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AMIL NADU ARCHIVES

VERNMENT OF TAMIL NADU

P.W DEPARTMENT

G.O. No. 2705
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Dated 17 — 10 — 1882 ~~197~~

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2705 W

17th October 1882, No. 2705 W., Public Works.

1

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

No. 193.

Read—the following papers:—

No. 284.

Notes of Inspection by Lieutenant-Colonel H. R. MEAD, R.E., Superintending Engineer, 4th Circle for July 1882.

Malabar District, West Coast Division, Calicut Sub-division, 17th and 18th July 1882.

Beypore Sea Encroachment, &c.

Inspected this by order in company with the Consulting Engineer and Deputy Consulting Engineer for Railways, the Chief and District Engineers of the Madras Railroad.

The sea was calm. The present state is shown on the tracing that accompanies this. (To be returned; there is a copy in the Chief Engineer's office forwarded with notes dated 26th June.)

The yellow and green dotted lines on the plan show the line of beach; on the 8th July in yellow and the previous work in green.

There has been but little alteration since; the accretion at the site of 6th, 7th and 8th groynes has increased, and there has been further erosion below the site of the 10th groyne.

The sea wall repairs are nearly completed and there is a decided shoaling and improvement in the line of breach between it and the Government groyne, but no decided accretion has formed.

The new Government groyne has been lengthened about 30 feet, total length about 120 feet; it is strong and good.

There has been considerable erosion in the beach, near the root of the groyne and south of it; but the Railroad Engineers have pitched the slope near it and placed on the sand between it and their No. 1 groyne a line of stone, say, 12 feet by 2 feet deep (this has no foundation); their No. 1 groyne is about 25 feet long with revetment on each side at root. No. 2 groyne is about 20 feet long with similar short revetment on each side of root.

No. 3 groyne was partly done, but the rough weather cut it off in rear and destroyed it; not a stone of it is to be seen.

No. 4 groyne similar to No. 3, but some of the stone is to be seen in the sand which is at the groyne site but little above L.W.L.

Nothing further has been done, the late rough weather stopped the supply of stone which was being brought down the river.

At present stone is being brought, but there appears no definite plan decided on by the Railroad Engineers as to what should be done, and the original estimate, Rs. 5,540, for ten small 50 feet groynes is abandoned, and I believe I may say that all agree that the proposal has not and will not answer.

(Signed) H. R. MEAD, Lt.-Col., R.E.,
Superintending Engineer, Fourth Circle.

Coimbatore,
19th July 1882.

To the Chief Engineer, Public Works Department, Ootacamund.

No. 103-A.

From Lieutenant-Colonel H. R. MEAD, R.E., Superintending Engineer, Fourth Circle, to the Chief Engineer, Public Works Department, dated Coimbatore, 22nd July 1882, No. 292.

With reference to G.O., No. 1805 W., dated 15th July 1882, which I regret to say was not received in this office until the arrival of the afternoon post on the 17th, and therefore not seen by me until after my return from Beypore, I have the honor to report that as the Consulting Engineer for Railways considered the question regarding incidence of outlay on necessary protection of the sea beach at Beypore for the safety of the Railway was not for our discussion, this point was not entered on by us.

2. I feel it is hopeless for me to attempt to bring this matter to a satisfactory conclusion. I have however this day addressed the Consulting Engineer, and requested that he will obtain from the Railway authorities the reasons, &c., on which they base their claim (which they have indirectly made) for the Madras Government to protect their line of railroad from an encroachment of the sea.

3. With regard to communicating with the Master Attendant, I must point out that to me there are no grounds whatever for any claim being made on that department for the protection of the sea beach south of the sea wall (carried out on Mr. Robertson's recommendation) that connects the shore with the island.

The maintenance of the sea wall and the sea beach near the Beypore river mouth ought, I consider, to be a charge on the Marine Department, as those works affect the river bar, but I would submit that works south of the wall have nothing to do with it and should therefore be no charge on that department.

This being my opinion I request that I may be allowed to report hereafter without reference to the Master Attendant.

4. Referring to paragraph 2 of the Government Order under reply, in my Notes of Inspection, dated 17th and 18th July, will be found a description of the present state of the groyne work now being carried on by the Railway authorities. The original design and estimate is not being carried out and the progress made is but little. I regret that I can give no information as regards what the Railway authorities intend doing, my own impression is that no vigorous action will be undertaken until the question of incidence of outlay is decided.

5. I believe that both the Consulting Engineer and the Chief Engineer of the Railway consider the original sanctioned estimate, for 10—50 feet groynes, Rs. 5,540 as obsolete, and I believe further that they consider, after the experience of the last storm, that very considerable modifications are advisable.

They neither of them however gave me their opinion as to what they considered was the best plan to be adopted in protecting the beach, about 3,000 feet of which will probably for the safety of the railroad require protection.

No. 103-B. From the Consulting Engineer for Railways, dated Madras, 27th July 1882, No. 578.

From the Acting Chief Engineer, Madras Railway Company, to the Agent and Manager, dated Madras, 20th July 1882, No. R 201/563.

Your endorsement on Consulting Engineer's letter No. 484 of 8th current.

The groynes Nos. 1 to 4 to protect the sea beach at Beypore were commenced on 29th ultimo. During the week following there was very little work done owing to heavy weather. One boat carrying stone was swamped and the men refused to work until the weather moderated.

The greater portion of the materials of the four groynes was scattered by the action of the sea.

The sea broke so heavily on the south heel of the Government groyne on 5th current that the Resident Engineer considered it advisable to build a sea wall from the heel of the Government groyne to No. 1 groyne and this checked the erosion.

2705 W

2

On Monday, 17th current, the works stood as follows:—

Pitching done from Government groyne to No. 1 groyne and for a short distance south of it. No. 1 groyne about 12 feet long.

No. 2 groyne recommenced with a T heel to prevent erosion.

The orders I have given with, I believe, the approval of the Consulting Engineer are:—

a. To stop No. 2 groyne for the present.
b. To go on with No. 3 groyne, changing the site slightly so as to take advantage of a projection in the beach.
c. Not to go in with No. 4 groyne.
d. To begin No. 5 groyne with a T heel to prevent erosion.
e. Not to do any work between groynes Nos. 5 and 10 as the shore is being silted up.

It may at any time be necessary to modify these orders in order to protect different points which may be threatened.

No. 516.

Forwarded for the information of the Consulting Engineer for Railways.

Madras, (Signed) J. W. MELLIS,
21st July 1882. *for* Agent and Manager.

Copy of above forwarded for the information of the Chief Engineer, Public Works Department, in accordance with his request.

2. On the occasion of my visit to Beypore, (on 17th current,) it was explained by the Railway Officers that the proposals for protective works submitted by them were not intended to be rigidly adhered to, but to be modified according to experience of the conditions of the littoral currents, of changes in the coast line, &c.

3. As matter of fact, the original proposals had already been considerably modified on the date of my inspection.

4. The revised proposals, as roughly sketched above by Mr. Carter, have my concurrence, but will necessarily be liable to further modification.

5. Further reports will be forwarded to the Chief Engineer, Public Works Department, with respect to both the future progress of the works and the incidence of cost.

Madras, (Signed) J. SHAW-STEWART, Colonel, R.E.,
Consulting Engineer for Railways.
27th July 1882.

No. 103-C.

From Colonel J. BEATTY, R.E., Superintending Engineer, Sixth Circle, to the Chief Engineer, Public Works Department, dated Tanjore, 30th July 1882, No. 381 T.C.

With reference to paragraph 3 of G.O., No. 1805 W., of 15th July 1882, I have the honor to forward, for your information, a letter from Major Fraser regarding the delay in the construction of groynes to protect the beach at Beypore.

Enclosure.

From Major A. F. FRASER, R.E., Executive Engineer, Trichinopoly Division, to the Superintending Engineer, Sixth Circle, dated Trichinopoly, 25th July 1882, No. 269 S.E.

I have the honor, with reference to your No. 363 T.C., dated 22nd July 1882, and G.O., No. 1805 W., of the 15th instant, to state the following circumstances regarding the beach at Beypore, which may not be fully known.

2. As soon as the work, "repair of the sea wall and constructing one groyne," was authorized, as the time was very short, I placed a European Overseer at Beypore, under the Sub-Engineer at Calicut, to collect laterite.

3. A native contractor was under agreement to deliver stone, but as it came in slower than required I went to ascertain the cause.

4. I found that though the sea was apparently calm loaded boats could not discharge laterite, which the contractor brought down the Beypore river, at the site of the work. The stone had to be landed near the Prince's jetty in the river, and carted to the sea wall about a quarter of a mile.

5. This was a state of things which could not have been anticipated and was a source of delay. There was not much stone, I think, got by blasting on the island, as the Marine authorities were rather averse to its being cut down, and the spray was latterly strong.

6. However enough stone was got to progress with the repair of the gap in the sea wall, but more was used than calculated upon, as the sea, while the work was actually going on, cut round the shore end of the sea wall, detaching it from the beach, thus necessarily absorbing in the extension stone that would have been available for the groyne.

7. The Sub-Engineer finding time pressing and stone likely to be insufficient, recommended a tender from Mr. Gay, Contractor to the Madras Railway, who engaged to make a siding and run down the laterite to the site of the groyne by ballast train in sufficient time, but at a rate increased by a fifth.

8. I think I incurred some slight responsibility in closing with Mr. Gay, and wrote for the assistance of the Madras Railway Company in lending worn permanent-way.

9. Mr Gay constructed the siding, but just before it was commenced the sea began cutting away the beach in rapid manner, quite different from the former steady erosion, and to save the Inspector's quarters the Railway Company erected a cheap groyne, of sand bags and old sleepers, 25 yards long, which might fairly be debited to the contingencies of the "sea wall and groyne" estimate.

10. This was effective for some time, and I was under the expectation that Mr. Gay would make the stone groyne well before the setting in of the monsoon.

11. After giving over charge of the West Coast Division, on my way here, having an interest in the work, I looked at it while at the Railway Station, and found that the conditions of the problem had suddenly entirely altered.

12. The sea was eroding the coast line very rapidly, and not only breaking on it, but the water at high tide stood 1½ feet above the land, and flowed back towards the railway. The siding was ready, but Mr. Gay had not brought down a ballast train.

13. It was evident that the groyne only protected the two hundred yards, if so much, on the north side of it, and that it had no effect in preventing the alarming erosion now setting in, as the Deputy Consulting Engineer for Railways states, for two miles of the south. In fact had the stone groyne been completed it would, in my opinion, have been turned and left out at sea. The Railway were only able to protect the Inspector's quarters by quick extension of their stake groyne landwards.

14. I had thought originally that a second groyne, constructed next season, similar to the one sanctioned, would have been enough to stop erosion; but seeing the conditions entirely changed from what they were when and for some time after the estimate was prepared, I wrote a memorandum for the information of the Superintending Engineer, Fourth Circle, dated June 3rd, during the short time I was waiting for the train, stating that the action of the sea was so much more forcible than ever before that keeping it off was beyond the resources of the Public Works Department at the place, and that the co-operation of the Railway authorities was urgent. I also saw Mr. Wilkinson, C.E., the Divisional Engineer.

15. Mr. Gay said the cause of his not delivering stone was a difficulty in getting labor, as the people were in the fields transplanting rice.

No. 568 E.

Referred to Colonel Mead for remarks.

11th August 1882.
(Signed) R. H. SANKEY, Col., R.E.,
Chief Engineer, P.W.D.

To the Superintending Engineer, Fourth Circle, (in original to be returned.)

No. 103-D.

From Lieutenant-Colonel H. R. MEAD, R.E., Superintending Engineer, Fourth Circle, to the Chief Engineer, Public Works Department, dated Camp, Vellore, 15th August 1882, No. 340.

