M.R.O. 1—77,006—8-6-37.

(1) Number of pages_____

(2) Date of repair_____

(3) Initials of the Referencer_____

MADRAS RECORD OFFICE.

Government of Madras.

Public works DEPARTMENT.

G.O. No. 3016. Press / Mis.
410, 411

Dated 19- 12- 1872.

Not to be folded or roughly handled

No. 410. Read the following letter from the Superintending Engineer, 7th Division, to the Secretary to Government, Public Works Department, dated Coimbatore, 30th October 1872, No. 174:—

HAVING lately inspected the whole of the works at Cochin, I have the honour to report that the works sanctioned in G. O., No. 1,125, dated 2nd May 1872, have, with the exception noted, been fully carried out to the extent contemplated, and I enclose a statement, marked A., copied from the Work Register, showing the amount of saving and excess on each work, with notes of the cause of such, etc., etc., etc. The total saving on sanctioned estimates amounts to Rupees 12,230, of which Rupees 10,380 is due to the non-construction of Groyne A^1 and to groynes M, N, O, P, having, as directed by Government, only been built half the length estimated for, and a reduction in the length of Groyne L^1 of 74 feet. These groynes, however, have cost more than half the estimate, owing to the change of the beach, since the estimates were framed; thus the net saving, after deducting the excess of Rupees 2,287, is Rupees 9,943.

1 Survey of the Cochin side, No. 1.
1 Do. of the Vypeen side, No. 2.
1 Sounding of the Cruz Milagre Gap, No. 3.
1 Sketch of Groynes L, L^1 and L^2 on the Vypeen side, No. 4.
4 Statements, A, B, C, and D.

2. In regard to the excess on the embankment on the crest of the beach from Vypeen point to the Cruz Milagre Gap, the Range Officer explains that an error was made in the original estimate with reference to the section and its contents, as also turfing (absolutely necessary) was omitted. The bank, as now constructed, is a good one, the slopes well turfed, and the top of the embankment is most useful as a pathway for the beach traffic; this being a sanctioned work is entered in Statement A., and forms a portion of the excess therein noted.

3. The work that has been done has, with the exception noted below, answered well; reforming much of the beach as anticipated; and removing all cause of anxiety, in reference to the security of the land between the sea and the backwater, between Vypeen and the Cruz Milagre Gap. The enclosed survey shows the beach gained, which is shaded in bars.

4. I will now proceed to explain the cause of certain other works, rendered necessary by existing circumstances herein detailed, having been undertaken on emergency, which, I respectfully beg, may receive the approval and formal sanction of Government; these are entered in Statement B., herewith forwarded.

5. In G. O., No. 1,757, dated 24th July 1872, Government approved of deferring the closing of the gap till January 1873, and I reported the steps I proposed to take to secure it from injury during the monsoon, which Government also approved of, and which has cost, as per Work Register, the amount given in Item No. 1, Statement B.

6. Though the monsoon on the coast has been a heavy one and the sea boisterous, no change in the dimensions of the gap has taken place; after the stone and sand-bag lining had been laid, the greatest depth was reduced to 24 feet at low tide, summer level, at which depth it has continued to remain to date; a Contour Survey No. 3 of the gap is herewith forwarded. The chief points of anxiety during the monsoon were the flanks of the gap, which required unremitting attention to prevent erosion and consequent extension of the gap; a great number of sand-bags

were expended on this work, as sand-bags exposed to wind and water rotted speedily and required to be constantly renewed; those wholly submerged, the Range Officer reports, are intact even to the present moment; Item 2, Statement B., represents the expenditure incurred.

7. Between the main Groynes, G and L^1, the sea this year made a dead set, and at one time washed away much of the beach, threatening to outflank Groyne L^1; it was, therefore, absolutely necessary to pitch the beach with large stones, at the cost noted in Item 3 in the Statement B. It will be observed the main groyne G is placed at such an angle as not to thoroughly protect the beach between itself and Groyne L^1 from the force of the south-west rollers. No estimate is submitted for more permanently protecting this point, as the training wall proposed by Mr. Robertson will, besides running out some points further north of the present groyne, from its length be protection enough. For the same reason, I do not think the Groynes L^1 L^2 need be constructed to a greater length than 126 feet, and M, N, O, P than 100 feet.

