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MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

G.O. No. <u>1806</u>	Press Mis.
<u>354-356</u>	
Dated <u>15. 6</u>	<u>18 67.</u>

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
15th June 1867.*

Read the following papers:—

No. 354. From the Acting Superintending Engineer, 1st Division, to the Secretary to Government, Public Works Department, dated Camp, Dowlaishweram, 25th May 1867, No. 57.

2 Sections.

1 Survey.

1 Mr. Sage's Report.

* No. 187, dated 22nd May 1867.

† Despatched by banghy.

1. With reference to Government Order No. 1,378, dated 7th May 1867, I have the honour to forward a copy of a Report* by Mr. Sage, Executive Engineer, on the Cocanada Harbour with plans,† &c., as per margin.

2. With regard to paragraph 1 of Mr. Sage's letter, I have to observe that Colonel Moberly appears to have considered that the orders of Government, relative to dredging at Cocanada, were more prohibitory than I believe they were intended to be; to keep the bar open the dredge must be employed, and to maintain a depth of four feet at dead low water the annual cost would be about Rupees 4,500. I consider it absolutely necessary that this annual charge should be incurred.

3. Plan No. 2, giving sections taken at every 100 yards from the bridge to termination of the groynes, shows the silting that has occurred between October 1865 and March 1867, is not very considerable in the upper part, where the groynes are either incomplete or 300 feet apart; but that the section is very different from what we wish it to be as represented by the yellow line, also that as we descend to where the groynes are completed, and the distance between them narrowed, the actual and desired sections more nearly correspond. We may therefore infer that dredging a channel out of proportion for the tidal ebb and flow is ineffectual, the artificial depth of water gained at very considerable cost will exist only as long as the dredge is kept at work. We learn also that were the groynes complete and about 200 feet apart, a channel of favourable section would, by the action of the tidal water, be permanently maintained.

4. The new bridge is 300 feet between abutments, giving with an average depth of 5 feet at low water $[300 \times 5] - [1 \times 5 \times 5] = 1,475$ square-feet, the old bridge, as per annexed section, gave 694 feet; at high water there would be a still greater difference in the same direction; a dangerous scour was caused by the insufficient waterway of the old bridge, but that allowed in the iron bridge is evidently far more than sufficient. We propose, therefore, to reduce it one-sixth by building a wharf, and landing the river bank road under the southern span; the road will be a great convenience, as a rather high embankment leads to the bridge on the Jugganathpuram side; the landing ghaut is much needed, some twenty transit boats daily ply between Cocanada and other places—there is no wharf for their accommodation, nothing but the soft mud bank.

5. From the end of this ghaut we propose to commence the southern revetment, and carry it on as shown in the plan, the greatest width between the groynes would thus be 250 feet, the least 190 feet.

6. I am not inclined to recommend an extension of the groynes seawards for the present, but most undoubtedly they should be raised a little in parts to prevent the high tides going over them.

*Proceedings of the Madras Government, Public Works Department,
15th June 1867.*

7. The total estimated cost of these improvements would be 3,000 Rupees for ghaut, and 35,000 for groynes and revetments, the former would properly be charged to Imperial Funds, as the work is for the accommodation of boats that pay an annual license fee; for the latter, funds might be provided out of the Port Funds, there is now immediately available a balance of Rupees 29,504-4-7.

8. A great portion of the expenditure would be recovered by sale of reclaimed land, say, $2,000 \times 20 = 40,000$ yards, at 8 Annas a yard = Rupees 20,000.

From the Officer in charge of No. I. or Eastern Delta Range, Godavery District, to the Superintending Engineer, 1st Division, dated Dowlaishweram, 22nd May 1867, No. 187.

I. I have the honour to acknowledge receipt of your No. 182 of 13th instant, forwarding copy of G. O. No. 1,378 of 7th instant, and in compliance with your request to make the following report on the harbour of Cocanada:—

1st.—On receipt of your letter I went to Cocanada, and sounded over the bar, and find that for a distance of about forty yards (shown on accompanying plan) or on the bar proper, there is at low water only from one and a half to three feet of water; this is owing to dredge not having been worked for three months at commencement of year, as it ought to have been; owing to instructions received from Colonel Moberly in his No. 1,362, dated 14th January 1867; it is now dangerous to work dredge outside owing to squally weather.