With reference to your endorsement No. 568 of the 11th August 1882, I have the honor to return the papers and to report that I have no remark to make on paragraphs 1 to 7 further than I have already done in my letter No. 251, dated 3rd July 1882, in which I reported, as called on, the delay in the construction of the groynes at Beypore which Major Fraser was ordered to commence by me in anticipation of sanction in February, except that Major Fraser is mistaken in paragraph 6 in stating that owing to the rough weather stone was absorbed in the extension of the sea wall that would have been available for the groyne; my notes of inspection, dated 26th June, show that even by the 3rd June the total quantity estimated for the repair of the stone wall was not collected.

One Endorsement, No. 568 of 11th August 1882, with one enclosure.

2. With reference to paragraph 8, Major Fraser reported the fact to me that he could not get stone for the groyne, owing to the bad weather, except by railroad at an increased cost, and received from me at once authority to do so. I am not aware that he gave orders for the work to be begun until he received that authority.

3. Major Fraser had received orders to complete the repairs to the sea wall and the groyne by the 15th May, but it was not until the 4th May that arrangements to bring it down by rail were made and quarrying commenced. I am aware that there was rough weather from the 10th April, but I consider most of the stones for both sea-wall and groyne ought to have been collected before that date, as it was, none whatever was collected for the groyne.

4. With regard to paragraphs 11, 12 and 13, I agree with Major Fraser that the encroachments of the sea was much greater and more rapid than anticipated, but I am not aware that any one thought that the groyne would do more than protect a small portion of the coast, and although it is to be regretted that the groyne was not put up before the monsoon as intended, my own opinion is that its construction would have done but little good. Had it been completed the heavy action of the sea at the end of May and June would probably have turned it, and if this had occurred it would have done more harm than good. We should have had no stone available to extend it inwards and without protection at the root it must have failed.

No. 103-E.

From the Consulting Engineer for Railways, dated Madras, 21st August 1882, No. 187.

From the Agent and Manager, Madras Railway Company, to the Consulting Engineer for Railways, dated Madras, 5th August 1882, No. 549.

In reply to your letter No. 539 of the 26th ultimo, I have the honor to forward you a copy of a letter, dated the 29th July, No. R. 201/588, from the Acting Chief Engineer, having reference to the incidence of the cost of the protective works at Beypore.

Mr. Carter explains the steps which he took to bring to notice the encroachments of the sea from time to time, and suggests that as the Department of Public Works did not carry out the protective works with the desired promptitude, the incidence of cost of these works which we are now undertaking should be borne by that department.

I concur with Mr. Carter in this view, and trust that His Excellency the Governor in Council will be pleased to approve of the suggestion that the Public Works Department should bear the entire cost.

I also forward a tracing showing the coast line at Beypore from the year 1867 to June 1882 which you will probably find useful.

Enclosures.

From H. R. P. CARTER, Esq., Acting Chief Engineer, to the Agent and Manager, Madras Railway Company, dated Madras, 27th July 1882, No. R 201/582.

Your endorsement on Consulting Engineer's letter, No. 525, of 20th current, giving cover to Proceedings of Government, dated 15th July 1882, No. 1805 W., Public Works.

I am still of opinion that the erosion at Beypore is to a great extent due to the sea wall connecting the main land with the island, and my recent inspection in company with the Consulting Engineer, the Deputy Consulting Engineer, and the Superintending Engineer, when we found an immense amount of debris which had been evidently carried down the river and deposited on the foreshore to the south of the sea wall, still further confirms me in believing that the encroachment of the sea was caused by the sea wall.

At all events the erosion of the coast during the last year has been alarmingly rapid, and the groynes proposed by me even if they proved thoroughly effective would not restore half the foreshore which was washed away during the last twelve months.

In fact the work I have put in hands is merely to afford temporary protection to the Railway property.

If it is intended either to regain the foreshore already lost or thoroughly to protect the Railway a very comprehensive scheme would be necessary either in the first instance involving groynes of great length, or in the second a sea wall along the coast having a good foundation and of considerable section.

I don't think anything on a large scale could be done for less than about half a lakh of rupees.

No. 550.

Forwarded for the information of the Consulting Engineer for Railways with reference to paragraph 2 of his letter, No. 525, of the 26th ultimo.

(Signed) A. M. SAUNDERS,
Agent and Manager.

5th August 1882.

From H. R. P. CARTER, Esq., Acting Chief Engineer, to the Agent and Manager, Madras Railway Company, dated Madras, 29th July 1882, No. R 201/588.

Your endorsement on Consulting Engineer's letter, No. 539, dated 28th July 1882.

So long ago as June 1880 I reported that the sea had washed away the sand opposite the Railway station at Beypore to within 9 feet of the fence. Laterite was deposited by the Department of Public Works, and the erosion of the land at this particular point was stopped.

On the 2nd June 1881 I again addressed you on the same subject and requested you to inquire what steps Government were about to take for the protection of the Railway property, and was informed that the Chief Engineer to Government stated that there was no danger of the encroachment increasing.

On 8th September I reported that the public road opposite the Inspector's bungalow had been washed away.

On 8th November I again called your attention to the fact that no action to prevent further encroachment of the sea had been taken by Government.

On 1st March 1882, finding that the Inspector's house was in danger, I ordered a temporary groyne of sand bags to be put in, and this saved the bungalow.

On 17th March Government passed certain orders for the thorough repair of the sea wall and the erection of a groyne, and I gave orders that every assistance should be given to the contractor, but I believe it was not commenced before the 1st June or thereabouts, before which date we had to work night and day to save our Inspector's house.

Had my reiterated warnings been attended to, or had the groyne been commenced in good time, much of the erosion would have been prevented, and so far as our property is concerned no further works would have been requisite. As however the want of prompt action by the Department of Public Works has now rendered extensive works necessary, I am clearly of opinion that the incidence of cost for these works as well as for the works we have already had to execute should be borne by that department.

Submitted for the consideration of Government, with advertence to their Proceedings, dated 15th July 1882, No. 1805 W.

2. The sum of Rs. 5,540, sanctioned for outlay by the Madras Railway Company on protective works at Beypore, has been expended with results which appear so far satisfactory; and the papers now submitted will, I trust, be sufficient to enable the Government to decide both as to the final incidence of that outlay and as to the responsibility for any further protective measures that may be necessary.

3. It will, I think, be admitted that the position occupied by the Madras Railway Company in connection with the recent erosion at Beypore has been unsatisfactory. The Company did not own the foreshore, which has always been understood to be the property of the State, while immediately outside their station-yard ran a public road which I believe was recently transferred to the custody of the Local Fund Board.

4. As stated by the Company's Chief Engineer he drew attention to the aggressive action of the sea at Beypore so long ago as June 1880.

The fact was at once notified to the Superintending Engineer of the Circle, with a request that the necessary steps might be taken to prevent further encroachment.

The reply, dated 2nd August 1880, was that "the Executive Engineer reports that at present nothing should be done."

5. A year later, in June 1881, the Company's Chief Engineer reported that the sea was making further encroachment, and inquired whether any measures were being taken by Government for the protection of the beach. The matter was again referred to the Superintending Engineer, who stated, in reply, dated 7th June 1881, that "if the encroachment of the sea at Beypore is similar to that that occurred last year, no notice need be taken of it."

6. In September 1881 the Company's Chief Engineer again reported upon the action of the sea at Beypore, stating that the public road had been completely washed away and that part of the station-yard had also disappeared. Copies of this report were forwarded on the 9th September both to the Superintending Engineer of the Circle and to the Local Fund Engineer of Malabar. From the Superintending Engineer no reply or acknowledgment was ever received, but on 24th November 1881 the President of the Local Fund Board stated that that body were not inclined to repair the road, as the outlay would be more than they could afford, and the result doubtful.

7. In their Proceedings, dated 17th March 1882, No. 708 W., sanction was accorded by the Government to an estimate amounting to Rs. 5,340, of which sum Rs. 2,470 provided for the thorough repair of the sea wall, or rather causeway, which connected two rocky islets with the beach, and Rs. 1,870 provided for the construction of a groyne, 70 feet in length, to the west of the Madras Railway station-yard. This expenditure was sanctioned in view to the completion of the works by the 15th May, the date named by the Superintending Engineer, but the Government are already aware that the burst of the monsoon found the groyne scarcely commenced, and that the delay would probably have proved destructive to some of the Railway Company's buildings had not their Engineers hurriedly constructed a groyne with sand bags and piles, which checked the action of the sea.

8. In the papers now laid before Government two points are specially urged by the Company's Agent:—

(1) That the encroachment of the sea has been due to the existence of the causeway above alluded to connecting the rocky islets with the beach.

(2) That the failure on the part of the Public Works Department, to take effectual measures to arrest the encroachment of the sea, and the delay in constructing the groyne sanctioned in March last, have rendered necessary not only the outlay of nearly Rs. 7,000, recently incurred by the Company, but also further extensive protective works, the cost of which is roughly estimated at Rs. 50,000, and that the whole of such expenditure should therefore be borne by the Public Works Department.

9. With respect to the first point, I have already stated my opinion that the erosion of the beach cannot be properly ascribed to the existence of the causeway in question, and careful examination of the locality has confirmed that opinion.

In support of this view, it may be mentioned that, in the year 1858, the then Chief Engineer of the Madras Railway Company strongly advocated the construction of the causeway, in view to the formation of a boat harbour to the south, exactly opposite the portion of beach which has lately suffered from the action of the sea.

The proposal is recorded in the letter addressed to the Government of India on the 27th January 1880, No. 50.

10. With respect to the second point, it is for the Government to decide whether the arguments adduced by the Company's representatives are sufficient to justify the relief of the Railway budget from the very considerable outlay which will probably be required in view to the thorough protection of the station and line. It is not necessary to represent the importance of an early decision, in order that no doubt may remain as to the authority responsible for devising and executing any further protective works which may be required.

11. Whatever may be the decision arrived at, I think it is to be regretted that the Company's officials should have been met by mistaken assertions that they were wrong in foretelling the necessity for early protective measures. I also submit that it would have been more satisfactory to the Company if they had been informed from the first that the interests, neither of the Government, nor of the Local Fund Board, in the land lying between the Railway property and the sea were sufficient to justify the execution of the necessary protective works; and if they had then been placed in full possession of the foreshore, and authorised to undertake operations on their own account.

Madras,
21st August 1882.

(Signed) J. SHAW-STEWART, Colonel, R.E.,
Cong. Engineer for Railways.

No. 633 E.

Extract paragraphs 1 to 7 of the foregoing Note by the Consulting Engineer for Railways is forwarded to the Superintending Engineer, Fourth Circle, for such explanation as he may be in a position to offer.

24th August 1882.

(Signed) R. H. SANKEY, Col., R.E.,
Secretary to Govt., P.W.D.

To the Superintending Engineer, Fourth Circle, with extract.

Read—the following letter from H. R. P. CARTER, Esq., Acting Chief Engineer, to the Agent and Manager, Madras Railway Company, dated Madras, 8th August 1882, No. R 201/613:—

Progress of Groynes at Beypore. Second Fortnightly Report.

I beg to forward, for the information of the Consulting Engineer, the second fortnightly report with reference to the above work as requested in the second paragraph of his letter, No. 484, of 8th ultimo, to your address.

1. The construction of groynes Nos. 3 and 5, which were specially ordered, has been finished, and they have been further protected by the additions of T-headed heels.

2. The beach wall has been carried to groyne No. 2 and greatly strengthened all along towards the Government groyne.

3. Material for the remainder of the work is being delivered in ample quantity.

No. 560.

The Consulting Engineer for Railways for information with reference to his letter No. 484, of the 8th ultimo.

Madras,
9th August 1882.

(Signed) J. W. MELLIS,
for Agent and Manager.

From H. R. P. CARTER, Esq., Acting Chief Engineer, to the Agent and Manager, Madras Railway Company, dated Madras, 15th August 1882, No. R 201-633.

In continuation of my letter, No. R 201/613, of 8th current, I beg to report that the sea wall and groynes at Beypore have been completed, and I beg to forward a tracing showing how the works have been carried out.