8. Between Groynes L and L^1, *vide* sketch marked No. 4, the sea also made terrific attacks on the beach which, it was hoped, would reform on the completion of Groynes L and L^1; but, as the construction of the groynes proceeded, such was found not to be the case; to prevent a breach at this point, and to protect the beach from erosion as rapidly as possible, the Range Officer pitched and revetted it with sand-bags, which were all speedily buried in the sand, and in communication with me ultimately on emergency Groyne L^2 had to be constructed. This has been done to a length of 60 feet, and the effect was immediate, the beach reforming as shown in the survey. The amount expended on the sand-bag revetment and on this groyne is noted in Items 4 and 5, Statement B., the amount required for the completion of the groyne to 126 feet in length being entered in Statement C. I attribute the cause of the sea turning in here to the disappearance of the sand bank shown in Mr. O'Shaughnessy's survey as then existing. At the end of Groyne L^1 at this point at low tide, I sounded a depth of 4 or 5 feet, when inspecting the works the other day.

9. As reported in paragraph 8 of my letter, No. 45, dated 8th June 1872, printed with G. O., No. 1,757, dated 24th July 1872, a breach occurred to the north of the Cruz Milagre Gap, at the point marked U on the Survey No. 2, and it was found necessary to raise the crest of the beach with a temporary sand embankment, as shown in the survey, and the breach was closed; this work forms part of the expenditure included in Item No. 4 in Statement B.

10. I inspected the coast line at Mullapooram, and from the Cruz Milagre Gap up to the gap above noted as having occurred and been closed; the sea is evidently encroaching gradually all along this portion of the coast, and unless the Cochin Government speedily make provision to protect their coast with groynes, and raise an embankment on the crest of the beach from the Cruz Milagre Gap to beyond Mullapooram, I deem it very probable that another gap will take place here. Mullapooram itself was in great danger during the monsoon; the embankment lately constructed by the Cochin Circar, in the back-water, is of no possible use, the water within it being already connected with the back-water or the

embankment is outflanked, which I noted before in my report to Government was likely to occur.

11. I will now report on the groynes to the south of the harbour, in British territory. These have all been completed to the extent noted in Statement A., and the work has been well and substantially done. The excesses over estimates are accounted for by the water in the line of the groynes having previous to their construction, and subsequent to the framing of the estimates, deepened. The groynes do their work and hold the coast, as shown in the Survey marked No. 1, well. It was determined as reported by me in my letter printed with G. O., No. 1,757, dated 24th July 1872, to postpone the construction of Groyne A^1; in August, however, signs occurred showing Groyne A was not acting as well as hoped for, and the sea made great inroads along the coast, to the south of the groyne; the Range Officer proposed the construction of Groyne A^1; this I resisted, and subsequently it was found that Groyne A had sunk, thus its ceasing to act as desired; and as it had before done, was accounted for; it was necessary at once to repair this groyne at the cost noted in Item No. 6, in Statement B., and immediately this was done, the coast reformed as before, and on my inspection of the beach to beyond the British boundary, I found a great improvement since I saw it in May last. Groyne B has sunk a good deal, but I do not think it need be touched immediately, but should be attended to before next monsoon—the cost of raising it is entered in Statement C.

12. Statement B. shows the work done, for which I respectfully request the sanction of Government, and allotment of funds.

Statement C., work further recommended for sanction and allotment of funds.

Statement D. shows the amount of estimate sanctioned, funds allotted, and balances requiring to be allotted.

13. In November or December the work of closing the Cruz Milagre Gap, in the manner sanctioned by Government, might, I think, be proceeded with; the unallotted balance of estimate on this work is Rupees 2,395, *vide* Statement D., which, together with the amounts expended over allotment as per Statement D., now require to be allotted, to meet portion of which I propose the transfer of Rupees 7,000 for a screw pile jetty at Mangalore, Budget Item No. 101, and Rupees 6,000, the balance of the amount allotted for closing the Goorpoor Gap at Mangalore; and the balance I trust Government will be pleased to allot from funds at their disposal.

No. 411. ORDER THEREON, 19th December 1872, No. 3,016.

CIVIL WORKS, No. 21.