2nd.—Regarding the shoaling of the river, the statement in the letter from Cocanada merchants is exaggerated. I have been in this Range since November 1864, and during that time boats have never been able to load at all times of tide; there is however no doubt that sides of river are silting up, but not very rapidly.

2. Regarding the silting up of the river, in my opinion it arises from our having tried to do too much, viz., to keep open and deepen a river 300 feet wide, without sufficient storage for water at upper end to scour it effectually; I would therefore propose as follows:—

1st.—The south bay of new bridge is quite blinded by a projecting point of land, and instead of removing this, I would suggest a masonry retaining wall two and a half feet above high water being built round pier, and form the space between it and abutment into a wharf for passenger boats to load at, which is much wanted; at the extreme end of groynes they are only 190 feet apart, and 800 yards further in they are 210 feet apart; as the groyne or pitching on southside of river is only partially done, I propose to join the abovementioned pier wall to this point, where river is 210 feet broad, thus tapering river from 250 at bridge to 190 at mouth, and concentrating the scour; this would also permit the small quantity of tidal water stored at each tide to act better, as it would have to act on a smaller space. The dredge should also be put to work to obtain earth to back up the pitching, and this backing would reclaim about seven acres of land, say 33,000 square-yards, which would sell, I should think (judging by other land sold) for about 1 Rupee per square yard, and would nearly, if not, quite cover cost of the operation. I enclose a rough estimate for the work, amounting to Rupees 35,280.

2nd.—Another reason for the bar being so bad, is that the outer 800 yards of south groyne are under water one foot about at H. W. springs, and thus the first foot or one-fifth of the scour is not concentrated on bar, but flows off over whole of this 800 yards, and so reduces the head at upper end of harbour very rapidly without any good effect, rather the reverse; this I also propose to raise.

3. I think the outer ends of both groynes might be slightly lengthened and curved, so as to make ebb tide scour clear across both groynes and harbour mouth; but I do not think it need be done immediately; I have not, therefore, included it in estimate, but the additional cost would be about Rupees 5,000 more.

*Proceedings of the Madras Government, Public Works Department,
15th June 1867.*

Rough estimate for improving Cocanada River.

	RS.	A.	P.
Pitching $1,750 \times 2 \times 2\frac{1}{2} = 9,33\frac{1}{2}$ cubic yards rough stone Rupees 2 =	18,666	10	8
Removing old pitching and re-building in front $250 \times 2 \times 2\frac{1}{2}$ = $1,33\frac{1}{2}$ cubic yards rough stone at Rupee 1	1,333	5	4
Dredging $2,000 \times 16 \times 1\frac{1}{2} = 48,000$ at 4 Annas	12,000	0	0
Re-packing and raising outer end of south groyne $800 \times 2 \times 1 = 1,600$ yards at Rupee 1	1,600	0	0
	33,600	0	0
Contingencies	1,680	0	0
	35,280	0	0

No. 355. From the Acting Superintending Engineer, 1st Division, to the Secretary to Government, Department Public Works, dated Camp, Dowlaishweram, 7th June 1867, No. 68.

1. I have the honour to submit, herewith, a copy of Statement showing the expenditure on the Harbour Dredges, &c., for the half-year ending 31st March 1867, and to inform that this Statement was not forwarded in April last through inadvertency.

2. The Sections, &c., have been already submitted with my letter No. 57, dated 25th May 1867.

No. 356. ORDER THEREON, 15th June 1867, No. 1,806.

CIVIL WORKS, No. 49.

1. With the first of these letters the Acting Superintending Engineer of the 1st Division submits in compliance with the Orders of the 7th May 1867, a report from the Executive Engineer, of the results of the partial cessation of dredging in the river at Cocanada.

2. Mr. Sage states that, though boats have never within his recollection been able to load at all times of tide at the margin of the river, he entertains no doubt that the side banks of silt are gradually increasing, but he does not attribute this to the cessation of dredging, which could have only a temporary effect, but to an endeavour having been made to maintain a channel of far greater width than the volume of water discharged by the river had power to keep open. He proposes to remedy this defect by narrowing the waterway by the construction of a wharf under the southern bay of the new bridge, and by connecting that wharf with the bank by a revetment, enclosing therewith a space of ground which he calculates may be reclaimed and sold for a sum of money nearly equal to the estimated cost* of the contemplated improvements. Mr. Sage further shows that, owing to the imperfection of the southern training

Pitching	20,000
Dredging and filling in	12,000
Total ...	*32,000

wall, or groyne, near the mouth of the river, the depth of water on the bar has diminished, and he recommends that the wall should be raised wherever too low for a distance of 800 yards, leaving the question of extending both it and the northern wall into deeper water for after consideration.