You will observe that the original plan has been considerably modified, as we found as we worked that this was necessary in order to use the materials in the most economical manner.

I believe that the Consulting Engineer who lately inspected the works is satisfied that the modification was advisable.

I have directed the Resident Engineer to expend the small balance available in stacking stone to throw in where necessary, as since my inspection on the 9th current the sea has washed into the compound of one of our bungalows to the south of the Inspector's bungalow, carried away some of the Government groyne and shaken some of our work.

No. 593.

The Consulting Engineer for Railways for information in continuation of my endorsement, No. 560, of the 9th instant.

Madras,
17th August 1882.

(Signed) A. M. SAUNDERS,
Agent and Manager.

No. 188.

Endorsement on the above.

Copies of above forwarded for the information of the Chief Engineer, Public Works Department, in continuation of the report forwarded on 27th ultimo, with endorsement No. 578.

2. Plans Nos. 859-*A* and 859-*B* are also sent herewith for inspection. The first shows the coast line at Beypore, as taken in different years between 1867 and 1882. The second shows the protective works which have been recently carried out by the Madras Railway Company.

3. Since the commencement of those protective works the action of the sea has been more favorable. There has been a deposit of sand on the beach along the entire line of erosion; but chiefly at the south end, where nearly 100 feet have been acquired.

4. It is particularly requested that these two plans may be returned when no longer required.

(Signed) J. SHAW-STEWART, Colonel, R.E.,
Consulting Engineer for Railways.

No. 103-F.

Read—the following letter from Lieutenant-Colonel H. R. MEAD, R.E., Superintending Engineer, Fourth Circle, to the Chief Engineer, Public Works Department, dated Coimbatore, 5th September 1882, No. 378:—

I have the honor to acknowledge the receipt of extract paragraphs 1 to 7 of Note by the Consulting Engineer for Railways forwarded in your memorandum, No. 633 E., dated 24th August, for explanation.

I regret that I cannot agree with the Consulting Engineer in his statements, and have no course but to comment and add on to many of them.

2. In paragraph 4 it is stated that my attention was called to the aggressive action of the sea at Beypore in June 1880, and that my reply was that "the Executive Engineer reports that at present nothing should be done." I have to point out that although this statement is perfectly correct, the following should be added:—

1st.—That the encroachment complained of was north of the sea wall and has nothing to do with the present case.

2nd.—A reference to G.O., No. 2722 W., dated 26th November 1880, and G.O., No. 495 W., dated 23rd February 1881, will show, I think, clearly that the Railway authorities exaggerated the danger that you and the Master Attendant approved of my action and proposals, and finally that

Government in their Order, No. 2722 W. (see paragraph 3), considered that it was for the Local Fund Board to protect their road.

3. In paragraph 5 it is stated that further action of the sea was reported (this was south of the groyne), and that on its being reported to me I only said that if the encroachment was similar to that that had formerly been reported no notice need be taken of it. This is quite correct, and I think I was justified in giving that reply. I inspected the place in July, and in my notes of inspection and in letter, No. 281, dated 15th July 1881, I reported that a portion of the road had been washed away, but I considered as I do now that it was for the Local Fund Board or the Railway to protect their own property.

4. Paragraph 6. The Consulting Engineer on the 19th September forwarded to me copies of letters from the Chief Engineer and Manager of the Railway stating that the Local Fund Road had been washed away, and that they had arranged to allow a passage through their property (namely the Inspector's compound) for two months only, and requesting him, the Consulting Engineer, to urge the proper department to expedite the carrying out of the reconstruction of the road. No remark was made on this request, except that I was informed that a copy of the letters had been sent to the Local Fund Engineer. I did not reply to this, as I had nothing to do with the road; there was no request for me to address you on the encroachment which had already been reported.

5. Paragraph 7. While regretting that the groyne sanctioned in G.O., No. 708 W., dated 19th March 1882, was not as it should have been completed by the 15th May, I have again to repeat my opinion (as stated in paragraph 4 of my letter, No. 340, dated 15th August) that had the groyne been completed by that date it would have done but little good.

On the 21st April 1882, at the request of the Consulting Engineer, a sketch showing the position of the proposed groyne was sent to him, and I am sure that neither the Consulting Engineer nor the Railway Engineers considered that this groyne could possibly protect more than a very short line of the coast.

6. I think the above show that it is only now that the Madras Railway have made a direct claim to be protected at Government expense from the action of the sea, that previous to this they contented themselves with calling attention to encroachments, and that in September 1881 they tried to force the Local Fund Board to protect them by threatening not to allow a passage through their property. When in November 1881 they were told by the President that the Board were not inclined to protect or restore the road they were content to do nothing, and did not even ask Government or any Government official for works to be undertaken at Government cost from the protection of their property; also that the fact of Government having sanctioned a groyne near their property and not carrying it out as soon as intended gives them no claim for protection at Government cost. Further, my notes of inspection forwarded to you and my letter, No. 292, dated 22nd July, show that they did not take vigorous action when matters got serious, but wished Government to undertake the work.

7. On the receipt on the 19th July of G.O., No. 1805 W., dated 15th July 1882, I requested the Consulting Engineer for Railways to obtain from the Railway authorities the reasons on which they based their claim for the Madras Government to protect their line of railroad from encroachments of the sea, but in his letter, No. 656, dated 24th August, he informs me that the views of the officers of the Madras Railway have been forwarded to you for submission to Government; as therefore they have not been sent to me I am unable, as ordered in G.O., No. 1805 W., dated 15th July, paragraph I, to report regarding the incidence of outlay on protective works further than to express my opinion that the Madras Railway have no claim whatever on the Madras Government.

8. In conclusion I would urge that this question should be decided as soon as possible. There is no necessity I believe for works to be undertaken at present, as the sea is throwing up the beach again, but it may be necessary at any time to carry out protective works and unless it is decided at whose cost these works are to be executed it is I fear hopeless to expect vigorous action.

2705
5

2705

No. 103-G.

No. 394.

Notes of Inspection by Lieutenant-Colonel H. R. MEAD, R.E., Superintending Engineer, Fourth Circle, for the month of September 1882.

Coimbatore Division, Malabar District, Calicut Taluk, 12th September.

Beypore Groynes, &c.

The state of the work undertaken by the railroad is as follows:—

A groyne about 20 yards in length thrown out on the site of their proposed groyne No. 5. This groyne has a short T at its base; from it there has been an encroachment for about 60 yards in length on the south, but south of this as far as I can judge there has been no further encroachment and things remain much as they were. North of this at site of No. 3 proposed groyne another groyne about 18 yards in length with a T at root has been put down; this has caused action and encroachment south of it for about 35 yards. For 180 yards south of the Government groyne longitudinal revetment has been put down of a section of about 12 feet × 2 feet.

Government groyne completed and standing well; the longitudinal revetment put down by the railroad has protected the south side from any further encroachment.

Sea wall work completed and standing well about 40 yards in centre; not very good; this was the portion damaged last May; it is quite safe, but will require making up next year. Both sides of the sea wall silting up at both ends, and there is accretion on the shore between the sea wall south as far as the Government groyne.

No. 104.

Order—dated 17th October 1882, No. 2705 W., Public Works.

The Right Honorable the Governor in Council has carefully considered the correspondence recorded above, in regard to liability for the cost of protective works at Beypore, and, in the absence of any definite proof that the erosion of the beach is due to other than natural causes, is of opinion that the cost of the works already carried out, as well as such future expenditure as may be necessary to protect railway property, should be borne by the Madras Railway Company.

(True Extract.)

Colonel, R.E.,
Secy. to Govt., P.W.D.

To the Superintending Engineer, Fourth Circle.
" Consulting Engineer for Railways, with two plans.
" Examiner, Railway Accounts.
" Examiner, Public Works Accounts.

Exd S. T. Austin.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of {1882} Madras.
PUBLIC WORKS.

Dated October, 17th.

Recd. *Entd.*

G.O., 7th Oct. 1882, No. 2705 W.

OCTOBER.
Nos. 103-104.

Protective
Productive Works at Beypore.

Deciding that the cost of the — as well as such future expenditure necessary to protect railway property should be borne by the Madras Railway Company.

Ex: 1 Sec. No. 34 dated 30-5-84, — & [illegible] Govt's decision was given on 16-1-85. [illegible] No. 1.

It seems to me that the conditions in that case were entirely similar.

I have to [illegible] the [illegible] in the case of the Beypore works, and trust that a decision will be given accordingly respecting incidence of cost responsibility [illegible]

A S 16.9

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b

E. R.

Before disposing of your note of the 26th ultimo I considered it necessary to have the explanation of the Superintending Engineer in reference to paras 1 to 7 and hereunder forward Col Mead's reply upon which you may wish to remark before I forward the case to the orders of Government.

The main point at issue being the incidence of the charge for the protective works I should be glad if you could let me have a decision of either this Government or of the S of S in a somewhat analogous case where owing to the destruction of a bridge [illegible] of

Beypore, owing to
the encroachment of
a backwater, it
was I understand
ruled that the cost
of the needful work
and protection must
be borne by the Railway
Company

Abtt
9/8/82

To

[illegible] in IV after
[illegible] the [illegible] bridge
about 11 miles South of
Beypore, which was repaired
during 1863, or earlier,
owing to a breach in the
Vayyali lake, situated
about 1 or 2 miles east
of the railway [illegible]
[illegible] time under
[illegible]
Secretary [illegible] — & there
was a long correspondence
on [illegible] cost of

2705/6

[illegible]
[illegible]
[illegible] the [illegible]
which went home
[illegible]
decision was I think
to the effect that the
cost should be borne
by the [illegible]
[illegible]
[illegible] II
[illegible]

11-9-

Wrote to Madras.
R.S. 11-9-

To R
File of papers
submitted.
R.S. 18/9

to IV

Herewith [illegible]
[illegible]
[illegible]

2705/11

2705

2nd October

My dear Mr Grant-Duff

Apprehending delay in
disposing of the case of the Beypore
Enquiry in orders issued in the
Assembly of the Committee suggested
by the Hon'ble Mr Sullivan, and
confirmed by Your Excellency, I
wrote to the former on the 30th ulto
& herewith enclose his letter
& the original notes. If you
will kindly say what you would
wish done in reference to Mr
Sullivan's endorsement of yesterday

I should be much obliged

There is no difficulty about appointing the proposed Committee but I still venture to think that delay in deciding on the incidence of the Charge will have a very material effect on the design and Estimate the proposed work — So long as the point is held in abeyance neither party will feel themselves free to enter into the needful decision on the work which has to be undertaken if thorough protection is to be afforded — As shewn by the action already taken the Railway Engineers have been very indecisive, and I fear a continuance of this state of things which may on the recurrence of the S.W. monsoon be the cause of serious loss

Contentions as to which party is at fault are certain to arise

I remain
Your Excellency's
Obedient Servant

GOVERNMENT OF MADRAS.

Public Works Department,
Ootacamund,
188

30 Sepr

2705
9

My dear Sullivan

I had intended to have spoken to you yesterday about this matter as I fear the order if issued as drafted will in the end not bring us to a satisfactory solution of the difficulty that has arisen, besides of necessity causing delay which it is essential to avoid where prompt action is needed — The set of the ocean currents are so little understood and often so dependent on distant causes that long enquiry extending possibly over years it is doubtful whether the water could be placed beyond conjecture

Say, and I doubt if any Committee
in the present State of our knowledge
could come to an unanimous conclusion
& if they did that such could be accepted
as based sufficiently on a Scientific engineering basis

On the other hand it is perfectly
clear that whether the money for the
needful works comes out of 'Provincial'
or is paid for by the Railway the
cost ultimately comes out of Government
pocket so long as the latter does not
pay its Guaranteed interest — It
is therefore to the best of my judgment
a Question of financial convenience
and if this be admitted there can
be no doubt that an indirect instead
of a direct disbursement of 1/2 a Lakh
or whatever may be required would
be decidedly preferable — Personally

I am quite satisfied that the Charge
is a fair one as against Railway
Capital as the Company having run
their line especially close to the Sea are
as much bound to protect it against
any unusual set of the ocean, as they
are to protect the roofs of the Stations
against the effects of cyclones — I do
not know that Colonel Shaw-Stewart
really contests this position, and in any
case he has informed me that he
thinks the best settlement of the Question
would be to throw the expense on the Railway

So long as the incidence of the charge
is left undecided neither Department
will seriously enter on the needful work
and it is most desirable that this
should be done, as if again attacked
vigorously ~~therefore~~ a long time it
may be difficult to save the line

yrs. sincerely

2705

Précis of correspondence on the subject of the encroachment of the sea at Beypore

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G.O. No. 2722 W. 26.11.80.