IN their Orders No. 1,125 of 2nd May, and No. 1,757, of 24th July, the Government sanctioned the following works for the protection of the beach at Cochin proper, *i. e.*, on the south side of the harbour mouth, namely :—

I.—A new groyne A^1 to the southward of all previous groynes estimated at Rupees 2,624.

II.—Lengthening the two Groynes D and E the former immediately north of the lighthouse, and the latter about 300 yards further north. To cost Rupees 2,069.

III.—A new groyne F[1], close to the harbour mouth Rupees 1,529.

2. It is now reported that Groyne A[1] has not been required, as anticipated by Government, but that Groyne A the most southerly existing groyne, having sunk and spread considerably, had to be raised and strengthened instead, at a cost of Rupees 1,413-6-3. Groynes D and E were lengthened as intended, at a cost of Rupees 1,608-4-3, and Groyne F[1] was built as proposed, at a cost of Rupees 2,018-9-3. These works, which have cost Rupees 1,182 less than the anticipated cost have done their work, and hold the coast well, as shown in the survey. And the only further outlay anticipated is of Rupees 405 for raising Groyne B immediately to the south of the lighthouse; an outlay which may be deferred till next official year. Of the works sanctioned for execution on the Vypeen or northern side the river Groynes H and J and the sea Groyne L were improved at a cost of Rupees 11 within the aggregate of their estimates, which was Rupees 2,261. The new sea Groynes L[1] between G and L and M, N, O, P, to the north of L, have been carried out to the lengths found to be actually necessary at an expenditure of Rupees 6,813 within the estimate of their cost as originally planned. The construction of an embankment along the crest of the beach from Vypeen Point to the Cruz Milagre Gap has been carried out in a much more substantial manner, and to a much greater length than could have been intended when its estimate of Rupees 231 only was submitted; its cost having amounted to no less than Rupees 1,700. But for this a substantial and useful path-way, for beach traffic, and access to the works along a frontage of nearly a mile and a half, has been provided; and the extra cost has been more than covered by dispensing with brushwood groynes on the inner or backwater side of the narrow beach (Rupees 900) and by a saving of Rupees 2,015 out of Rupees 2,757 allowed for sundries.

3. So far a net saving of Rupees 8,530 is shown on the execution of the sanctioned works; but this is counter-balanced by additional work to the following extent, namely,—

		Rs.	A.	P.
1.	Stone pitching between Groynes G and L[1]	664	0	0
2.	Sand-bag revetment between L and L[1] and between Cruz Millagre Gap and Mullapooram, etc.	1,363	2	0
3.	Groyne L[2], intermediate between L and L[1]	1,238	6	7
4.	Lining bottom of Cruz Milagre Gap with stones and sand bags...	3,722	4	9
5.	Protecting flank of do.	1,548	7	8
	The total cost of all which was	8,536	5	0

4. His Excellency the Governor in Council is satisfied that Lieutenant-Colonel Farewell has acted with discretion and judgment in availing himself of the sum sanctioned in the orders of 2nd May and 24th July, which required the expenditure to be watched with care, but recognized the fact that such works are tentative, and admit of much modification. He sanctions therefore the various departures from, and additions to, the original estimates, which estimates amounted to Rupees 30,360, and directs that the sum of Rupees 10,360, in excess of the former allotment of Rupees 20,000, be provided in part from the allotment of

Proceedings of the Madras Government, Public Works Department,
19th December 1872.

Rupees 7,000 for a screw pile pier at Mangalore which was transferred to the closing of the Goorpoor Gap at Mangalore, and of which Rupees 6,000 are reported to be still available.

5. Provision remains therefore yet to be made for a balance of Rupees 4,360 on account of the protective works for general defence of Cochin and its backwater. Also for Rupees 4,212, in payment of balance of work completed at the Cruz Milagre Gap in May, before last monsoon, under the estimate of Rupees 24,824, sanctioned in G. O., No. 3,055, of 4th December 1871. And a sum of Rupees 2,395 is required to complete the allotment for closing the gap, in addition to the contribution from the Cochin Sircar already credited to that work. Port Funds being exhausted, and the nature and magnitude of the works at Cochin taking them out of the category of works to which Port Funds are applicable, His Excellency the Governor in Council resolves, with a view to meet these deficits, to sanction, in anticipation of the approval of the Government of India, a transfer of Rupees 11,000 from the grant for the Telegraph Office at Madras, which it is not likely will be availed of.

