, I have caused Mr. Parkes' plans to be submitted for consideration to J. F. Bateman, Esq., C.E. Mr. Bateman has been asked to give his opinion in reference to the three points raised in your despatch No. 118, dated 17th August 1874. The following questions were put to him:—

1st.—Whether the proposed method of constructing the breakwaters, as described in the Report, dated 4th November 1873, affords promise of stability.

2nd.—Whether the obstruction to the littoral currents offered by the breakwater is likely to cause an accumulation of sand, and, if so, within what period such accumulation is likely to impede the entrance to the harbour.

3rd.—Whether the proposed harbour, being enclosed by breakwaters only 3 feet 6 inches above high-water mark, and having an opening 150 yards wide exposed to the sea, would afford sufficient protection to the shipping moored within it during the prevalence of high winds blowing inshore.

3. Upon all these points Mr. Bateman's answer, as Your Excellency will see from the enclosed report,* is in accordance

* Dated 3rd December 1874.

with the opinion of Mr. Parkes. The

Madras Government are also confident in the soundness of his proposals; nor do I understand you to feel any hesitation in acceding to their view, except upon the points which you wished to be submitted to the examination of an English Engineer.

4. Considering these favorable judgments in conjunction with the experience of Mr. Parkes' mode of construction which has been furnished by the harbour of Kurrachee, I am satisfied that his plans are likely to be suitable for their purpose, and may be safely sanctioned.

5. The question of expense is, as might be expected, a matter of some controversy. Your Government is disposed to place it at as high as £776,465; Mr. Parkes' own original estimate did not exceed the sum of £565,000. The Madras Government have adopted an intermediate view, and are of opinion that £628,000 will be amply sufficient. A similar discrepancy exists with respect to the estimate for maintenance, which is placed by your Government and that of Madras at the sums of £10,000 and of £2,000 a year respectively.

6. The contingencies upon which the cost of constructing and repairing a harbour depends are so uncertain, that it would be hazardous to express a confident opinion in respect to these conflicting estimates. But the question is too large to be dealt with only upon financial grounds. Many human lives are sacrificed in the tempests which annually ravage the Coromandel Coast, and it is probable that a large proportion of these might be saved if the vessels which are now surprised in the roadstead could seek the shelter of a harbour. The material interests of the vast population that inhabits the Presidency of Madras are not less deeply affected by the unsheltered condition of the port. It can hardly be doubted that if a safe and regular access to the sea could be secured to them, their industry and trade would be greatly stimulated. The public utility of a harbour can seldom be measured by the actual return in the shape of dues which it can be made to pay, and in the Presidency of Madras, where the destitution of shelter upon the seaboard is so remarkable, such a principle of valuation would be specially misleading.

7. I do not therefore propose to make the construction of the harbour of Madras depend upon the accuracy of the estimates submitted by the Government of Madras. Those estimates may, however, properly serve as a guide in determining the sum which is to be advanced for the work out of the Extraordinary Public Works Fund. The principles upon which that Fund was constituted, and of which I reminded you in my Financial despatch of the 23rd July 1874, No. 387, forbid its application to any work except so far as the yield of that work is likely to repay the interest upon its cost.

8. Looking to the tonnage both of the ships which visit the port and of the goods which pass through it, and also to the burdens which are borne without injury to the trade of other ports, I am disposed to concur with the opinion of the Government of Madras, that dues raised upon shipping and upon goods in that port may be trusted to repay interest upon the £628,000, which they estimate as the outlay necessary in addition to the annual sum which, in their opinion, they will have to provide for the maintenance and working expenses of the harbour. I do not conceal from myself that circumstances now unforeseen may render inevitable an excess either upon the capital outlay or the annual expenditure in maintenance. But the Imperial character of the undertaking, and the high interests involved in it, do not permit me to look upon the existence of that contingency as an insuperable obstacle to the prosecution of the work. If the excess should arise, it must be borne upon the ordinary budget; but until the probability of its being incurred is ascertained the necessity for providing for it will not arise. I desire, however, to record the opinion, that if the full amount of the highest estimate formed by your Government should be reached, the expenditure will

still have fallen short of the benefits which the work may be confidently expected to confer upon the people of Madras.

9. I have therefore, in conclusion, to request that the Government of Madras may be directed to introduce Bills into the Legislature providing for the levy of dues, either on shipping or on goods in the port of Madras, upon the construction of a harbour there, which will be sufficient to defray interest at 4 per cent. of a loan of £628,000, and a yearly expenditure of £6,000; and further, that Your Excellency's Government will, on the passing of those measures, advance the sum of £628,000 out of Extraordinary Funds to the Government of Madras for the construction of a harbour in accordance with the plans of Mr. Parkes and under his superintendence.

From J. FRED. BATEMAN, Esq., C.E., to the Under Secretary of State for India, dated 3rd December 1874.

I HAVE the honor to answer the questions submitted to me by direction of the Secretary of State for India in Council on the important subject of the proposed harbour for Madras designed by Mr. Parkes.

