Archives I-10,006—16-8 77.

(1) Number of pages 36

(2) Date of repair 2-1-82

(3) Initials of the Referencer

# TAMIL NADU ARCHIVES

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## GOVERNMENT OF TAMIL NADU

P.W **DEPARTMENT**

| | | |
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| **G.O. No.**<br>**B.P. No.** | 1850 W | **Press.**<br>**Mis.** |
| **Dated** | 14.7.1879 | ~~**197**~~. |

***Not to be folded or roughly handled***

1850
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## GOVERNMENT OF MADRAS.

## PUBLIC WORKS DEPARTMENT.

---

14th July 1879, No. 1,850 W.

**Buildings and Roads.**
**Civil Works.**

Read the following paper:—

No. 85. From F. N. THOROWGOOD, Esq., M.I.C.E., Superintendent of the Madras Harbour Works, to the Secretary to Government, Public Works Department, Buildings and Roads, dated Madras, 2nd June 1879, No. 13 W.

I HAVE the honor to submit the following report of progress on these works during the past month of May.

2. NORTH PIER SUPERSTRUCTURE.—The weather during the month has been very unfavourable for work and there were only fifteen days on which diving operations could be carried on. Up to the 19th no work could be done under water owing to want of diving dresses; but, as the dresses which left London in the *Duke of Argyll*, 22nd March, arrived on the 18th from Calcutta, no delay has occurred since that date except from bad weather.

3. On the 26th the full force of divers resumed work after an interval of nine weeks, and by the 31st there were 56 blocks set, advancing the work by a length of $33\frac{1}{4}$ feet. The total length of block work is now $1,559\frac{3}{4}$ feet from the point B.

4. From the 20th to the 24th the work was tried by a rather heavy sea breaking over it, first from the north, and afterwards from the south, side. The outer end of the pier settled down evenly and the joints closed up as usual, but beyond the loss of a few sleepers no damage was sustained. The sea on the evening of the 20th May was very heavy for a short time, and most of the vessels in the roadstead put out to sea in consequence of the threatening appearance of the weather.

5. NORTH PIER RUBBLE BASE.—The absence of the two steamers, together with rough weather, has interfered greatly with the deposit of rubble base; but, as I have reported previously, there is no fear of delay on this account. During May 5,216 tons of base were thrown into the sea from cargo boats and from the Titan crane.

6. BLOCK-MAKING.—The making of blocks has not been carried on throughout the whole of the month owing to want of English cement. General Morgan's cement has been used with more satisfactory results than formerly, but much remains to be desired yet. A total quantity of 400 blocks were made in May; of these 322 were made by machinery at Royapooram, and 78 by hand-labor at the South Pier. There is a good stock of blocks on hand, and cement arrives steadily from England rendering me independent of the uncertain quality of General Morgan's. The last supply from his factory, however, has proved perfectly satisfactory.

7. QUARRIES.—The new quarries at Umbathoor are being worked to a large extent and are yielding a good supply of hard laterite. Much of this is being collected and stacked by the railway line so as to be ready for the return of the Hopper Barges from Cocanada. During May never more than two laterite trains were run in one day, and the total quantity brought from Umbathoor was only 5,714 tons.

8. From the South Indian Railway quarries the supply was kept up as usual during favourable weather, and a total quantity of 10,698 tons was brought by this

line. The gross amount of stone brought to Madras for the works during May was 16,412 tons.

9. SOUTH PIER SUPERSTRUCTURE.—Work was carried on by divers on fifteen days of the month of May, and during that time 128 blocks were successfully set, advancing the pier by a length of 75 lineal feet, and making the total length of block-work on 31st May, 1,298½ feet from the point E.

10. The rough weather and heavy seas between the 19th and 23rd did some damage to the block-work at a distance of 680 feet from the point E; from this distance to 780 feet out, a length of 100 feet, the ground swell has acted on the sand which gave so much trouble in the foundations last year, and consequently the north row of blocks settled down bodily, the centre joint opening at the same time. The damage was precisely similar to that which occurred to the North Pier in November 1878, only the centre joint at the South Pier did not open more than 1 foot 6 inches, while at the North Pier in November it opened 2 feet 9 inches.

11. The sea which caused this damage was not very heavy. I estimated the greatest wave at 10 feet from trough to crest, and the velocity horizontally was not at all high. It was only to be expected that settlement would take place where it did, and having got down to a proper foundation it is improbable that the blocks will move any further.