6. Meanwhile the work of closing the gap will be taken in hand as soon after the 1st December as possible, and His Excellency the Governor in Council trusts that Lieutenant-Colonel Farewell and the District Engineer of Malabar will both of them devote as much of their personal attention to the work as shall ensure its being carried out successfully. The lengthening of Groyne L[2], and raising of Groyne B as proposed in Statement D. of the Superintending Engineer's letter must be postponed indefinitely. The subject of paragraph 10 will be brought by the Resident of Cochin to the notice of that Government; and when next at Cochin the opportunity will be taken by Lieutenant-Colonel Farewell to plan and estimate for such protective works as may be required, to carry out which the executive agency at his disposal will be made available on supply of the requisite funds.

(True Extract.)

Colonel, R.E.,
Secretary to Government.

To the Inspecting Engineer.
,, District Engineer, Malabar.
,, Financial Department.
,, Marine do.
,, Controller of Public Works Accounts.
,, Resident of Travancore and Cochin.

Exd. S. T. Austin.

13

His Excellency the Governor in Council resolves, with a view to meet these deficits, to sanction, in anticipation of the approval of the Government of India, a transfer of Rupees 11,000 from the grant for the Telegraph Office at Madras, which it is not likely will be availed of.

No 174

Supg Engineer's Office,
7th Division
Coimbatore 30th Oct 1872

Sir,

The Supg Engineer, 7th Dn
To
The Secretary to Government,
Dn Wks, Madras.

Sir,

Having lately inspected the works at Cochin, Have the honor to report that the works sanctioned in G.O. No 1125, dated 22nd May 1872, have, with the exception noted, been fully carried out to the extent contemplated, and I enclose a statement marked A, copied from the Work Register, showing the amount of saving and excess on each work, with notes of the causes of such &c &c &c. The total saving on sanctioned Estimates amounts to Rs 12,230, of which Rs 10,380 is due to the non-construction of the Cochin Jetty.

Enclosures 8
1 Survey of the Cochin side Dt
1 Do of the Opposite side Do
1 Sounding of the Cochin Lagoon Dt
1 Sketch of Lagoon
2, Dt & 2 on the Opposite side, Do
4 Statements A, B, C & D.

Yours obedt Servt

leaving, as directed by Government, only 1000 built half the length estimated for, and a reduction in the length of Groyne 21 of 96 feet - These Groynes, however, have cost three fifths the Estimate, owing to the change of the beach, since the Estimates were framed, since the last Survey, after deducting the Excess of 81 2287, is 81 9943 -

2 In regards to the Excess on the Embankment on the crest of the beach from Typesen point to the Cruz Milagro Gap, the Range Officer explains that, an Error was made in the original Estimate with reference to the Section and its contents, as also turfing (absolutely necessary) was omitted - The bank as now Constructed, is a good one; the Slopes to all turfed, and the top of the Embankment is much useful as a pathway, for the beach traffic,

this being a sanctioned work, is entered in Statement A, and forms a portion of the Excess therein noted -

3 The work that has been done has, with the exception noted below, answered well, reforming much of the beach as anticipated, and removing all cause of anxiety, in reference to the Security of the land between the Sea and the back water, between Typesen and the Cruz Milagro Gap - The enclosed Survey shews the beach gained, which is shaded in bars -

4 I will now proceed to explain the cause of certain other works, rendered necessary by existing Circumstances herein detailed, having been undertaken as Emergency; which, I respectfully beg may receive the approval and formal Sanction of Government these are entered in Statement B, hereunto forwarded. -

5 In G.O. No 1757, dated 24th July 1872, Government approved of deferring the closing of the Gap till January 1873, and Empowered the steps I proposed to take to secure it from injury during the monsoon; which Government also approved of, and which has cost, as per work Register, the amount given in Item No 1, Statement B-

