1. Number of pages 18
2. Date of repair 16-7-37
Books of References

4

M.R.O. 1—32,400—22-11-30.

MADRAS RECORD OFFICE.

Government of Madras.

Public (w) Dept

Cons. 14.7.37

DEPARTMENT.

G.O. No. 1327 Press Mis.

2728

Dated 9—7— 18 37

Not to be folded or roughly handled

Fort Saint George, Public Works Consultation of 14th July 1857.

No. 27. Read the following letter from Colonel C. E. FABER, Chief Engineer; to H. FORBES, Esq., Acting Secretary to Government, dated 27th June 1857, No. 1594.

SIR,

I have the honor to forward copies of letters received from the Officiating Garrison* Engineer and from the Mechanical Engineer in charge of the Steam Pile Driving Machine, affording the information called for by Government in Extract of Minutes Consultation No. 785, dated 25th April 1857.

* No. 139, dated 30th May 1857.

2. The Machine was sent out on the recommendation of the Committee appointed to report upon the repairs necessary for Fort Saint George for the purpose of Driving Piles upon which the foundations were to be rebuilt.

3. The repairs to the Fort have not yet received sanction, and the only work upon which the Machine has hitherto been employed is Driving Piles into the beach opposite the flag staff redan, on the sea face of the Fort for a sluice to fill the ditch with fresh sea water, and it seems to have done the work economically and well, compared with the cost of the ordinary way, the Piles having been driven by it to a depth of 17 feet, at a cost of 14½ Rupees each, and that under circumstances of difficulty which greatly enhanced the cost, indeed under circumstances and in a situation in which without the aid of Steam they could not have been got down at all.

4. The Piles to the Cooum bar for the construction of a bridge cost by the usual method 30 Rupees each (the depth being the same viz. 17 feet) or at rather more than double the cost of Driving them home by steam.

5. The Machine has been packed up, and is lying in a shed close to the sea, it should be removed to the Garrison Engineer's yard as soon as he can conveniently receive it there, until it is required for the work for which it was originally intended, or until some other work of the same description requires its services.

6. A second similar apparatus is in the Arsenal exactly as received from England.

7. Captain Rawlins might use the steam Pile driver to drive Piles for the security of the heads of tow drains which were destroyed at the same time that the road was carried away near the P. and O. office, and I recommend that permisson be given to adopt this precaution, which together with the groin now under construction, will, I trust, effectually prevent a recurrence of injury to that communication.

No. 28. ORDER THEREON, No. 1321; dated 9th July 1857.

From the information contained in the papers now laid before Government by the Cheif Engineer, they are satisfied of the usefulness of the Steam Pile Driving Machine. It should be removed to the Garrison Engineer's yard as soon as possible and carefully protected from injury.

2. The Machine can be employed from time to time on any work in which it may be useful with the approval of the Chief Engineer, and the permission of Government on each specific occasion is not necessary.

(Signed) H. FORBES,
Acting Secretary to Government.

From,

Wm. D. Thompkinson,

Mechanical Engineer

Superintending Steam Pile Driving.

To,

The Offg. Garrison Engineer

Fort Point George

Sir,

In answer to your Request forwarding Minutes of Coun.: dated the 25th. of April 1857 and calling for information and data Regarding the working of the Pile Driving Machine; I have the honor to state that it is impossible to give a true account of what the Machine will do by its performance at the Tunnel on the Fort Beach, on account of the various difficulties we had to encounter.

2 For instance, on the commencement of our work in November last we experienced heavy Gales of wind by which we lost nearly three tons of Coal and from the Machine having become buried in Sand twenty days work was also lost.—

3 Secondly, with having to burn Small Coal and wet

wet and dirty chips in the place of coke; at first we were obliged to damp the fire and let the steam escape twice each working day to clean the tubes which would be much Coal tar and dust which caused extra repairs and loss of time — Also extra oiling and cleaning of Machinery, as it was impossible to keep the steam up to its working power on account of being damped.

4 Third, we had to contend with the stones forming the groin — Some piles we split to a length of 16 feet, after we had knocked the points off on the stones, which obliged us to draw the piles out and replace them between the stones — Some of the piles we drove from 15 to 18 feet within ten minutes — others it took us hours and more to drive home; while some we could not drive at all. It has been the most difficult piece of work I ever had to contend with. We were too close to the groin by eight feet. I have no doubt this Machine will do four or five times the amount of work if it had done in the same time.