1. There existed formerly a spit of sand connecting the shore and the Rocky (laterite) Island South West of the river mouth, and the Harbour Engineer Mr. Robertson who visited Beypore in 1871 recommended that this connection should be made good. this was done in 1875.

2. In June '80 the Master Attendant brought to the notice of Govt. the encroachment of the sea — a portion of the roadway near the Marine Office & Flagstaff had been washed away and the

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As will be seen from my first note my impression is that the Company should pay & if we cannot decide the question one way or other would decide against the Company. I cannot estimate the force of the Chief Engineer's objection as to the expense likely to result from delay. If that is serious I would decide according to our lights & let India overrule us if she pleases. Bring to Council.

compound walls were threatened. He suggested that protective works should be taken in hand, and the cost shared by Port Funds, the Madras Ry: Co and the Local Fund Board, as the last two bodies would in a great measure benefit by the proposed works - the property of the Railway Co abutted on to the Marine Office Compound, and the L. F. Board maintained the road that was partly washed away. But the sea having receded, the Govt: in Nov: 80 deferred passing definite orders till the Master Attendant and the Chief Engineer had personally inspected and reported on the matter.

2705/12

G.O. No 495 W. 23-2-81.

3 In February '81 a joint report was received from those officers - in it the maintenance of the sea-wall in good order as recommended by the Supdg. Engr. in 1880, - viz: that it should be repaired and two additional groynes built - was advocated, the cost being met from Port Funds. They also saw no objection to the L. F. Board making a longitudinal revetment on the sea face if it wished to do so. The Govt: concurred in their views, and sanctioned the amount required by the Supdg. Engr. (Rs.

on the 23rd Febry '81, and the work was executed.

4 In July '81 the Supg: Engr: reported that a similar erosion was taking place near the Flag-staff, and, that on the South of the sea-wall it was more serious - but suggested that no steps be taken to arrest it, as he thought the sea may replace what it had removed as in the previous year, and also in 1878 at Calicut.

+ Memo. No 1632 d/ 11-7-81.

5 In February 1882 the S.E. submitted an estimate amounting to Rs. 5,340 for repairing the damages done by the unusual weather experienced in the middle of last year - the Sea Wall was much injured and breached in several places, and the estimate was for its thorough repair at a cost of Rs: 3,470 and the balance, Rs 1,870 was for: the erection of a groyne 70 Ft: in length as ordered by the Chief Engr: at his inspection: the groyne was intended for the protection of a ~~the~~ portion of the beach West of the rail-road property, but in reality was confessedly an experimental work the precise results of which could not be well foreseen. The estimate having been referred to the Master Attendant, he questioned the utility of the sea-wall and objected to Port Funds bearing the cost of its repair; - the Chief Engr: thereupon suggested the

* G.O. No 708. W. 17-3-82.

2705/13

Port Funds bear only a moiety (Rs: 1735) of the cost; - Provincial being debited with the rest of the charges for the time being, leaving the question of the incidence of the charges to be decided afterwards as he thought that the works were carried out more in the interest of the Madras Ry: Co: and the L.F. Board than in that of Provincial - On the 17th Govt: sanctioned these proposals but subsequently+ directed that the amount to be debited to Port Funds should be met from Provl. and adjusted hereafter in the Civil Exchange Account

+G.O. No. 1002 W d/14-4-12

+G.O. No. 1605 W d/15-7-12

2705/14

6. On the 15th+ June 12 the Dy: Consg: Engr. for Railways reported that the sea was encroaching South of the Sea-wall, and, that the Railway line was in danger. The Company's Engineers attributed the erosion to the construction of the Sea-wall - principally on the ground that up to the time of its construction no erosion had been recorded - this opinion was however not shared by the Dy: Consg: Engr: who pointed to the fact that the erosion was proceeding at a part of the coast 2 miles or more to the South of the Sea-wall, and far beyond the reach of its

influence or that of the river. But he brought to the notice of Govt: that the Railway Co: would have suffered great losses owing to the non-construction of the groyne sanctioned in March last, but for the Co's Engrs: who constructed a sand bag and a timber groyne, the Local Fund Bd: having declined to protect their road.

7. On the 26:[+] June the S.E. inspected and reported on the works - the difficulty experienced in carrying out the work sanctioned in March owing to bad weather was alluded to - Major Fraser placed the work under the charge of

[+] C. No. 4/13. with original of G.O. 1805 W. d/15-7-82

2705/15

Condr: Nicholson. By the 30: April 500 c.yds: of stone &c had been collected and 360 c.yds: built. The rough weather which set in on the 10: April damaged the works considerably preventing further progress. By the 26: June 53,811 c.ft: had been collected as against 54,128 estimated for the East root of the sea-wall had been extended 33 ft:, and was good and strong except 140 ft: of the Upper portion which had breached owing to the heavy sea in May. With regard to the groyne it was explained that there were difficulties in procuring labor & materials. By the 18 June 90 ft: had been completed. The 50 ft: Railway Groyne was not considered by the Supdg: Engr sufficient to protect 250 ft: of the beach should the encroachment continue in which case a longitudinal revetment would be necessary.

The work undertaken by the Dept: was expected to be complete by the 20 July.

8. As however immediate steps had to be taken and the Dept: had not in the staff available the

G.O. 1805 W of 15.7.82

2705/16

Govt: on the 15 July '82 approved of the proposals of the Consg: Engr: to allow the Railway Co to do what was needful, and sanctioned the construction of 10 small groynes at a cost of Rs: 5,540/- to be charged to advances by the Co pending a decision as to the incidence of the charges, regarding which the Supdg: Engr: was ordered to report after communicating with the Master Attendant, Madras. In this order Major Fraser was held responsible for the reprehensible delay in carrying out the works sanctioned in March '82 for executi by the 15th May.+

9. On the [illegible] 19th July the S.E. submitted notes of his inspection of the works in company with the Consg. Engr. for Rys. and the Co's Engineers – the accretion at the site of Groynes 6, 7, and 8 had increased and there had been a further encroachment below the site of Groyne No. 10. The sea-wall repairs were nearly completed and there was a shoaling in the line of beach between it and the Govt. groyne, but no decided accretion had formed. The new Govt. Groyne having been lengthened about 30 ft. was alto-

+ C. No. 5772.

2705/17

+ Vide No. 523. E. d/3.8.12

strong and good – The Railway Authorities had partly constructed 4 groynes of which two (Nos 3 and 4) were cut off by the rough weather & completely destroyed. Nothing further was being done owing to the bad weather but the S.E. was of opinion that the proposals did not & will not answer.

10. On the 22nd x July the S.E. replied to the orders of Govt. of the 15th idem and asked to be excused from consulting with the Master Attendant, Madras, as ordered, for he thought that the Marine Dept. should

not be expected to pay for the protection of the beach South of the Sea-wall – the beach near the Beypore River mouth being the only portion that the Marine Dept: can be ~~fairly~~ ~~[illegible]~~ ~~pay from~~ fairly said to be interested in – He alluded to the slow progress of the works undertaken by the Ry. Authorities who, he believed, considered ~~considerable~~ modifications of their original plans necessary but he was not in a position to say how else they intended to protect the beach, 3000 ft: of which was necessary for the safety of the Co's property.

But he thought that unless the question as to the incidence of the charge was settled no vigorous action will be taken.

Vide No. 523.E. d/3.8.12.

11. On the 27th+ July the Consg. Engr. for Railways submitted reports from the Railway Authorities of the progress of the works they were carrying out – It was stated that the original programme was not to be rigidly adhered to, but was to be modified according to the conditions of the littoral currents, the changes in the Coast line &c. – Further reports were promised. These were submitted on the 21st* August with 2 plans – the beach-wall had been carried to

* C No. 5711.

Grayne No. 2 and was stated to have been greatly strengthened - the Sea-wall and the graynes were completed - graynes No. 3 & 5 being protected by the addition of T headed heels, and considerable modifications were shewn in the plans. The action of the sea had become more favorable, and there was a deposit on the beach along the entire line of erosion chiefly at the South end where 100 ft. had been acquired.

On the 30th + July the Govt: received Major Fraser's explanation of the delay in the Construction of the Grayne ordered in March last - the

+ Vide No. 610. E. d/22nd Feb.

2705/19

on the part of the Native Contractor and the rough weather experienced - The Contract was afterwards made over to Mr Gay, a Railway Contractor, who constructed the siding & was to have run down the laterite to the site of the Grayne by ballast train, when the sea began to cut up the beach very rapidly. After giving over charge, Major Fraser, on his way to Trichinopoly, visited the works once more, and was surprised to find that the ballast train had not been brought down by Mr Gay, who was not able to procure labor. Even had the

Grayne been constructed Major Fraser stated that it would have been turned and left out at sea, and would certainly have done no good whatever in the matter of the recent erosions which were mostly South, while the Grayne would have protected 200 yards of the beach to the North. The Railway Inspector's Quarters were protected by an extension of the Ry. Grayne landwards. Col. Mead, though still holding Major Fraser responsible for the delay in collecting material for an urgent work, agrees with ~~Major~~ him ~~Fraser~~ that the con-

2105
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-struction of the Grayne would have done little good and had the heavy sea turned it, which was very probable, more harm than good would have resulted - no stone would have been available to extend it inwards, and without protection at the root it must have failed.

13. In some further correspondence with the Ry. authorities submitted by the Consg. Engr. for Rys.+ the frequent representations made by the Ry. Co. to the S.E. and to the L.F. Board are touched on but two points are specially urged -

(1) That the encroachment

+ Vide No 633. E. 24.8.82.

of the sea has been caused by the causeway connecting the Rocky islets with the beach

(2) That the failure on the part of the R.W.D. to take effectual measures to arrest the erosion and the delay in constructing the Groyne sanctioned in March have rendered necessary not only the outlay of Rs. 7000 by the Co's officers, but also further protective work the cost of which is roughly estimated at Rs. 50,000; and that the whole of this expenditure should therefore be borne by the R.W.D.

With regard to (1), a careful

2705
2

Letter to the Govt. of India
No. 50 d/ 27 Jany: 1859.

examination of the locality has confirmed the opinion previously held by the Consg: Engineer for Rys: that, to the existence of the causeway is not to be ascribed the recent erosions - In support of this he mentions that in 1858 the then Chief Engr. of the Madras Railway strongly advocated the construction of the causeway in view to the formation of a boat-harbour to the South exactly opposite the portion which has lately suffered from the action of the sea - With regard to (2) he leaves it to Govt. to decide whether the arguments adduced warrant the Railway Budget being relieved of the very considerable outlay required for the protection of the Station and line. The importance of an early decision, in order that no doubt may remain as to the authority responsible for devising and executing further protective works, is urged.

14. The Consg. Engr. for Rys. further states that it is to be regretted that the Railway Co. were not informed from the first that neither the interests of Govt. nor of the L.F. Board in the land lying between the Railway property and the sea were sufficient to justify the execution of Protective Works, and that the Co. were not

2705/22

× C. No. 6051.

Nos 2722 & 2495 W

placed in full possession of the foreshore (the property of the State) and authorised to undertake operations on their own account.