6 Though the monsoon on the Coast has been a heavy one and the sea boisterous, no change in the dimensions of the Gap has taken place, after the stone and sand bagging had been laid. The greatest depth was reduced to 24 feet at low tide, Summer level at which depth it has continued to remain to date, a Contour Survey No 3 of the Gap as herewith forwarded. The chief points of security during the monsoon were the flanks of the Gap, which required

intermitting attention to prevent undermining and consequent extension of the Gap; a great number of sand bags were expended on this work, as sand bags exposed to wind and water rotted speedily and required to be constantly renewed; these, when wholly submerged, the Range Officer reports are intact even to the present moment, Item 2, Statement B, represents the expenditure incurred

7 Between the Main Groynes G & L, the sea has this year made a deep cut, and about time washed away much of the beach, threatening to outflank Groyne L. It was, therefore, absolutely necessary to pitch the beach with large stones, at the cost noted under 3 in the Statement B- It will be observed the Main Groyne G is placed at such an angle as not to through protect the beach between itself and Groyne L from the force of the South West Rollers. No Estimate

is submitted, for more permanently protecting this point, & the training walls proposed by Mr Robertson will, besides throwing out some, points further North of the point groyne, form a length of protection length - For the same reason, I do not think the Groynes E & E2 need be constructed to a greater length than 126 feet, and Mr R.C.B. their 100 feet -

8 - Between groynes E and E1, vide Sketch marked No 4, the sea also made a decided attack on the beach which, it was hoped, would reform on the completion of Groynes E & E1, but as the construction of the groynes proceeded, such was found not to be the case, to prevent a breach at this point, and to protect the beach from erosion as rapidly as possible, the Gauge Officer pitched and covered it with sand bags, which were, all speedily buried in the sand, and in communication with me subsequently on Energency Groyne E1 had to be constructed - this has been done to a length of 60 feet, and the effect was immediate, the beach reforming as shewn on the Survey - the amount expended on the sand bag revetment and on this groyne is noted in Abstract No 5, Statement B, the amount required for the completion of the groynes to 126 feet in length being entered in Statement C - I attribute the cause of the sea turning in here to the disappearance of the sand bank shewn in Mr O'Shaughnessy's Survey as then existing - like the end of Groyne E1, at this point at low tides, I sounded a depth of 4 or 5 feet, when inspecting the works the other day -

9 - As reported in para 8 of my letter No 145, dated 8th June 1872, printed with G.O. No 757, dated 24th July 1872, a breach occurred to the South of the Cruz Bulazee Gap

at the point marked H on the Survey No 2, and there was formed necessary to raise the crest of the beach with a temporary Sand embankment, as shewn in the Survey, and the breach was closed. this work forms part of the expenditure included in item No 4 in Statement B— It is expected the Coast line at Mallaporam, and from the Cruz Milagre Gap up to the Gap above noted as having occured and been closed, the Sea is evidently encroaching gradually all along this portion of the Coast, and unless the Cochin Government speedily make provision to protect their Coast with Groynes, and raise an embankment on the crest of the beach from the Cruz Milagre Gap to beyond Mallaporam, I deem it very probable that another

another Gap will take place here. Mallaporam itself was in great danger during the monsoon, the Embankment lately constructed by the Cochin Circar, on the backwater, is of no possible use, the water within being already connected with the backwater on the Embankment so outflanked, which I noted before in my report to Government was likely to occur—

11 I will now report on the Groynes to the South of the Harbour, in British territory— These have all been completed to the extent noted in Statement A, and the work have been well and substantially done— The excesses over Estimates are accounted for by the water on the line of the Groynes having previous to their construction, and subsequent to the framing of the Estimates, deepened— The Groynes

groynes do their work and hold the Coast as shewn on the Survey marked No 1, well. It was determined as reported by me in my letter, printed with G.O. No 1757 dated 24th July 1872, to postpone the Construction of Groyne A1, in August however, signs occurred shewing Groyne A was retracting as well as hoped for, and the sea made great inroads along the Coast, to the South of the Groyne, the Range Officer proposed the Construction of Groyne A1; this I resisted, and subsequently it was found that Groyne A had taken, thus its bearing to act as desired, and as it had before done, was accounted for; it was necessary at once to repair this Groyne at the cost noted in item No 6 in Statement B, and immediately this was done, the coast reformed as before, and on my inspection of the beach to beyond the British boundary, I found a great improvement since I saw it in May last. Groyne