12. Many of the top blocks crushed and broke up in an unsatisfactory way, so that for one day after the settlement the work had a very dilapidated appearance for a length of about 30 feet. On referring back I found that the blocks which had broken were made from a cargo of cement by Gibbs and Co. from the Thames, and that some part of the cargo was not perfectly satisfactory at the time of using, although it had passed the required tests at home. This is very easily explained by the fact that some vessels' cargoes were much damaged by water in landing, but it was not possible to detect all the damage until the casks of cement were opened, and as cement was coming in very quickly at the time of receiving Gibbs and Co.'s consignments, some casks were passed into store as good which had sustained slight damage.

13. No damage has ever yet been done to either pier where the foundations are of the proper depth of four courses of blocks, and in no case where the two and three course work has settled down has any subsequent wave action increased the settlement in any serious degree. But for some unexplained reason this recent slight settlement in the South Pier seems to have alarmed the public more than either of the previous and more serious mishaps at the North Pier in 1877 and 1878.

14. SOUTH PIER RUBBLE BASE.—Cargo boats have been at work depositing rubble base as usual, and from the end of the block-work stone has been thrown in to level up the beds as required. The weather has, however, interfered with the work, and only 4,700 tons of stone were so disposed of.

15. PROTECTIVE WORKS NORTH OF HARBOUR.—The accompanying plan shows the coast for a great distance north of the Harbour, and the contour line of high water is shown in *blue* for May 1879. The most recent groyne thrown out during May is shown in *red* and is marked "New Groyne." It will be observed that the sea continues to encroach northward as predicted by Mr. Parkes in his letter to Government on the subject, dated 25th February 1879. It may be desirable to throw out one more groyne to the north, but its necessity or otherwise will be more apparent in a few weeks' time.

16. The revetment along the shore by Mr. Coleman's house has continually to be added to, but it becomes more easy to keep the protective work well in hand now than formerly. For constructing the groyne to the north and for keeping up the revetments, 499 tons of laterite were used in May, making the quantity used for these purposes since May 1878 amount to 13,442 tons.

17. INTERCEPTING SEWER ALONG BEACH.—The intercepting drain from the Fort pumping station to Royapooram is progressing rapidly. Its section is an 18 inch brick barrel drain set in a bed of concrete. On 31st May there were 1,200 lineal feet of this work completed and a greater length half completed. The drain is shown in a red line on the plan accompanying this.

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18. I have not yet touched the portion between the North and South Piers, as I have already stated to Government (No. 11 W of 24th May) that I think the diversion of the storm water as well as of the sewage is most desirable. All the work hitherto done to the sewer will be equally applicable to either scheme.

19. The groyne to the south of the pumping station is in construction and will be completed in a short time. It is shown in red color on the plan.

20. STORES RECEIVED ON WORKS.—During the month of May the steam vessels *Ava*, *Deccan*, *City of Cambridge* and *Duke of Lancaster* arrived with a total of 1,809 casks of Portland cement for the works. The Steamer *Africa* brought diving gear from Calcutta, and the *Madura* and *Goa* sleepers from False Point.

21. As ordered by G.O., No. 1,440 W, of 23rd May, I will submit a further report on the delay in receiving the *Duke of Argyll's* case of diving gear. At present I await replies to my inquiries of the Marine Office.

22. EXPENDITURE.—The total expenditure to the end of May is approximately Rupees 27,39,754.

23. PLANS, SECTIONS AND SURVEYS.—Accompanying this report is one plan to the scale of 200 feet to 1 inch. It shows the coast for a greater extent north and south than is yet plotted on the scale of 500 feet to 1 inch. The two elevations show the length of block-work built in May and the state of the rubble base in advance.

24. Between the 12th and the 15th Mr. Beardmore and I repeated the survey of the south portion of the Harbour out to 7 fathoms. By means of this survey we shall be able to detect any change in the bottom during the south-west monsoon.

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No. 85-A. Endorsement of the Officiating Chief Secretary to Government, Marine Department, dated Ootacamund, 24th June 1879, No. 1,289.

*Proceedings of the Madras Harbour Works Committee, dated 17th June* 1879.

Captain J. H. TAYLOR, R.N.R.
R. C. WALKER, Esq.
Major J. PENNYCUICK.
Honorable P. MACFADYAN.
F. N. THOROWGOOD, Esq.

Read letter 2nd June, *Madras Mail*, signed "Observer," on the subject of damage sustained by South Pier during cyclone in May.