15. The Supg. Engr. in commenting on these remarks of the Consg. Engr. for Rys. explains that the first representation made to him in June '80 was with reference to erosions towards the North, and they had nothing to do with the present case. With reference to subsequent representations the Orders of Govt. passed in Nov. '80 and Feby. '81 show that all his proposals met with the approval of the Chief Engr., the Master Attendant & the Govt. With regard to the encroachment in the South he thinks he was justified,

in supposing the sea would silt up after a time as on previous occasions, & it was for the Ry: Co. & the L. F. Board to take steps to protect their property – Up to Septr: 1st the Co. contented themselves with simply drawing attention to encroachments, and it is only now that they claim protection at Govt. cost – They tried to force the L. F. Board to protect them by threatening not to allow a passage through their property and were informed that the L. F. Bo: did not intend protecting their road – The S. E. further points out that, the fact that a Groyne which would have done them no good whatever was not constructed, gives the Co. no claim whatever to protection at Govt. cost; and urges the necessity for early orders being passed.

2705/23

Despatch to the Secy: of State No. 34 d/30.5.[illegible]

16. A somewhat analogous case occurred in 1863 by the breaching of the Vengally lake. This was a natural reservoir covering about 6 square miles, and was situated about 12 miles South of Beypore. The surplus water of the Lake was carried by the Keernellore nullah, a natural channel, into the Kuddalundy river which joined the sea about 9 miles North of the Lake. Towards the end of June, owing to heavy rains,

the river rose to an unprecedented height; - unable to find sufficient outlet by its own channel, (the Keernellore nullah) it flowed back into the Vengally Lake to such an extent that a bund breached & the water carried away the Railway Bridge and flooded the country for miles on either side - The Railway Co rebuilt their bridge substituting 3 wrought-iron bays of 70 ft: span each for the one masonry arch of 20 ft. span which had been washed away, and claimed from Govt: Rs: 35,269-0-5 being the cost of the Iron Structure, basing their claim upon the alleged neglect of the P.W.D. to maintain the

embankment in an efficient state of repair. The Govt: however rejected the claim as they were satisfied that there was no neglect on the part of their Officers, and were assured by the S.E. that the embankment was not in a defective condition. It was contended by the Ry: Engrs: that a few additional feet of earth-work would have averted the disaster, but Govt: were convinced that the would have been of no avail since the waters rose to such an unprecedented height as 16 ft:, and on the other hand it was contended that, had the Ry: Co designed their bridge with proper foresight and allow the same waterway that they did in reconstructing it, no danger would have resulted from the breaching of the bund.

11. The correspondence was submitted to the Home Govt: and the Secy: of State+ decided against the Railway Co, whose Counsel's opinion was, that "if a "jury should find that "there was no negligence "in the Govt: no want "of care in maintaining "the bund as it was when "the Railway was construct-ed in good repair, but "that the accident was "due to an extraordinary "flood, in that case the "Co. will fail." The Company abides by the decision of the Secy: of State.

Encroachment of the Sea at Beypore

+ No. 543 d/ 27.2.65
" 144 " 27.3.65

P. W. Dept.

2705/25

Note for orders.

The accompanying file on the subject of the recent encroachment of the sea at Beypore is circulated for early orders.

It will be seen from the précis of the whole of the correspondence that the main point at issue is the incidence of the charges already incurred, and to be incurred hereafter on Protective Works.

From the grounds urged by the Supg: Engr:, it seems to the undersigned that Govt. is not liable for the charges incurred by the Madras Railway Co. in protecting their property, and the Counsel's opinion in the case of the destruction of the Railway Bridge in 1863 is relevant to this extent, (1) that there was no negligence in the protection of the foreshore, even had there been an obligation to protect it on the part of Govt., which cannot be admitted, and, (2) that the action of the sea which produced the late erosion was due to an extra-ordinary and unexpected set of the sea (chiefly from the unusual

2705/26

violence of the monsoon) which could not have been counter-acted by any reasonable precaution taken before-hand;— the unusual character of the attack being proved by the exceptional erosion along the whole coast at Cochin and elsewhere

R. H. Sankey Col. R.E.
Chief Engineer and
Secy: to Govt. P.W.D.

Septr. '72

Yes. I think the Railway Company's contention savours a little of the Indirect claims; but at the same time we could not I think decide in our favour without some such argument as is suggested by my hon. Colleague (
We cannot be too fair.

Memo

It was decided in Council to ~~turns~~ the substance of the work as the Railway Company order may then be drafted in this sense & circulated for approval to ~~the~~ H. M.

5/10/82

No. 284 P1

Notes of Inspection by
Lt Colonel H. A. Mead R.E.
Supg Engineer, 4th Circle,
for July/82.

2705
28

Malabar Distt

West Coast Division

Calicut Sub Dn
17 & 18th July 1882 -

Beypoor Sea Encroachment &c

Inspected this by order in company with the Consulting Engineer and Dy Consulting Engineer for Railways, the Chief and District Engineers of the Madras Railroad

The sea was calm. The present state

is shewn on the tracing that accompanies this. (To be returned) there is a copy in the Chief Engineer's Office forwarded with notes dated 26th June).

The yellow and green dotted lines on the plan shew the line of beach on the 8th July in yellow and the previous work in green.

There has been but little alteration since, the accretion at the site of 6th 7th and 8th Groynes has increased and there has been further erosion below the site of the 10th Groyne.

The sea wall repairs are nearly completed and there is a decided shoaling and improvement in the line of beach between it and the Govt. Groyne, but no decided accretion has formed.

Mr Moy [illegible]
Work in contract
[illegible] 2 Oct
[illegible]

The new Govt. Groyne has been

lengthened about 30 ft. total length about 120 feet, it is strong and good.

There has been Considerable Erosion in the beach near the root of the groyne and south of it, but the Railroad Engineers have pitched the slope near it and placed on the sand between it and their No. 1 Groyne a line of stone say 12 ft. × 2 ft. deep (this has no foundation) their No. 1 Groyne is about

2705/30

about 25 feet long with revetment on each side at root.

No. 2 Groyne is about 20 ft long with similar short revetment on each side of root

No. 3 Groyne was partly done but the rough weather cut it off in rear and destroyed it, not a stone of it is to be seen.

No. 4 Groyne similar to No. 3, but some of the stone is to be seen in the sand which is at the Groyne site

but little above
L W L

Nothing further has been done, the late rough weather stopped the supply of stone which was being brought down the river.

At present stone is being brought but there appears no definite plan decided on by the Railroad Engineer as to what should be done and the original Estimate Rs 5540 for 10 sm-l 50 ft groynes is abandoned and

about

P4

2705
31

I believe I may say that all agree that the proposal has not and will not answer.

Lt Col
Supg Engineer
4th Circle

Coimbatore
19 July/82

Enclosure 1.

To
The Chief Engineer
R. W. Deptt
Ootacamund.

P. W. C

C No. Calls for
2618

From

The Supg Engineer
Fourth Circle.

Dated 19th }
Despd: Do. } July /82

No: 284.

Enc:

Notes of Inspection
by Lt. Coll: H. R. Mead
R.E. Supg Engineer 4th
Circle on the Beypore
sea encroachment
on the 17th & 18th July /82

Cir 29/. R 28/9
1.46.7

P 5

SUPG. ENGINEER'S OFFICE 4TH CIRCLE,
Coimbatore, 22nd July 1882.

2705
/32

No. 292

From,
The Superintending Engineer,
Fourth Circle.

To, The Chief Engineer
P. W. D. Madras

Sir,

With reference to G. O. No. 1805 W dated 15th July 1882 which I regret to say was not received in this office until the arrival of the afternoon post on the 17th and therefore not seen by me until afte my return from Beypore.

I have the honor to report that as the Consulting Engineer for Railways considered the question regarding incidence of outlay on necessary protection of the sea beach at Beypo for the safety of the Railway was not for our discussion, this point was not entered on by us.

2. I feel it is hopeless for me to attempt to bring this matter to a satisfactory conclusion. I have however this day addressed the Consulting Engineer and requested that he will obtain from the Railway authorities the reasons &c on which they base their claim (which they have indirectly made) for the Madras Government to protect their line of railroad from an encroachment of the sea.

3. With regard to communicating with the Master Attendant I must point out that to me

there

there are no grounds whatever for any claim being made on that Department for the protection of the sea beach South of the sea wall (Carried out on Mr. Robertson's recommendation) that connects the Shore with the Island.

none M.A.

The maintenance of the sea wall and the sea beach near the Beypore River mouth ought, I consider, to be a Charge on the Marine Department as those works affect the River Bar but I would submit that works South of the Wall have nothing to do with it and should therefore be no charge on that Department.

This being my opinion I request that I may be allowed to report hereafter without reference to the Master Attendant.

4 Referring to para 2 of the G.O. under reply, in my notes of Inspection dated 17th and 18th July will be found a discription of the present state of the Groyne work now being carried on by the Railway authorities. The original design and Estimate is not being carried out and the progress made is but little. I regret that I can give no information as regards what the Railway authorities intend doing; my own impression is that no vigourous action will be undertaken until the question of incidence of outlay is decided.

Sent to R 2/7

5 I believe that both the Consulting Engineer and the Chief Engineer of the Railway

Consider

Consider the original sanctioned Estimate for 10-50 ft. Groynes Rs 5540 as obselete and I believe further that they consider after the experience of the last storm that very considerable modifications are advisable.

2705

34

They neither of them however gave me their opinion as to what they considered was the best plan to be adopted in protecting the beach about 3000 ft. of which will probably for the safety of the railroad requir protection.

I have the honor to be,
Sir,
Your Most Obt. Servt.
Lt. Col. R.E.
Supg. Engr. 4th Circle

L.C. 708 W. 17-3-82,
〃 1806 W. 15-7 〃 (orgl)
〃 1002 W. 24-6 〃

From
The Supg Engineer,
Fourth Circle.

No. 523 Ea/3/8/a

dated 22d
recd. 24 } July 1882.

No. 292.

Beypore Beach—
Reports regarding
the —.

AW

This refers to the last reference must be awaited

AW
26-7

O.L. 56.
July 24/

---

ngineer's Form No. 69.

82

COPY of a communication from the Acting Chief Engineer to the Agent and Manager Madras Railway Company.
~~the Consulting Engineer for Railways, Madras,~~

2705
36

No. R 201/563, dated Madras, 20th July 1882.

Your endorsement on Consulting Engr's letter No. 484 of 8th Current.

The Groynes No. 1 to 4 to protect the Sea beach at Beypore were commenced on 29th ultimo. During the week following there was very little work done owing to heavy weather. One boat carrying stone was swamped and the men refused to work until the weather moderated.

The greater portion of the materials of the four groynes was scattered by the action of the sea.

The Sea broke so heavily on the South heel of the Government groyne on 5th Current that the Resident Engineer considered it advisable to build a sea wall from the heel of the Government groyne to No. 1 groyne and this checked the erosion.

On Monday 17th current the works stood as follows:—

Pitching done from Government groyne to No. 1 groyne and for a short distance south of it. No. 1 groyne about 12 feet long.

No. 2 groyne recommenced with a T head to prevent erosion.

The orders I have given with I believe the approval of the Consulting Engineer are:—

A. To stop No. 2 groyne for the present.
B. To go on with No. 3 groyne changing the site slightly so as to take advantage of a projection in the beach.
C. Not to go on with No. 4 groyne.
D. To begin No. 5 groyne with a T head to prevent erosion.
E. Not to do any work between groynes No. 5 and 10 as the shore is being silted up.

It may at any time be necessary to modify these orders in order to protect different points which may be threatened

(Signed)

(Signed) H. R. P. Carter,
Acting Chief Engineer

2105 W
31

(True Copy)

(Signed) J. W. Mellis.
for Agent and Manager

No. 576.

Forwarded for the information of the Consulting Engineer for Railways.