Proceedings of the Madras Government, Public Works Department.
15th June 1867.

3. The Government are of opinion that the works proposed by Mr. Sage and approved of by the Acting Superintending Engineer are likely to be very beneficial, and will probably greatly aid in maintaining, if not in increasing the usefulness of the port, and the papers will accordingly be referred to the Marine Department with a view to the question of the provision of the necessary funds* being considered in that department.

Pitching	...	...	...	rs.	20,000
Dredging and filling in	...	...	...	12,000	
Raising south groyne	...	...	...	1,600	
Contingencies	...	...	...	1,680	
Total	...	...	...	*35,280	

(True Extract.)

(Signed) CHARLES A. ORR, Colonel, R. E.,
Secretary to Government.

To the Acting Superintending Engineer, 1st Division.
.. Collector of the Godavery District.
.. Marine Department, with G. O. No. 1,378, dated 7th May 1867.

Exd. S. T. Augustin.

187.
Dowlaismerum,
Coastal Engineer's Office,
22nd May 1867.
From The Officer in Charge
To The Superintending Engineer,
1st Division.
Dowlaismerum.

Have the honor to acknowledge receipt of yours No. 192 of 13th Instant, forwarding copy of G. O. No. 1378 of 7th Instant, & in compliance with your request to make the following report on the Harbours of Coamandor.

I. On receipt of your letter, I went to Coamandor & sounded over the bar, & find that for a distance of about 40 yards (shown on accompanying plan) or ~~is~~ the bar proper, there is at low water only from 1 1/2 to 3 ft. of water, this is owing to Dredge not having been worked for 3 months at commencement of year, as it ought to have been, owing to instructions received from Colonel Moberly in his No. 1362 dated 14th January 1867. it is now dangerous to work
Dredge

Dredge, & other, owing to squally weather.
2. Regarding the shoaling of the river,
the statement in the letter from Cass
- made by merchants is exaggerated;

I have been in this Range since Novem-
ber 1864 and during that time, I have
never been able to land at all
times of tide, there is however no
doubt that scales of river are sitting
up but not rising rapidly.

3. Regarding the silting up of the river,
in my opinion it arises from our having
tried to do too much, viz. to keep open a deep
a river 300 feet wide, without sufficient
storage for water at upper end to scour it
effectually; I would therefore propose as
follows:—

1. The south bay of new bridge
is quite blinded by a projecting
point of land & instead of re-
moving this, I would suggest a
masonry retaining wall $2\frac{1}{2}$ feet
above high water being built to run
down & form the space between it
& abutment into a wharf for passengers.

(Post)

Boats to land at which is much
wondered at the extreme end of grove
they are only 190 ft. a part & 800 yds.
further in they are 210 ft. a part;
as the groynes or pitching on south side
of River is only partially done, I
propose to join the above mentioned
pier wall to this point where river
is 210 feet broad, thus tapering
river from 250 at bridge to 190 at
mouth, and concentrating the scour,
this would also permit the small
quantity of tidal water stored each
tide to act better, as it would have
to act on a smaller space. The
Dredge should also be put to work
to obtain earth to back up the pitching
and this backing would reclaim
about 7 acres of land say 33000
sq. yds., which would sell, I should
think judging by other land sold,
for about 10 pence per sq. yd., and
would nearly if not quite cover
cost of the operation. I enclose a
rough

Another reason for the bar be-
-ing so bad, is that the outer 800 yds.
of South passage are under water
fast about at H. W. Springs &
thus the first part or one fifth
of the scour is not concentrated
on bar, but flows off over whole
of this 800 yds., & so reduces the head
at upper end of harbour very re-
-sulting without any good effect,
rather the reverse, this also pro-
-pore to raise -

3. I think the outer ends of both groynes might be slightly lengthened & end curved so as to make the water scour clear across both groynes and harbour mouth, but I do not think it need be done immediately. I have not therefore included it in Estimate, but the additional cost would be about Rs. 5000 more.