19

Groyne B has sunk a good deal, but I do not think it need be touched immediately, but should be attended to before next Summer the cost of raising it is entered in Statement C.—

12 Statement B shews the works for which I respectfully request the sanction of Government, and allotment of funds.—

Statement C work further recommended for sanction and allotment of funds.—

Statement D. shews the amount of Estimates sanctioned, funds allotted, and balances requiring to be allotted.—

13. In November or December the work of closing the Cruz Milagre Cape, in the manner sanctioned by Government, might I think be proceeded with.— the unallotted balance of Estimate on this work is Rs 2,395, vide Statement D., which together

together with the amounts expended over allotment as per Statement D. now require to be allotted, to meet portion of which I propose the transfer of Rs 7000 for a Screw Pile Jetty at Trincomalee, Budget Item No 101, and Rs 6000, the balance of the amount allotted for closing the Coompoy Gap at Trincomalee, and the balance Head Covered will be pleased to allot from funds at their disposal.

Have the honor to be,
Sir,
Your most obedient Servt

W. Lumsden Lt Col R.E.
Superintending Officer

P. W. 1872 Department.
Copy of Letter for Desp.
From No 5320 A.
The Supg Engineer
4th Division
(3)

To

The Secretary to Govt
P.W. Department
Madras

No 174
Dated 30th October 1872.
Rec'd 1st Nov.

Enclosures 8.

86. Note and Sketch Supg Engr for Ex Common Schedules 21-6-73

Reports on the Harbour works at Cochin

No 3016-19 Dec 72.

No 418

Ex 27 Nov 72

Cir 6
Wks No 3016 P.W.D.

Proceedings of the Madras Govt.

Read the following

From.

The Supg Engineer
4th Div

(No. E. dd 174 of 30th Oct 1872)

In their Orders

No 1125 of 2d May, and

No 1757 of 24th July, the

Government sanctioned

the following Works for

the protection of the beach

at Cochin proper, viz. on

the South side of the

Harbour mouth, viz.

1. A new Groyne A to

the Southward of all

previous

previous Groynes estimated
at Rupees 2024.

2 new Groynes Nos 2
Groynes D & E, the former
immediately north of the
Light House and the latter
about 300 yards further North-
To cost Rupees 2069-

3- A new Groyne F, close
to the harbour mouth- Rs 1529.

It is now reported
that Groyne A has not
been required, as anticipated
by Government but that
Groyne A, the most southerly
existing groyne, having
sunk and spread consider-
ably, had to be raised
and strengthened instead,
at a cost of Rupees 1413. 6. 3-

Groynes

Groynes D & E were lengthen-
ed as intended, at a
cost of Rupees 1608. 4. 3-
and Groyne F was built
as proposed, at a cost of
Rupees 2018. 9. 3. These
works, which have cost
Rs 1182 less than the
anticipated cost, have
done their work and
hold the Coast well, as
shewn in the Survey. And
the only further outlay
anticipated is of Rs 405
for raising Groyne B im-
mediately to the South
of the Light House- an
outlay which may be
deferred till next Official year.

Of the works
Sanctioned

sanctioned for execution on the Upper or Northern side, the River Groynes H, & J, and the Sea Groyne L were improved at a cost Rs. 11— within the aggregate of their estimates, which was Rs. 2261 — The new Sea Groynes L1 between G and L and M, N, O, P, to the North of L, have been carried both to the lengths found to be actually necessary at an expenditure of Rs. 6813 within the estimate of their cost as originally planned. The construction of an embankment along the crest of the beach from Upper Point to the Cruz Milagre

Milagre Gaje has been carried out in a much more substantial manner and to a much greater length than could have been intended when its estimate of Rupees 231 only was submitted; its cost having amounted to no less than Rupees 1,700— But for this a substantial and useful pathway, for beach traffic, and access to the works along a frontage of nearly a mile and a half, has been provided, and the extra cost has been more than covered by

by dispensing with brush-
wood groynes on the in-
ner or backwated side
of the narrow beach —
(Rupees 900) and by a
saving of Rs 2015 out of
Rs 2767 allowed for Sundries.
So far a net saving
of Rupees 8530 is shewn
on the execution of the sanc-
tioned works; but this is
counterbalanced by addi-
tional work to the following
extent viz.