Madras }
21st July 1882 }

No. 578

Copy of above forwarded for the information of the Chief Engineer, Public Works Department, in accordance with his request.

2. On the occasion of my visit to [illegible] (on 17th current) it was explained by the Railway Officers that the proposals for protection works submitted by them were not intended to be rigidly adhered to, but to be modified according to experience of the conditions of the littoral currents, of changes in the coast line, &c.

As

3. As matter of fact, the original proposals had already been considerably modified on the date of my inspection. R.W.C. No 5216

4. The revised proposals, as roughly sketched above by Mr Carter, have my concurrence, – but will necessarily be liable to further modification.

5. Further reports will be forwarded to the Chief Engineer, Public Works Department, with respect to both the future progress of the works, and the incidence of cost.

No 625 Ed/3/8/8

Colonel, R.E.,
Consg: Engr: for Railways.

Madras
27th July 1882.

H.

G.O. 1805 W – 15/7. 8/7
[illegible]

No 381 T.C

Supd Engineer's Office
Tanjore. 30th July 1882.

2705 W

From
Colonel J. Beatty R.E. 38
Supd Engineer, 6 circle

To
Colonel R. H. Sankey C.B. R.E.
Chief Engineer, P.W.D.

Enclo: 1.

Sir,

With reference to para 3 of G.O. No 1805 W of 15 July 1882, I have the honor to forward for your information a letter from Major Fraser regarding the delay in the construction of Groynes to protect the Beach at Beypore.

I have the honor to be
Sir
Your most obedient servant

J. Beatty – Col R.E.
Supd Engineer, 6 circle.

A. No 718 W. 17-3-82.
" 1805 W 15-7-

SUPERINTENDING ENGINEER'S OFFICE
12 AUG 82
P.W.D
FOURTH CIRCLE

No 568 Ed/ 11th August 82

Referred to Colonel Mead for remarks

Ooty
10/8/82

Col. RE
Chief Engineer
P.W. Departt.

Superintending Engineer
Fourth Circle
(the original to be returned)

O.L.5.8

~~3rd Dept~~ No 5100

From
The Superintending Engr.
6th Circle

To
The Chief Engineer
P.W.D.

No 381.
encl 1.

Dated 30th July 1882
Recd

Beach at Beypoor

Forwards letter from the Executive Engineer Trichinopoly regarding the delay in the Construction of Groynes to protect the —

2705 W
39

Executive Engineer's Office
No 269 SE
Trichinopoly 2[illegible] July 1882.
Despd 26th

From
The Executive Engineer,
Trichinopoly Division

To
The Superintending Engineer,
6th Circle,
Trichinopoly

Sir,

I have the honor with reference to your No 363 T.C./22.7.82 and Government Order No 1805 W of the 15th instant to state the following circumstances regarding the beach at Beypoor which may not be fully known.

2. As soon as the work "Repair of the Sea Wall and Constructing one Groin" was authorized, as the time was very short, I placed a European Overseer at Beypoor, under the Sub Engineer at Calicut, to collect Laterite.

3. A native Contractor was under agreement to deliver stone, but as it came in slower than required I went to ascertain the cause.

4. I found that though the sea was apparently calm loaded boats could not discharge Laterite, which the contractor brought down the Beypoor river, at the site of the work. The Stone had to be landed near the Prince's Jetty in the river, and carted to the Sea wall about a quarter of a mile.

5. This was a state of things which could not have been anticipated and was a source of delay. There was not much stone I think got by blasting on the island, as the Marine authorities were rather averse to its being cut down, and the spray was latterly strong.

6. However enough stone was got to progress with the repair of the gap in the Sea wall, but more was used than calculated upon, as the Sea while the work was actually going on cut round the shore end of the Sea wall, detaching it from the beach, thus necessarily absorbing in the Extension Stone that would have been available for the groin.

7. The Sub Engineer finding time pressing and stone likely to be insufficient, recommended a tender from Mr Gay Contractor to the Madras Railway, who engaged to make a siding and run down the Laterite to the site of the groin by ballast train in sufficient time, but at a rate increased by a fifth.

8. I think I incurred some slight responsibility in closing with Mr Gay, and wrote for the assistance of the Madras Railway Company in lending worn permanent way.

9. Mr Gay constructed the siding, but just before it was commenced, the sea began cutting away the beach in a rapid manner quite different from the former steady erosion, and to save the Inspector's Quarters the Railway Company erected a cheap groin of sand bags and old sleepers 25 yards long, which might fairly be debited to the contingencies of the "Sea wall and groin" estimate.

10. This was effective for some time, and I was under the expectation that Mr Gay would make the stone groin well before the setting in of the Monsoon.

11. After giving over charge of the West Coast Division, on my way here, having

an interest in the work, I looked at it while at the Railway Station, and found that the conditions of the Problem had suddenly entirely altered.

12. The sea was eroding the coast line very rapidly and not only breaking on it, but the water at high tide stood 1½ feet above the land, and flowed back towards the Railway. The siding was ready, but Mr Gay had not brought down a ballast train.

13. It was evident that the groin only protects the two hundred yards, if so much, on the North side of it, and that it had no effect in preventing the alarming erosion now setting in, as the Deputy Consulting Engineer for Railways states, for two miles to the South. In fact had the stone groin been completed it would in my opinion have been turned and left out at Sea. The Railway were only able to protect the Inspector's Quarters by quick extension of their stake groin landwards.

14. I had thought originally that a second groin constructed next season similar to the one sanctioned, would have been enough to stop erosion, but seeing the conditions entirely changed from what they were when and for sometime after the estimate was prepared, I wrote a memorandum for the information of the Superintending Engineer 4th Circle dated June 3rd during the short time I was waiting for the train, stating that the action of the sea was so much more fierce than ever before that keeping it off was beyond the resources of the Public Works Department at the place, and that the cooperation of the Railway authorities was urgent. I also saw Mr Wilkinson C.E., the divisional Engineer.

15. Mr Gay said the cause of his not delivering stone was a difficulty in getting labor as the people were in the fields transplanting rice.

I have the honor to be
Sir,
Your most obedt Servt,

A. Fraser Major R.E.,
Executive Engineer.

Superintending Engineers Office General 12 AUG 82 P.W.D. Fourth Circle

From
The Exe Engineer
Trichinopoly Dn

To The Supg Engineer
6th Circle.

Superintending Engineer 27 JUL 82 6th Circle

Dated 25th } July 1882
Despd 26th }
Recd —

No 269 S.E.
Encl —
Groynes to protect the.
Beach at Beypoor —
Explaining the cause
of delay in executing
the — noticed in G.O.
No 1805 W of 15-7-82.

P10

Superintending Engineers Office
IVth Circle
Camp Vellore 15th August 1882

No 340

From
The Superintending Engineer
IVth Circle

To
The Chief Engineer
Public Works Dept.

2705 W
42

Enclosures 2
1 Endorsement No 568 of 11th Augt /82 with
1 Enclosure.

Sir,

With reference to your endorsement No 568 of the 11th August /82 I have the honor to return the papers and to report that I have no remarks to make on paras 1 to 7 further than I have already done in my letter No 251 dated 3rd July 1882 in which I reported as called on the delay in the construction of the groynes at Beypore which Major Fraser was ordered to commence by me in anticipation of sanction in February, except that Major Fraser is mistaken in para 6 in stating that owing to the rough weather stone was absorbed in the extension of the sea wall that would have been available for the groyne, my notes of inspection dated 28th June show that even by the 3rd June the total quantity estimated for the repair of the stone wall was not collected.

2 With reference to para 8 Major Fraser reported the fact to me that he could not get stone for the groyne owing to the bad weather

except by railroad at an increased cost and received from me at once authority to do so. I am not aware that he gave orders for the work to be begun until he received that authority.

3. Major Fraser had received orders to complete the repairs to the seawall & the groyne by the 15th May but it was not until the 6th May that arrangements to bring it down by rail were made and quarrying commenced. I am aware that there was rough weather from the 10th April, but I consider most of the stone for both seawall & groyne ought to have been collected before that date, as it was, none whatever was collected for the groyne.

4 With regard to para 11, 12 & 13 I agree with Major Fraser that the encroachments of the sea was much greater and more rapid than anticipated but I am not aware that any one thought that the groyne would do more than protect a small portion of the coast and although it is to be regretted that the groyne was not put up before the monsoon as intended my own opinion is that its construction would have done but little good. Had it been completed the heavy action of the sea at the end of May & June would probably have turned it, and if this had occurred it would have done more harm than good. We should have had no stone available to

to extend it inwards and without protection at the root it must have failed.

2705/4B

I have the honor to be

Sir

your most obdt. Servt.

Lieutt. Coll. R.E.

Superintending Engineer IVth Circle

A. Ex 2722 W. 26-11-80.
" " 495 W 23-2-81
" " 708 W. 17-3-82.
" " 1806 W. 15-7- " (Orig)

From

The Supg Engineer,
Fourth Circle.

No. 610 E a/ 22/8/82

Recorded.

~~Attt~~

21/8/82

dated 15th }
desp: 17th } Augt/82.

No. 610 E a/ 22/8/82
No. 340.

Enc: 2

Beach at Beypore:-

Offering his
remarks on the

with disposal

Rd 4/5/8.
Cr 25/9 Rd 28/9.
only 18/8

(No. I.)
No. 549

2,000-1-1-78.

2705
44

MADRAS RAILWAY.

AGENT AND MANAGER'S OFFICE,

Madras, 5th August 1882

From
Arthur M Saunders Esqr
Agent and Manager. M.R.

To
Colll. J. H. M. Shaw Stewart, R.E.
Consulting Engineer for Railways.

Sir,

In reply to your letter No. 539 of the 26th ultimo, I have the honour to forward you a copy of a letter dated the 29th July No. R $\frac{201}{588}$ from the Acting Chief Engineer having reference to the incidence of the cost of the protective works at Beypore.

Mr Carter explains the steps which he took to bring to notice the encroachments of the Sea from time to time and suggest that as the Department of Public

Works did not carry out the protective works with the desired promptitude the incidence of cost of these works which we are now undertaking should be borne by that Department.

I concur with Mr. Carter in this view and trust that His Excellency the Governor in Council will be pleased to approve of the suggestion that the Public Works Department should bear the entire cost.

I also forward a tracing shewing the coast line at Beypore from the year 1867 to June 1882 which you will probably find useful.

I have the honour to be
Sir
Your Most Obedient Sert

Arthur W. Saunders

Agent and Manager

MADRAS RAILWAY.

From
The Agent and Manager.

To
The Consulting Engineer
for Railways.

Dated 5th August 187
Recd.

No. 519

As to the incidence of the Cost of the protective work at Beypore

---

Madras Railway Company
Chief Engineer's Office
Madras. 27 July 1882

No R $\frac{201}{582}$.

The Agent and Manager

2705/46

Dear Sir,

Your endorsement on Consulting Engineer's letter No. 525 of 20th Current giving cover to Proceedings of Government dated 15th July 1882 No 1805 W. Public Works.

I am still of opinion that the erosion at Beypore is to a great extent due to the sea wall connecting the main land with the island and my recent inspection in Company with the Consulting Engineer, the Deputy Consulting Engineer and the Superintending Engineer when we found an immense amount of debris which had been evidently carried down the river and deposited on the foreshore to the south of the sea wall still further confirms me in believing that the encroachment of the sea was caused by the sea wall.

M

MADRAS RAILWAY.

From The Agent and Manager

To The Consulting Engineer for Railways.

Dated 187

Recd.

No.

2705 / 47

At all events the erosion of the Coast during the last year has been alarmingly rapid and the groynes proposed by me even if they proved thoroughly effective would not restore half the foreshore which was washed away during the last 12 months.

In fact the work I have put in hand is merely to afford temporary protection to the Railway property.

If it is intended either to regain the foreshore already lost or thoroughly to protect the Railway a very comprehensive scheme would be necessary either in the first instance involving groynes of great length or in the second a sea wall along the Coast having a good foundation and of considerable section.