I have given it my most careful consideration, and have had the advantage of obtaining from Mr. Parkes, to whom I was referred, all the information which appeared to me desirable, and of much of which, especially of a local character, I was necessarily ignorant. I have also obtained from him full particulars of the breakwater at Kurrachee, and the nature and extent of the injuries which it received during its construction and during the two following monsoons. This information is most valuable as bearing directly upon the question now under consideration, as the proposed mode of constructing the breakwater piers at Madras is the same in principle and to a great extent the same in design.

On the important point of the stability of such a work, I have also brought into consideration and under review all the circumstances of breakwaters, either similar or dissimilar in their construction, with the object of well weighing the proposal of Mr. Parkes before I ventured to incur the responsibility of either approval or disapproval.

The expression of my opinion is strictly limited to the three questions submitted, and, as the most convenient form of answering them, I have arranged the questions and answers in the following parallel columns:—

Questions.

Answers.

1. Whether the proposed method of constructing the breakwater, as described in the report, dated the 4th November 1873, affords promise of stability?

1. I am of opinion, after the full information I have received of the mode of construction adopted at Kurrachee and the success and stability of the breakwater there, exposed, as it is alleged to be, to as heavy or a heavier sea than the breakwater at Madras can be, that the mode of constructing the breakwater as described in Mr. Parkes' Report of 4th November 1873 does afford promise of stability. It is, however, very probable that, both during construction and subsequently to completion, very severe storms may disturb and injure the work, but this contingency is not, in my opinion, sufficient to prevent the execution of the breakwaters in the manner proposed by Mr. Parkes.

Proceedings of the Madras Government, Public Works Department,
20th July 1875.

Questions.

2. Whether the obstruction to the littoral currents offered by the breakwater is likely to cause an accumulation of sand, and, if so, within what period such accumulation is likely to impede the entrance to the harbour?

Answers.

2. A breakwater or pier projecting at right angles from the coast must of necessity obstruct littoral currents and arrest travelling sand or shingle, but I have no information as to the quantity of sand which would be thus arrested in a year, and cannot therefore make any calculation of the period within which the accumulation would extend as far out as the points of the piers, or impede the entrance to the channel.

The piers or sides of the enclosed harbour are proposed to be extended nearly two-thirds of a mile from shore, and I am of opinion that, whatever may be the quantity of sand which will be arrested, a very long period will elapse before the accumulation behind the walls can have an injurious effect, so long indeed that it may be disregarded.

3. Whether the proposed harbour, being enclosed by breakwaters only 3 feet 6 inches above high-water mark, and having an opening 150 yards wide exposed to the sea, would afford sufficient protection to the shipping moored within it during the prevalence of high winds blowing inshore?

3. The breakwater, though the top be only 3 feet 6 inches above high-water, will very actually stop the progress of driving waves, and will afford material shelter within the harbour. It will not prevent water rolling over in heavy seas, but the destructive effect of such water will be destroyed, and no injurious wave can be propagated within the space of the harbour.

I consider an opening of 150 yards will afford easy ingress and egress to vessels, and that any waves entering this space from high winds blowing inshore will, as soon as they have entered, spread out in all directions with such rapidity as to be wholly dissipated as objectionable waves within a short distance of the entrance.

The water within the harbour in all winds, however high, will be comparatively quiet.

ORDER.—Ordered that a copy of the foregoing be forwarded to the Government of Madras in the Public Works Department for information, in continuation of Public Works Department No. 391 C—W., dated 17th August 1874; and to the Financial and Revenue, Agriculture and Commerce Departments for information.

Captain, R.E.,
Asst. Secy. to the Govt. of India.

Proceedings of the Madras Government, Public Works Department,
20th July 1875.

No. 492.

ORDER THEREON, 20th July 1875, No. 2,060.

CIVIL WORKS, No. 38.

COMMUNICATED to the Legislative Department with a view to the necessary Bills being framed and passed, and to

the Financial and Revenue Departments for information.

(True Extract.)

J. R. Austin

Major, R.E.,

Offg. Joint Secretary to Government.

To the Legislative Department.

" Financial do.
" Revenue do.
" Controller of Public Works Accounts.

South Harbour Works

Erd. S. T. Austin.

Spare Copies will follow

Rev: 1875: Sept
No. 931

Govt. of [1875] Madras.

PUBLIC WORKS.

THE LEGISLATIVE DEPARTMENT.

to, to, to

Dated July 20th.

Issued

Recd.

27th

Encl.

G. O., 20th July 1875, No. 2,000.

JULY.

Nos. 491-492

Proposed Harbour at Madras.—Letter of the Government of India forwarding copy of despatch from the Secretary of State and the —, communicated to the Legislative Department with a view to the necessary Bills being framed and passed, and to the Financial and Revenue Departments for information.

No. 1623

Communicated
to the Board of Revenue

2 Aug 75.

111. To the Board of Revenue, 9th August