Resolved, that, as the Committee understand that this letter has already attracted the notice of Government they consider it desirable to record their opinion formed after personal examination and after full discussion with the Superintendent, that the damage done is of a trifling description and not of a nature to cause any anxiety as to the future prospects of the work.

Read Chief Engineer's Memorandum, dated 26th May 1879, No. 2,126, and Mr. Thorowgood's reply thereto of the 14th June 1879, on the subject of the proposed intercepting sewer.

Resolved that the Committee quite agree with what Mr. Thorowgood has written, and express a hope that the enlargement of the sewer as recommended by him will be sanctioned.

To Acting Chief Secretary to Government, Marine Department.

TRANSFERRED to the Public Works Department.

(Signed) C. G. MASTER,
Offg. Chief Secy.

No. 86. ORDER THEREON, 14th July 1879, No. 1,850 W.

RECORDED.

2. Separate orders will be passed in regard to the intercepting sewer.

3. The Secretary to the Committee will address future communications to the Secretary in the Public Works Department.

(True Extract.)

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

To the Superintendent, Madras Harbour Works.
" Secretary, Harbour Committee.
" Marine Department.

Exd. E. C. Shunker.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

# Gobt. of {1879} Madras.

## PUBLIC WORKS.

To

THE SUPERINTENDENT,
MADRAS HARBOUR WORKS,
&c., &c., &c.

Dated July 14th.

Issued

Read, Encl.

*G. O., 14th July 1879, No. 1,850 W.*

JULY.

Nos. 85-86.

*Madras Harbour Works.*—Progress Report for May 1879, and proceedings of the Committee dated 17th June 1879, recorded with remark.

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Memo to President of Madras Harbour Committee

1850/4

Letter from the Supt. Madras Harbour Works No 13 W dated 2 June 1879

Adverting to the damage sustained by the Eastern pier (paras 10 to 13) the undersigned has the honour to request that the Harbour Committee will at an early date report further on the subject, and state their opinion as to whether 1st if the blocks be left in their present condition further settlement is likely to occur on any subsequent occasion when exposed to the action of a heavier sea than that which produced the settlement reported.

[illegible]

2° what precautionary measures should be adopted

3° the causes which have led to the cracking of the blocks referred in para 12 and why Cement known to be not perfectly satisfactory at the time of using it was employed in this construction

6/6/79

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1850/5

Madras Harbour

Damage done during late Cyclone.

I gather from the public paper that in the late Cyclone at Madras some injury occurred to the piers in process of construction. It is stated that the injury was not serious, but whatever its extent the fullest possible inquiry in all the circumstances seems called for as such may disclose facts calling for some modifications of the section, which has hitherto been considered sufficiently strong to resist the waves to which it will be opposed.

It would seem that the South pier was the one that suffered, the two rows of blocks opening outwards.

This result is said to be due to the "shifting character of the sand on which these blocks were resting." This description of the cause of failure I do not quite understand, as it is not clear whether the shifting sand here is that underlying the rubble base, or that over the laterite which was brought up by S. W. Monsoon, and was found so difficult to remove that eventually many blocks were laid on it.

A large scale plan should be prepared and submitted showing exactly where the damage occurred and its extent; and this plan should be accompanied by such elevations and sections as may be necessary to make the description perfectly clear.

The detailed report should, if possible, state the direction of the wind and the waves with reference to the work at the time the subsidence took place.

Experience of the Kurrachi harbour tends to the belief that there is — varying with the varying force of the waves — a certain distance from the foreshore, at which the waves tell with much greater effect than elsewhere. The report should particularly notice whether the damage is, in the instance of

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1880/6

the Madras Harbour, similarly localised, or whether there are not good grounds for giving extra strength at least to meet the "dead on" waves with a gale from the East.

June 21st 1879

1850 W

1850/7

No. 13 W

D 1

GOVT. OF MADRAS. 1879. P. W. DEPT.

## SECRETARY.

Fort St. George. 3rd June 1879

OFFICE NOTE

To

The Supt. M. H. Works.

A good many statements have lately appeared in the papers regarding damage to the pier during the late storm, and it is probable that Govt. will ask about the matter – Please let me have full information to enable an answer to be given at once to any enquiry – I should be glad to go over the work with you any

1800/8

time that might be convenient.

D.

D F W.

Wd 3/6

To Dr. W.