Boyd

$$1750 \times 2 \times 2 \frac{2}{3} = 9333 \frac{1}{3} \text{ rough stone. } 2 =$$

$$= 18666 - 10 - 8.$$

Removing old hitching 250 x 2 x 2 $\frac{2}{3}$ = 1666 $\frac{2}{3}$
Rebuilding in front concrete & stone =

$$= 12333 - 5 - 4$$

Dredging $2000 \times 16 \times 1\frac{1}{2} = 48000 \text{ cu. yds.}$

22000 - 11 - 11 Repacking & raising outer end
of South groynes.

$$= 1600 - " - " \quad 800 \times 2 \times 1 = 1600 \text{ sq. ft. at } 10\% =$$

33600 — " — "

1680 - - - Contingencies

35280-1-1-1 *W. J. J. J.*

Have you you
Signed a Page
Executive Engineer

Enc Copy

L. B. Mumford. C. H. R. E.

Agilaff. Eugenia. ¹⁰⁰ 120.

Enclosed in a letter
 from the Capt. is a
 package containing
 a copy of the
 report on the
 operations of
 the dredge
 at 25 May 1867.
 J. H. 20/5/67

No 57
 Superintendent Engineer's Office,
 U.S. Army, Fort Sumner,
 25th May 1867.
 From
 Captain J. H. 20/5/67
 U.S. Army, Fort Sumner,
 To
 Colonel C. J. Herr, U.S. Army,
 Fort Sumner, Texas, U.S. D.

Sir,
 With reference to Government Order
 No 378, dated 7th May 1867, I have the honor
 to forward a copy of a Report by Mr. Sage,
 Assistant Engineer, on the "Cacumbe Bar Canal"
 with plans &c. as per margin.
 2. With request to forward a copy of Mr. Sage's letter
 I have to observe that Colonel C. J. Herr appears
 to have considered that the orders of Govern-
 -ment relative to dredging at Cacumbe were
 more prohibitory than I believe they were in-
 -tended to be; to keep the Bar open the Dredge
 must be employed & to maintain a depth of
 4 feet at ebb low water the annual cost
 would be about \$4,500. Consider it ab-
 -solutely necessary that this annual charge
 should be incurred.
 3. Plan No 2 giving sections taken at ebb

100 yards from the Bridge to termination
of the groynes shown on the sitting that
has occurred between October 1865 & March 1867
is not very considerable in the upper part
where the groynes are either incomplete or 300
feet apart ^{but that} the section is very different
from what we wish it to be as presented
by the yellow line also that as we descend
to where the groynes are completed & the
distance between them narrowed the actual
& desired sections more nearly correspond;
We may therefore infer that dredging a chan-
nel out of proportion for the tidal ebb
& flow is inefficient & the artificial depth
of water gained at very considerable cost
will exist only as long as the dredge is
kept at work. we learn also that were
the groynes complete and about 200 feet
apart a channel of favourable section
would by the action of the tidal water be
permanently maintained.

4. The new Bridge is 300 feet between
abutments giving with an average depth
of 5 feet at low water $[300 \times 6] - [1 \times 5 \times 6] =$
1475 sq. ft. the old Bridge as per annexed
section

section gave 694 sq. ft. at high water there
would be a still greater difference in the
same direction, a dangerous & slow one
caused by the insufficient waterway of
the old Bridge but that allowed in the
Iron Bridge is evidently far more than
sufficient; we propose therefore to re-
duce it one sixth by building a Wharf
and leading the River bank road under
the Southern span, the road will be a great
convenience as a rather high embankment
leads to the Bridge on the jaggernath side
the landing ghats is much needed
some twenty transit boats daily ply be-
tween Cocanada & other places. there is no
wharf for their accommodations nothing but
the soft mud bank.

5. From the end of this ghat, we propose
to commence the Southern rivetment and
carry it on as shown in the plan the great-
est width between the groynes would there-
be 250 ft. the least 190 ft.

6. I am not inclined to recommend an
extension of the groynes seawards for the
present but most undoubtedly they should
be

be raised a little in part to prevent
the high tides going over them.