I don't think anything on a large scale could be done for less than about half a lac of Rupees.

(True Copy)

Yours faithfully
(Sigd) H. R. P. Carter
Ag. Chief Engineer

Arthur Saunders
Agent & Manager.

No. 550

Forwarded for the information of the Consulting Engineer for Railways with reference to paragraph 2 of his letter No. 525 of the 20th ultimo.

5th August 1872.

MADRAS RAILWAY.

m

The Agent and Ma

To

The Consulting Engineer

for Railway

Dated 5th August 1882

Recd.

No. 550

As to the Construction of Groynes to protect the Ra at Beypore

---

Madras Railway Company
Chief Engineer's Office
Madras, 29th July 1882

No. R $\frac{201}{588}$

$\frac{105}{48}$

The Agent and Manager

Dear Sir,

Your endorsement on Consulting Engineer's letter No. 539 dated 26th July 1882

So long ago as June 1880 I re-ported that the sea had washed away the sand opposite the Railway Station at Beypore to within 9 feet of the fence. Laterite was deposited by the Department of Public Works and the erosion of the land at this particular point wa stopped.

Accompaniment A No. 493 15-6-80

On the 2nd June 1881 I again addressed you on the same subject and requested you to enquire what steps Government were about to take for the protection of the Railway property and was informed that the Chief Engineer to Government stated that there was no danger of the encroachment increasin

Accompaniment A No. 357 3-6-81

On 8th September I reported that the public road opposite the Inspector Bungalow had been washed away.

Accompaniment A No. 609 7-9-81

On 8th November I again called your attention to the fact that no action to prevent further encroachme

A No. 752 10-11-81

of the Sea had been taken by Government.

On 1st March 1882 finding that the Inspector's house was in danger I ordered a temporary groyne of sand bags to be put in and this saved the bungalow. Wm Ell

On 17th March Government passed certain orders for the thorough repair of the Sea wall and the erection of a groyne and I gave orders that every assistance should be given to the contractor but I believe it was not commenced before the 1st June or thereabouts before which date we had to work night and day to save our Inspector's house.

Had my reiterated warnings been attended to or had the groyne been commenced in good time much of the erosion would have been prevented, and so far as our property is concerned, no further works would have been requisite. As however the want of prompt action by the Department of Public Works has now rendered extensive works necessary I am clearly of opinion that the incidence of cost for these works as well as for the works we have already had to execute should be borne by that Department.

True Copy!

Yours faithfully
(Sd) H. R. P. Carter
Actg Chief Engineer

Agent & Manager

Form No. 2.

PUBLIC WORKS DEPARTMENT,
Railway Branch.

CONSULTING ENGINEER'S OFFICE,
Madras, 21 August 1882.

P.W.
2105
49

From Agent and Manager Madras Railway
No 549 of 5th August 1882
" do " 550 of 5th " "

No. 187.

SUBMITTED for the consideration of Government, with advertence to their Proceedings dated 15th July 1882, No 1805 W.

2. The sum of R. 5,540, sanctioned for outlay by the Madras Railway Company on protective works at Beypore, has now been expended, with results which appear so far satisfactory; and the papers now submitted

will I trust be sufficient to enable the Government to decide both as to the final incidence of that outlay, and as to the responsibility for any further protective measures that may be necessary.

3. It will I think be admitted that the position occupied by the Madras Railway Company in connection with the recent erosion at Beypore has been unsatisfactory. The Company did not own the foreshore, which has always been understood to be the property of the State; while

immediately

immediately outside their station-yard ran a public road, which I believe was recently transferred to the custody of the Local Fund Board.

4. As stated by the Company's Chief Engineer, he drew attention to the aggressive action of the sea at Beypore so long ago as June 1880. The fact was at once notified to the Superintending Engineer of the Circle, with a request that the necessary steps might be taken to prevent further encroachment. The reply, dated 2nd August 1880, was that "the Executive Engineer reports "that at present nothing "should be done."

5. A year later, in June 1881, the Company's Chief

2705/51 p23

Chief Engineer reported that the sea was making further encroachment, and inquired whether any measures were being taken by Government for the protection of the beach. The matter was again referred to the Superintending Engineer, who stated, in reply dated 7th June 1881, that "if the encroachment "of the sea at Beypore "is similar to that that "occurred last year, no "notice need be taken of "it."

6. In September 1881, the Company's Chief Engineer again reported upon the action of the sea at Beypore; stating that the public road had been completely washed away, and that part of the station-yard had also disappeared. Copies of this report were forwarded on the 9th September both to the Superintending Engineer of the Circle, and to the Local Fund Engineer of Malabar. From the Superintending Engineer no reply or acknowledgment was ever received; but on 24th November 1881, the President of the Local Fund Board stated that that body were not inclined to repair the road as the outlay would be more than they could afford, and the result doubtful.

7. In their Proceedings dated 17th March 1882, No 700 W, sanction was accorded by the Government to an estimate amounting to Rs 5,340;

of which sum Rs 3,470 provided for the thorough repair of the sea-wall, or rather causeway, which connected two rocky islets with the beach; and Rs 1,870 provided for the construction of a Groyne, 70 feet in length, to the west of the Madras Railway Station-yard. This expenditure was sanctioned in view to the completion of the works by the 15th May, the date named by the Superintending Engineer; but the Government are already aware that the burst of the monsoon found the Groyne scarcely commenced; and that the delay would probably have proved destructive to some of the Railway Company's buildings,

had

had not their Engineers hurriedly constructed a Groyne with sand bags and piles, which checked the action of the sea.

8. In the papers now laid before Government, two points are specially urged by the Company's Officers:—

(1) That the encroachment of the sea has been due to the existence of the causeway above alluded to, connecting the rocky islets with the beach.

(2) That the failure on the part of the Public Works Department to take effectual measures to arrest the encroachment of the sea, and the

delay in constructing the Groyne sanctioned in March last, have rendered necessary not only the outlay of nearly Rs 7,000, recently incurred by the Company, but also further extensive protective works, the cost of which is roughly estimated at Rs 50,000; and that the whole of such expenditure should therefore be borne by the Public Works Department.

9. With respect to the first point, I have already stated my opinion that the erosion of the beach cannot be properly ascribed to the existence of the causeway in question, and careful examination of the locality has confirmed that opinion. In support of this view, it may be mentioned that, in the year 1858, the then Chief Engineer of the Madras Railway Company strongly advocated the construction of the causeway, in view to the formation of a boat-harbour to the south, exactly opposite the portion of beach which has lately suffered from the action of the sea. The proposal is recorded in the letter addressed to the Government of India on the 27th January 1859, No. 50.

10. With respect to the second point, it is for the Government to

on their own account.

21st August }
1882. }

Colonel R.E.
Con. Engr for Rys

4/o W.

G.O. 1805 W. d/ 15/7/82

p. 26

No 633 Ed/ 24th Augt 82

Extract paras 1 to 7 of the foregoing Note by the Consg Engineer for Rys is forwarded to the Supdg Engineer Fourth Circle for such explanation as he may be in a position to offer.

(Sd) R. A. Sankey Col. R.E.
Secy to Govt P.W.D.

(T) RP

To,

The S.E. Fourth Circle
(with Extract) [illegible]

O.L. 844 & Re Cir. 9/10 R 10/2
Cir 2/9
R 23/9 R 26/9

No R 201/613

Madras Railway Co.
Chief Engrs Office
Madras 8th August 1882

2705/56

The Agent and Manager.

Dear Sir,

Progress of Groynes at Beypore
second fortnightly report.

I beg to forward for the information of the Consulting Engineer the second fortnightly report with reference to the above work as requested in the 2d paragraph of his letter No 484 of 8th ultimo to your address.

1. The construction of groynes No 3 and 5, which were specially ordered, has been finished, and they have been further protected by the additions of T headed heels.

beach?

2. The breach wall has been carried to Groyne No 2 and greatly strengthened all along towards the Government Groyne

3. Material for the remainder of the work is being delivered in ample quantity.

Yours faithfully
Sigd/ Henry C. West
for Actg. Ch. Engr.
(True copy)
Sigd/ J. W. Mellis
for Agent & Manager

No 560.

The Consulting Engineer for Railways for information with reference to his letter No 484 of the 8th ultimo.

Madras
9 August 1882

No R. $\frac{201}{633}$

Madras Ry. Co.
Ch. Engrs. Office
Madras 15th Aug 1882

The Agent & Manager
Dear Sir

In continuation of my letter

letter No R $\frac{201}{613}$ of 8th current I beg to report that the sea wall and Groynes at Beypore have been completed and I beg to forward a tracing showing how the works have been carried out.

2705/57

You will observe that the original plan has been considerably modified as we found as we worked that this was necessary in order to use the materials in the most economical manner.

I believe that the Consulting Engineer who lately inspected the works is satisfied that the modification was advisable.

I have directed the Resident Engineer to expend the small balance available in stacking stone to throw in where necessary as since my inspection on the 9th current the sea has washed into the compound of one of our Bungalows to the south of the Inspectors Bungalow, carried away some of the Government Groyne and shaken some of our work.

Yours

Yrs faithfully
Sig.d H. R. P. Carter
Ag. Ch. Engineer

(True copy)
Sig.d Arthur M. Saunders
Agent & Manager

No 593.

The Consulting Engineer for Railways for information in continuation of my endorsement No 560 of the 9th instant.

Madras
17th August 1882

No. 188. dated 21st August 1882.

Copies of above forwarded for the information of the Chief Engineer Public Works Department, in continuation of the report forwarded on 27th ultimo, with endorsement No 578.

2. Plans No 859 A and

859 B

859-B are also sent herewith for inspection. The first shows the coast line at Beypore, as taken in different years between 1867 and 1882. The second shows the protective works which have been recently carried out by the Madras Railway Company.

3. Since the commencement of those protective works, the action of the sea has been more favourable. There has been a deposit of sand on the beach along the entire line of erosion; but chiefly at the south end, where nearly 100 feet have been ~~re~~acquired.

4. It is particularly requested that these two plans may be returned when no longer required.

V. Mentimont
Colonel R.E.
Con. Engr for Railways

C No called for
n/

021. 44. 8
Recd 9/10
Cir 22/9
R 25/9 - Rd 28/9

SUPG. ENGINEER'S OFFICE 4TH CIRCLE,
Coimbatore, 5th September 1882.

No. 378

2705
60

From,
The Superintending Engineer,
Fourth Circle.

To,
The Chief Engineer
P. W. D.
Madras.

Sir,

I have the honor to acknowledge the receipt of Extract paras 1 to 7 of Note by the Consulting Engineer for Railways forwarded in your Memo No 633 E dated 24th Augt for explanation.

I regret that I cannot agree with the Consulting Engineer in his statements and have no Cause but to Comment and add on to many of them.

2. In para 4 it is stated that

my attention was called to the aggressive action of the Sea at Beypoor in June 1880 and that my reply was that "the Executive Engineer reports that at present nothing should be done" I have to point out that although this statement is perfectly correct the following should be added.

1st That the encroachment complained of was North of the Sea Wall and has nothing to do with the present case.

2nd A reference to G. O. No. 2722 W dated 26th Novr 1880 and G. O. No. 495 W dated 23rd February 1881 will shew I think clearly that the Railway Authorities exaggerated the danger that you and the Master Attendant approved

approved of my action and proposals and finally that Government in their order No. 2722 W (see para 3) considered that it was for the Local Fund Board to protect their road.

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3. In para 5 it is stated that further action of the sea was reported, (this was South of the Groyne) and that on its being reported to me I only said that if the encroachment was similar to that that had formerly been reported no notice need be taken of it. This is quite correct and I think I was justified in giving that reply. I inspected the place in July and in my notes of Inspection and in letter No. 281 dated 15th July 1881

(C803941) D

I reported that a portion of the Road had been washed away but I considered as I do now that it was for the Local Fund Board or the Railway to protect their own property.