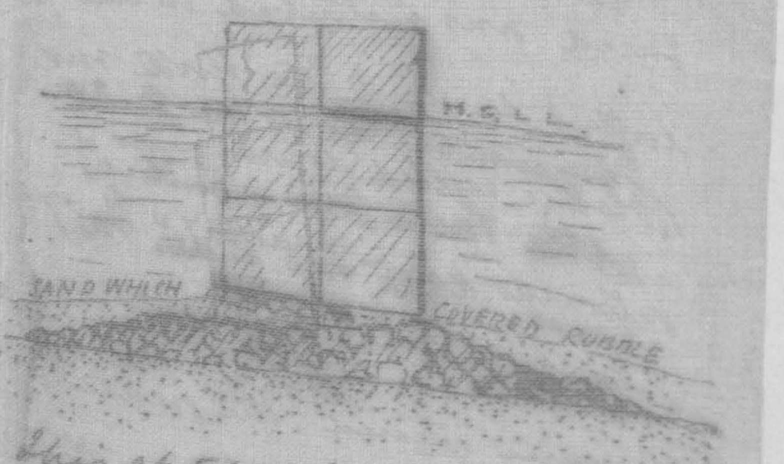
The damage is quite insignificant and the bitterness of the papers is I believe owing to my having frequently stopped the curious public from going along the pier while the line of rails was broken. The full particulars of the damage are that from 680 to 780 (from point E. South pier) the sand was disturbed on the North side and the North row of blocks settled downwards & outwards as in May 77 & Nov 78 at the North pier. The centre joint of course opened, the greatest opening being 1.6 – Four of the top blocks got so severely nipped that they broke up considerably. They were made in Feb. 78 from a cargo of Gibbs & Co's cement, & as at that time much cement was damaged in landing it is probable that the cement was not so good as when it left England.

We noticed at the time of making that the concrete was not quite so good as that made of Gillingham cement.

The greatest settlement of 2 feet occurred in one row of blocks only.

The work is only three courses deep where the settlement occurred and the foundations had been buried in sand.

The damage is only what I expected judging from what occurred Nov '78 at the North pier where the work was only 3 courses deep.



This sketch represents what has occurred – red being after storm –

I have to leave office today at 5.0, but I shall be ready to go over the work any time before that – or tomorrow at 6.0 A.M. –

The alarm about this damage is perfectly absurd & contemptible in my opinion.

J.B. Smith

June 4. 79.

Thanks –

I will come down tomorrow afternoon at about 4.30 if that will suit you – It is not convenient for me to go out much in the evening

4/6/79

Very well – let it be 4.30 at the South pier which is nearer to the Fort than this office –

J.B.

4/6/79.

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P 1

1880/9

No. 13 W

From

The SUPERINTENDENT,
MADRAS HARBOUR WORKS,

To Colonel R. H. Sankey, R.E.
Secretary to Government, P. W. Deptt.
Buildings & Roads
Ft. St. George MADRAS, 2nd June 1879.

SIR,

3 Enclosures

I have the honor to submit the following report of progress on these works during the past month of May.

North Pier Superstructure

2. The weather during the month has been very unfavorable for work and there were only 15 days on which diving operations could be carried on. – Up to the 19th no work could be done underwater owing to want of diving dresses, but as the dresses which left London in the "Duke of Argyle" March 22nd arrived on the 18th from Kalcutta no delay has occurred since that date except from bad weather. –

3. On the 26th the full force of divers resumed work, after an interval of 9 weeks and by the 31st there were 56 blocks set advancing the work by a length of 33¼ feet. – The total length of block work is now 1559¾ feet from the point B. –

4. From the 20th to the 24th the work was

tried by a rather heavy sea breaking over it first from the North and afterwards from the South side. The outer end of the pier settled down evenly and the joints closed up as usual but beyond the loss of a few sleepers no damage was sustained. The sea on the evening of the 20th May was very heavy for a short time and most of the vessels in the roadstead put out to sea in consequence of the threatening appearance of the weather.—

North Pier Rubble Base

5. The absence of the two steamers together with rough weather has interfered greatly with the deposit of rubble base but as I have reported previously there is no fear of delay on this account. During May 5216 tons of base were thrown into the sea from cargo boats and from the Titan crane.—

Blockmaking

6. The making of blocks has not been carried on throughout the whole of the month owing to want of English cement. General Morgan's cement has been used with more satisfactory results than formerly but much remains to be desired yet.— A total quantity of 400 blocks were made in May, of these 322 were made by machinery at Royapooram and 78 by hand labour at the South Pier. There

is

is a good stock of blocks on hand and cement arrives steadily from England rendering me independent of the uncertain quality of General Morgan's. The last supply from his factory however has proved perfectly satisfactory.—