1. Stone pitching between
Groynes G and L[1] Rs 664
2 Sand Bag Revet-
-ment between L and L[1]
and between Cruz Mila-
-gree Gap & Mullapooram &c. Rs 1363.2.-

3 Groyne L[2] intermediat
between L and L[1] Rs 238.6.7
4. Lining bottom of
Cruz Milagree Gap
with Stones & Sand bags. " 372.4.-
5. Protecting Flank
of — D. ——— " 1548.7.8
The total cost of
all which was Rs 6536.5.0

His Excellency
the Governor in Council
is satisfied that Lieut.
Colonel Farewell has
acted with discretion
and judgment in availi-
-ing himself of the sum
sanctioned in the orders
of 2d May and 24th July
which required the
expenditure to be watched
with care, but recognized

the fact that such works
are tentative, and admit
of much modification.
He sanctions therefore
the various departures
from and additions to
the original estimates — which estimates amounted to Rs 30,360,
amounting to Rupees 30,360.
and directs that the sum
of Rupees 10,360 in excess
of the former allotment
of Rupees 20,000 be pro-
-vided in part from the
allotment of Rs 7,000 for
a screw Pile Pier at
Mangalore which was
transferred to the closing
of the Goorpur Gaps at
Mangalore and of which
Rupees 6,000 are reported
to

to be still available.—
Provision remains
therefore yet to be made
for a balance of Rs 4,360
on account of the protec-
-tive works for general
defence of Cochin and
its backwater - Also for
Rupees 4,212, in pay-
-ment of balance of
Work completed at the
Cruz Milagre Gap in
May, before last mon-
-soon, under the Esti-
-mate of Rupees 24,824
sanctioned in G.O. No
3055 of 4th December
1871 - And a sum of
Rupees 2,395 is required
to

to complete the allotment for closing the Gap, in addition to the contribution from the Cochin Sirkar already credited to that work. Both Funds being exhausted, and the nature and magnitude of the works at Cochin beyond their capability to meet the propriety of allotting Rupees 11,000 from Provincial Funds to cover their deficits will be taken into consideration in the Financial Department.

Meanwhile the work of closing the Gap will be taken in hand as soon after the 1st December as possible. and His Excellency the Governor in Council trusts that Lieutt Colonel Farewell and the District Engineer of Malabar will both of them devote as much of their personal attention to the work as shall ensure its being carried out successfully. The existing Public Works Establishment, together with the Miscellaneous Establishment provided for by Provincial Funds will provide for the original outlay estimated at Rs 20,000. It would be right to provide in that manner for the breach, reference to which in para. 10 of the letter under reply is postponed indefinitely. The subject of para. 10 will be

Better omit.
I do not think the Harbour works or improvements are included in Provincial estimates and if I am correct I do not think the Government - or the Engineers - should be saddled with the Harbours - Command Engineer. L.D.P.

X It seems that we have better works of training "Miscellaneous" & "Repairs" & "Contingencies" provided for by Provincial funds. Would it not be right to provide for the original outlay estimated at Rs 20,000. by Provincial funds & Loan. Groyne B as proposed in Statement D of the Superintending Engineer's letter which is postponed indefinitely. The subject of para. 10 will be

X Better omit also. LDP

will be brought by the
Presidents of Cochin
to the notice of Hats
Government; and
when next at Cochin
the opportunity will
be taken by Lieutt
Colonel Farewell to
draw and estimate for
such protective works
as may be required
to carry out which
the Executive Agency at
his disposal will be
made available on sup-
ply of the requisite funds.

GWW

To Medl Supt for Port & Cons
" Asst Engr Malabar
" Fin Dept
" Marine Dept
" Controller
" President of Travancore

Dept 23/12/

C/No. 5320 A.

Govt. of [1872] Madras.

PUBLIC WORKS.

To The Inspecting Engineer

Dated

Recd. Encl.

G. O. 19th Decr 1872, No 3016.

Nos. 4104-4114

Protective Works at Cochin.

Passing orders on letter from the Inspr of the 7th Dec. reporting the completion of ~~the~~ certain works for the protection of the beach at Cochin.