7. The total estimated cost of these im-
-provements would be \$5,000 for gates &
\$35,000 for groynes & revetments. The former
would properly be charged to Imperial
Funds, as the work is for the accommoda-
-tion of boats that pay an annual license
fee; for the latter funds might be pro-
-vided out of the Port Funds. There is
now immediately available a balance
of Rs 39,504-4-7.

8. A great portion of the expenditure
would be recovered by sale of reclaimed
land, say, $2000 \times 20 = 40,000$, at 8 annas
a yard = Rs 20,000.

Done yes yes

J. Mackay. *Asst. Secy.*

Asst. Secy. Engineer. J. H. P.

15
Office, 17th Dec.
1880

100 of 100 for June
#2105

From
The Asst. Surg. Gen.
100 of 100

To The Secy to Govt
D. W.

Date 25 May 1867

Asst. 37
The Asst. Surg. Gen.

73 Sections referred to the Asst. Surg. Gen.
under 37444/67-31/10/67
Inwards Copy of a
Report and Plans &c
from the Asst. Surg. Gen.
No 17444/67 in
the Asst. Surg. Gen.
Records.

#354

c. 100 of 100 for June 11/67

c. 100 of 100 for June 15/67

#68

Supg. Engineer's Office, 1st Div.
Camp Doonbegun, 1st Div.
7th June 1867.

From
Captain J. Beckley R.E.

To
Colonel C. J. Orr R.E.

Secretary to Govt. R.E.

Madam.

I have the honor to submit herewith
a copy of the statement showing the expenditure
on the Harbour Dredges per for the
half year ending 31st March 1867, and to
inform that this statement was not for-
warded in April last through inadi-
vertency.

2. The sections per have been already
submitted with my letter #57 dated
25th May 1867.

I have per per

J. Beckley (Capt. R.E.)

Asst. Surg. Engineer, 1st Div.

Public Works Department.

242/1806

PROCEEDINGS of the MADRAS GOVERNMENT.

Under date the 15th June 1867

Read the following

From the Acting Superintg. Engr. 1st Div. D. No. 68 - 11th 7 June 1867
(Here enter No. 57 dated 25 May 1867)

With these letters the
Actg. Superintending Engineer
of the 1st Division submits
in compliance with the
orders of the 7th May/67
a report from the
Executive Engineer, of the
results of the partial
operation of dredging in the
river at Cocanada -

Mr. Sags states
that, though boats have
never within his re-
collection been able
to load at all times
of tide at the margin
of the river, he entertains
no doubt that the side

WOD

242/1806-15 June 1867
From the Acting Superintg. Engr. 1st Div. D. No. 68 - 11th 7 June 1867

The Copy being forwarded
to the Engr. 1st Div. D. No. 68 - 11th 7 June 1867

To the Engr. 1st Div. D. No. 68 - 11th 7 June 1867

Engr. 1st Div. D. No. 68 - 11th 7 June 1867
Engr. 1st Div. D. No. 68 - 11th 7 June 1867

Engr. 1st Div. D. No. 68 - 11th 7 June 1867
Engr. 1st Div. D. No. 68 - 11th 7 June 1867

242/1806-15 June 1867

Banks of silt are gradually increasing, but he does not attribute this to the operation of dredging, which could have only a temporary effect, but to an endeavour having been made to maintain a channel of far greater width than the volume of water discharged by the river had power to keep open - He proposes to remedy this defect by narrowing the waterway, by constructing a Wharf under the Southern bay of the new bridge, and connecting that wharf with the bank by a revetment, enclosing therewith a space of ground, which he calculates may be reclaimed and sold for a sum of money nearly equal to the

Pitching Pipes 20,000
Dredging & filling in 12,000
Total Rs 32,000

Estimated cost of the contemplated improvements - Mr Page further shows that, owing to imperfections of the Southern training wall, or grogue, near the mouth of the river, the depth of water on the bar has diminished, and he recommends that the wall should be raised wherever low for a distance of 500 yards, leaving the question of extending it and the northern wall into deeper water for after consideration.

The Government are of opinion that the works proposed by Mr Page and approved of by the Ad Superintending Engineer are likely to be very beneficial, and will probably greatly

Pub. Works 1867 Deposits

Pro: of Govt for June

1806

Pro: of the Board as Govt

Of 15th June 1867

Referring to the Marine
Department certain papers.
Estimates &c for works connected
with the Canadian Harbour
with a view to the necessary
funds being provided.

No 354 @ 2356