Quarries

7. The new quarries at Umbathoor are being worked to a large extent and are yielding a good supply of hard laterite. Much of this is being collected and stacked by the railway line so as to be ready for the return of the Hopper Barges from Coconada. During May never more than two laterite trains were run in one day and the total quantity brought from Umbathoor was only 5714 tons.—

8. From the South Indian Railway quarries the supply was kept up as usual during favourable weather, and a total quantity of 10698 tons was brought by this line. The gross amount of stone brought to Madras for the works during May was 16,412 tons.—

South Pier Superstructure

9. Work was carried on by divers on 15 days of the month of May and during that time 128 blocks were successfully

set, advancing the Pier by a length of 75 lineal feet, and making the total length of blockwork on May 31st 1298½ feet from the point E. –

10. The rough weather and heavy seas between the 19th and 23rd did some damage to the blockwork at a distance of 680 feet from the point E. from this distance to 780 feet out, a length of 100 feet, the ground swell has acted on the sand which gave so much trouble in the foundations last year, and consequently the north row of blocks settled down bodily, the centre joint opening at the same time. The damage was precisely similar to that which occurred to the North pier in November 1878, only the centre joint at the South pier did not open more than 1'- 6" while at the North pier in November it opened 2'. 9". –

11. The sea which caused this damage was not very heavy. I estimated the greatest wave at 10 feet from trough to crest, and the velocity horizontally was not at all high. – It was only to be expected that settlement would take place where it did and having got down to a proper foundation it is improbable that the blocks will move any further. –

Many

1880
11

12. Many of the top blocks crushed and broke up in an unsatisfactory way so that for one day after the settlement the work had a very dilapidated appearance for a length of about 30 feet. On referring back I found that the blocks which had broken were made from a cargo of cement by Gibbs & Co. from the Thames, and that some part of the cargo was not perfectly satisfactory at the time of using, although it had passed the required tests at home. This is very easily explained by the fact that some vessels cargoes were much damaged by water in landing, but it was not possible to detect all the damage until the casks of cement were opened, and as cement was coming in very quickly at the time of receiving Gibbs & Co's consignments some casks were passed into store as good which had sustained slight damage.

13. No damage has ever yet been done to either pier where the foundations are of the proper depth of four courses of blocks and in no case where the two and three course work has settled down has any

subsequent wave action increased the settlement in any serious degree. But for some unexplained reason this recent slight settlement in the South pier seems to have alarmed the public more than either of the previous and more serious mishaps at the North pier in 1877 + 1878.—

South Pier Rubble Base

14. Cargo boats have been at work depositing rubble base as usual and from the end of the blockwork stone has has been thrown in to level up the beds as required. The weather has however interfered with the work and only 4700 tons of stone were so disposed of.—

Protective Works North of Harbo

15. The accompanying plan shows the coast for a great distance North of the Harbour and the contour line of High water is shewn in blue for May 1879.— The most recent groyne thrown out during May is shewn in red and is marked "New Groyne"— It will be observed that the sea continues to encroach Northward as predicted by Mr Parkes in his letter to Government on the subject dated February 25th, 1877. It may be desirable to throw out one more

groyne

groyne to the North, but its necessity or otherwise will be more apparent in a few weeks time.—

16 The revetment along the shore by Mr Coleman's house has continually to be added to but it becomes more easy to keep the protective work well in hand now than formerly.— For constructing the groyne to the North and for keeping up the revetments 499 tons of Laterite were used in May, making the quantity used for these purposes since May 1878 amount to 13,442 tons.—

Intercepting Sewer along Beach.—

17. The intercepting drain from the Fort pumping Station to Royapooram is progressing rapidly. Its section is an 18 inch brick barrel drain set in a bed of concrete. On May 31st there were 1200 lineal feet of this work completed and a greater length half completed. The drain is shewn in a red line on the plan accompanying this.—

18. I have not yet touched the portion between the North + South piers as I have already stated to Government (No 11 W of May 24th) that I think the diversion of the storm water as well as of

BTO
13 P5

of the sewage is most desirable. All the work hitherto done to the sewer will be equally applicable to either scheme.—

19. The groyne to the South of the pumping station is in construction and will be completed in a short time. It is shewn in red colour on the plan.—