4. Para 6 - The Consulting Engineer on the 19th September forwarded to me Copies of letters from the Chief Engineer and Manager of the Railway stating that the Local Fund Road had been washed away and that they had arranged to allow a passage through their property (namely the Inspector's compound) for 2 months only and requesting him the Consulting Engineer to urge the proper Department to expedite the carrying out of the reconstruction of the Road.

No remark was made on this request except that I was informed that a Copy of the letters had been sent to the Local Fund Engineer. I did not reply to this as I had nothing to do with the road, there was no request for me to address you on the encroachment which had already been reported.

5. Para 7 - While regretting that the Groyne sanctioned in G. O. No. 708 W dated 19th March 1882 was not as it should have been completed by the 15th May I have again to repeat my opinion (as stated in para 4 of my letter No. 340 dated 15th August) that had the Groyne been completed by that date it would have done but little good.

On the 21st April 1882 at the request of the Consulting Engineer a sketch shewing the position of the proposed Groyne was sent to him and I am sure that neither the Consulting Engineer nor the Railway Engineers considered that this Groyne could possibly protect more than a very short line of the Coast.

6. I think the above show that it is only now that the Madras Railway have made a direct claim to be protected at Government expense from the action of the sea, that previous to this they contented themselves with calling attention to encroachments and that in September 1881 they tried to force the Local Fund Board to protect them by threatening not to allow a passage through their property. When in November /81 they were told by the President that the Board were not inclined to protect or restore the Road they were content to do nothing and did not even ask Government or any Government Official for Works to be undertaken at Government Cost from the protection of their property also that the fact of Government having sanctioned a Groyne near their property and not carrying it out as soon as intended gives them no claim for protection at Government Cost.

Further my Notes of Inspection forwarded to you and my letter No. 292 dated 22d July shew that they did not take vigourous action when matters got serious but wished Government to undertake the work.

7. On the receipt on the 19th July of G. O. Nº 1805 W dated 15th July 82 I requested the Consulting Chief Engineer for Railways to obtain from the Railway Authorities the reasons on which they based their claim for the Madras Government to protect their line of Railroad from encroachments of the sea, but in his letter Nº 666 dated 24th August he informs me that the views of the Officers of the Madras Railway have been forwarded to you for submission to Government, as therefore they have not been sent to me I am unable as ordered in G. O. Nº 1805 W dated 15th July para I to report regarding the incidence of outlay on protective works further than to express my opinion that the Madras Railway have no claim whatever on the Madras Government.

8. In conclusion I would urge that this question should be decided as soon as possible there is no necessity I believe for works to be undertaken at present as the sea is throwing up the beach again but it may be necessary at any time to carry out protective works and unless it is decided at whose cost these works are to be executed it is I fear hopeless to expect vigorous

vigourous action.

I have the honor to be,
Sir,
Your Most Obt Servant

W M Mund Lt Col R.E.
Supg Engr, 4th Circle

A. Lr. 2722 R. 26-11-80.
" " 495 R - 23 - 2 - 81
" " 708 R - 17 - 3 - 82.
" " 1005 R - 15 - 7 - "
Memo " 1632 - 11 - 7 - 81.

From
The Supg. Engineer,
Fourth Circle

Dated 5th }
Despd: Do } Sept. 1882.

No. 378.

Protective Works at Beypore:—

Offering his explanation on the Consulting Engineer's Notes on the ———; and remarking that until it is decided at whose cost these works are to be executed, it is hopeless to expect vigorous action being taken in the matter.

Cir 22/9 - R 25/9 Recd 9/10 R [illegible]
O.C.S 16-9 Recd 21/9 R 25/9
[illegible] 7/9 Recd 30/9

No. 394

P. 45

Notes of Inspection by Lieut Colonel H. R. Mead R.E. Supg. Engineer 4th Circle for the month of September/82

2705
66

Coimbatore Division

Malabar District.

Calicut Taluq

12th September

Beypoor Groynes &c.

The state of the work undertaken by the Railroad is as follows.

A Groyne about 20 yards in length thrown out on the site of their proposed Groyne No. 5. This Groyne has a short T at its base. from it there has been an encroachment for about 60 yards in length on the South but South of this as far as I can judge there has been no further encroachment and things remain much as they were. North of this at site of Nº 3 proposed Groyne another Groyne about 18 yards in length with a T at root has been put down, this has caused action and Encroachment, South of it for about 35 yards. For 180 yards South of the Government Groyne longitudinal revetment has been put down of a section

section of about 12 ft. × 2 ft.

Government Groyne

Completed and Standing well the longitudinal revetment put down by the railroad has protected the South side from any further encroachment.

Sea wall work

Completed and standing well about 40 yards in Centre not very good this was the portion damaged last May it is quite safe but will require making up next year.

Both sides of the sea wall silting up at both ends and there is accretion on the shore between the sea wall South as far as the Govt. Groyne.

Received

R W Stanley
Col

21/9/82

Camp Cannanore.
15th September/82.

W W Mead Lt Col R.E.

Supg. Engineer, 4th Circle

A. Lr. 210 R. 30-3-82.
" " 708 R. 17-3 – "
B " 923 R. 13-4- "
A " 1002 R. 24-4- "
" " 1705 R. 7-7- "
" " 1805 R. 15-7- "
" " 1920 R. 20-7- "
B " 2201 R. 25-8- "
" " 2320 R. 2-9- "

Lo. 1419 d/ 15. 8. 63
" 2794 " 26. 9. "
" 585 " 5. 11. " (Fin: Rg:)
" 557 " 27. 10. " "
" 3303 " 14. 11. "
" 638 " 4. 12. " (Fin: Rg)
" 3748 " 18. 12 "
" 406 " 9. 2. 64
" 1232 " 29. 4. "
" 1541 " 27. 5. "
Desp: to Secy. 34 d/ 30. 5. "
Lo. 543 d/ 27. 2. 65
" 844 " 27. 3. 65.

ol. 3/9 Recd 9/10 R 10/10
Cu 27/9 – Rtd 28/9 –
only 19/9 Recd 30/9

P.W.C. No. 6336

From
The Supdg Engineer
~~Fourth~~ Circle

Dated 15th
Recd 19 } September/82.

No. 394

Notes of Inspection by Lieutt. Coll. H. R. Meade R.E. Supdg Engineer, 4th Circle on the Beypore Groynes on the 12th September 1882.

[illegible] No. 184 – 29/9[illegible]

E.R.

314
2705
69

I herewith forward for information Colonel Meade's inspection report on the works in progress at Beypore, and should be glad ~~to~~ to learn your opinion as to what should now be done

It might be as well also now to bring forward the question of the incidence of the charge in a way which will admit of Government deciding the point at an early date. Until this is settled there may not improbably be some hesitancy as to the plans to be adopted & the expenses which may be incurred

You are aware ~~that~~ generally speaking my personal view is ~~that~~ the Railway are bound to protect ~~their~~ own property and cannot fairly look to a Pro-

-vincial grant for the purpose

RHH

22/7/82

Returned - with reference to the papers forwarded to IV on the subject of the Beypore erosion, in which the [illegible] of the Company's [illegible] respecting [illegible] for [illegible] are [illegible].

I entirely concur that the first thing necessary is to obtain a decision on that point, which will of course also decide the responsibility for any further protective works which may be necessary.

Until such decision be obtained, it is almost certain, as remarked by IV, that there will be hesitancy and delay with respect to the plan to be adopted to stop further encroachment.

JCL

22-8-82

IV

Beg to suggest that the attention of the Supt Engineer be drawn to the correct term to be used in speaking of the Madras Railway Engineers. "Railroad Engineers" - the term persistently used by Lt. Col: Mead,

Will be taken up when S.E.S reply to reference [illegible] is received RHH

Should be noticed when finally disposed of the case RHH

P. W. Dept
Ootacamund, Octr 1882

No. E.

2705
70

Memorandum

Adverting to the correspondence recorded with G.O. No. 2705 W dated 17th October 1882, Colonel Meads attention is called to the inaccuracy of the term "railroad" as applied to the officers of the Madras Railway as well as to the Company itself.

It should be noted for future guidance that "Railway" is the correct term.

Col. R.E.
Chief Engineer, P.W.D.

Cancelled - vide
correct Col Meads mistake
clerical - [illegible]

To,
The Supdg Engineer Sixth Circle
with copy of G.O. No 2705 W d 17th Octr 1882

R.S.

2705

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the

Read the following:—

Letter from the Supdg. Engineer Fourth Circle (H.C. No. 284 d/ 19th July 1882)
Do ——— do (" — " — 292 — d/ 22nd — " — ")
Do ——— Supdg. Engr. Sixth Circle (" — " — 381 — d/ 30th — " — ")
Do ——— " Fourth Circle (" — " — 340 — d/ 15th Augt. 1882)
Note by the Consulting Engineer for Railways (" " 187 d/ 21st " ")
(" " 188 d/ 21st " ")
From the ——— Supdg. do
Letter from the S. E. Fourth Circle (" " 378 d/ 5th Septr. ")
Do ——— do (" " 394 d/ 15th " ")

The Right Hon'ble the Governor in Council has carefully considered the correspondence recorded above in regard to liability for the cost of works to protect the beach at Beypore. The question depends apparently upon the point as to whether the erosion of the shore is due to natural causes, or whether it was more or less caused by the construction of the wall connecting the islet with the mainland – a work carried out by Government. The Railway Engineer attributes the erosion to this work – while the Consulting Engineer is of opinion, after a careful examination of the locality, that the view taken by the Railway officers is groundless.

2. Before any decision can be come to by Government it is necessary that the point at issue should be set at rest. It might be allowed to stand over till the next monsoon – when a mixed Committee composed of the Consulting Engineer, the Superintending Engineer of the Circle, and two Railway Engineers to be nominated by the Agent and Manager, will be formed to report on the matter, after a local investigation, during the prevalence of the monsoon. On receipt of this report the Government will be in a position to pass definite orders.

30/9/32

S.E. Fourth Circle
Consg. Engr. for Railways

R.S.

E/E A.S.

No 2705 w

2705
73

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the 17 October/82

Read the following :—

Letter from the Supty. Engr. Fourth Circle } No. No 284 d/ 19th July 1882
— Do ——— Do ——— (" 292 d/ 22nd " ")
— Do ——— Cons. Engr. for Rys (" 578 d/ 27th July —
— Do ——— Sixth Circle (" 381 d/ 30th " ")
— Do ——— Fourth ——— (" 340 d/ 15th August)
Note by Consulting Engr. for Rys. (" 187 d/ 21st ")
From ——— Do ——— (" 188 d/ 21st " ")
Letter from Supty Engr. Fourth Circle (" 378 d/ 5th Septr ")
— Do ——— Do — (394 d/ 15th Septr ")

P 38

The Right Honble the Governor in Council has carefully considered the correspondence recorded above, in regard to liability for the cost of protective works at Beypore, and in the absence of any definite proof that the erosion of the beach is due to other than natural causes, is of opinion that the cost of the works already carried out, as well as such future expenditure as may be necessary to protect Railway property, should be borne by the Madras Railway Company.

Ch 10/10

S.A.D.

This is to be sent for Colonel Sankey's signature on a spare [illegible] R.S. 10-10

Con
5

Supdg Engr Fourth Circle S 9
Consg. Engr: for Railways S 21 with [illegible] plans
Examiner Railway Accounts S 7
Examiner P.W. Accounts S 7

Issued 1-11-82

R.S.

0336, 6051,
Q 5711 &c

Govt. of (1882) Madras

PUBLIC WORKS.

Encl.

G. O. 17th Feby 1882, No. 2705

Nos. 1 to 3 & 104

Protective works
at Beypore.

Deciding that the
Cost of the —— as
w'c as such futu
expenditure necess
to protect Railway
Property should
be borne by the
Madras Ry Coy.
[illegible] in Recpt [illegible]

S 73/10