Stores received on works.—

20. During the month of May the steam vessels "Ava" "Deccan" "City of Cambridge" and "Duke of Lancaster" arrived with a total of 1809 casks of Portland Cement for the works. The steamer "Africa" brought diving gear from Calcutta and the "Madura" and "Goa" Sleepers from False Point.—

21. As ordered by G.O. No. 1440 W of May 25th I will submit a further report on the delay in receiving the "Duke of Argyll's" case of diving gear. At present I await replies to my enquiries of the Marine Office.—

Expenditure

22. The total expenditure to the end of May is approximately Rs 27,397,54.—

Plans Sections & Surveys.—

23. Accompanying this report is one plan to the scale of 200 feet to 1 inch. It shews the coast for a greater extent north and South than is yet plotted on the scale of 500 feet to 1 inch.— The two elevations shew the length of block work built in May and the state of the rubble base in advance.—

24. Between the 12th and the 15th Mr. Beardmore and I repeated the survey of the South portion of the Harbour out to 7 fathoms. By means of this survey we shall be able to detect any change in the bottom during the South west monsoon.—

I have the honor to be,
Sir,
Your most Obedient Servant,

J. N. Thorowgood M. Inst. C.E.
Superintendent
Madras Harbour Works

G.O. № 1440 W – 23 – 5 – 79
— 2261. 25-8.76.

Buildings & Roads

From The Superintendent
Madras Harbour Works

Rec^d 9 14-7-79 № 1850 W

№ 13 W

Dated 2^nd June 1879

№ of Enclosures 3

85

Submits report of progress of the works during the month of May 1879

Cir 27-6-79. Retd 11-7-79
To Daly 4-6-

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1850/15

Proceedings of the Madras Harbour Works Committee dated 17th June 1879.

Captain J. H. Taylor R.N.R.
R. C. Walker Esquire
Major Pennycuick
Honorable P. Macfadyan
F. N. Thorowgood Esquire

Read letter June 2^nd "Madras Mail" signed "Observer" on the subject of damage sustained by South Pier during cyclone in May.

Resolved that as the Committee understand that this letter has already attracted the notice of Government they consider it desirable to record their opinion, formed after personal examination and after full discussion with the Superintendent, that the damage done is of a trifling description and not of nature to cause any anxiety as to the future prospects of the work.

---

Read Chief Engineer's Memo:

dated No. 2126 of 26th May 1879 and Mr. Thorowgood's reply thereto of the 14th June 1879 on the subject of the proposed intercepting sewer.

Resolved that the Committee quite agree with what Mr. Thorowgood has written and express a hope that the enlargement of the sewer as recommended by him will be sanctioned.

(Signed) R. Macfadyen
( " ) J. Pennycuick
( " ) R. C. Walker
( " ) J. H. Taylor.

(True Copy)
J H Taylor
Secretary.

To
C. G. Master Esquire
Ag. Chief Secretary to Government
Marine Department.

No 5265

No 1289.

Transferred to the Public Works Department.

Ulmaster
~~Offg~~ Chief Secy

Ordered
24 June 1879
to the Public Works Department

Marine (1879) Departt
(Madras Harbour)

From the Madras Harbour Committee

Dated 17
Read 20 } June 79

No 434

Pro of 14-7-79 No 1850 Wr

Proceedings of the Committee dated 17 June 1879—

With enclosure—

85A

Cir 27.6.79. Retd 11-7-79
4.6.79

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P. W. SECRETARIAT—1879-80.

KEEP-WITH. 1850/17

Letter Number 1289

dated the 24th June, 1879

from the Marine Dept

The Harbour Committee have inspected the works and state that the damage done by the last Cyclone is slight and unimportant. They also support Mr Thacamgood's re-commendation for the Enlargement of the "intercepting Sewer".

No 1850 W d/ 14th July 79

Order thereon:—

Recorded.

Separate orders will be passed in regard to

Cir 27.6.79
O.L. Sheel 8 June

1850/18

the intercepting sewer.
The Secretary of the
Committee will address
future Communications
to the Secretary in
the S.W. Dept.

A.E.P.
26/5

26/6/79

Supt. M. A. Works
Secy. Harbour Committee
Marine Dept.

not Despatched
Despatched 14-7-79
23-7-79

4.6.79

C. 12281 / 5465

Govt. of {1879} Madras.

PUBLIC WORKS.

✓

To

Dated

Issued

Recd. Encl.

G. O., 14 July 1879, No. 1830 W

Nos. 85-86

Madras Harbour Works'

progress report for May 1879 and Proceedings of the Committee dated 17 June 1879, recorded with remark.

6