5 In regard to the small stores &c from the Arsenal for working the Machine, I append an account for one Month but I cannot give the particulars of what Mr Walsh provided as he had the charge of the ground work and the coolies — I had charge of the working of the Machine only.—

6 Another cause of expense and trouble was, that the shape of the piles was not the best. In England square piled are used the same size from end to end, so that the whole weight shall rest on the point, — whereas the piles here used were round and wedge like, being smaller at the lower than the top end, thereby increasing the friction and resistance in driving them.

I have &c

Fort Saint George } Signed D. Thompkinson
30th May 1857. } Mechanical Engineer
In charge Steam Pile Driver.

Memo

Men employed to work the Steam Pile Driver while driving the piles at the Tunnel opposite the Flag Staff — commencing 1st November 1856.—

Mr. Thompkinson. Supt. in charge of apparatus.

George Robinson } Two Assistants appointed to learn the business.
John Banks }

2 Coolies during the working of the Machine for 71 Days

Removing and fitting up the Machine — Days — 18.
Stopped work on account of rough weather — do — 23
Repairing the Machine — do — 6
Time while working the Machine — do — 71
Taking down cleaning and storing in the shed on the Sea face — do — 25

Finished 21st March 1857 — total days — 141.

Small stores required for working the Machine for one Month.

Oil Cocoanut — Gallons — 2
Tallow — Pounds — 7
Paint white Lead mixed. Do — 3
Red Lead — do — 2
Rope Cotton Tent Laye — do — 6
Soap Country — do — 1.
Cloth Coarse white for cleaning &c 6.
Coal ½ ton per day.

Memo: of expenses incurred in working the Pile Driving Machine at Fort Saint George.

Setting up Machine.

1 Engineer for 15 days at Rs. 10-5-4 per diem	Rupees	155	—
2 Assistant Overseers 15 days at Rs. 2 — each per diem		60	—
1 Carpenter for 15 do at " 1-8 do		7	8
1 Smith Do Do at " 1-8 do		7	8
1 Coddy Smistry Do at " 1-10 do		9	6
1 Peon at Rs. 5 per Mensem for 15 days		2	8
30 Coolies at 2-6 each do		75	5
1 Goomastah at Rs. 10 per Mensem do		5	—
1 Watch Man at 7 — do do		3	8
6 Viss Oil at 10 per Viss		3	12
Share of Sheave Blocks, Ropes, Sundries &c.		50	—
Total for setting up	Rupees	376	7
For dismanting	Rupees	320	—

To which add expense for 1 day with Steam up as follows:—

1 Engineer for 1 day Rupees 10-5-4	Rs.	10	5-4
2 Assistants do 2 — each		4	—
1 Carpenter do		1	8
1 Smith do		1	8
20 Coolies at Rs. 2-6 each		3	—
1 Peon		3	2
1 Goomastah		3	—
10 Cwt. of Coals		5	4
½ Viss Oil		10	—
½ Viss Suet		5	—
		6	—

Abstract of charges. Rs. 29-10-8.

Cost for setting up the Machine	Rs	376	7
The Machine having worked 26 days, and the cost for working it for 1 day being Rs 29-10-8, the cost for 26 days will be		471	5-4
To which add the expense for dismanting and packing		320	—
Ordinary expense on account of the Machine as at present, i.e. for 1 Watch Man and oil per mensem		10	—
	Total Rupees	1175	12-4

Fort St. George, 30th May 1857.

[Signed] F. Lewley, Asst. Engr.

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No. 139. Garrison Engineer's Office.

From,
Captain H. W. Rawlins,
Offg. Garrison Engineer.

To,
The Adjutant of Engineers,
Fort Saint George.

Sir

In obedience to your endorsement on Extract Proceedings of the Chief Engineer D. O. No. 137 of the 2d Instant, forwarding Exc: Mint: Cons: No. 785 of the 25th April 1857, wherein the Government desire information as to, "Where the Pile driving Machine is "now; what has up to this time been performed by it; where "it is likely in future to be required, and what are the "expenses ordinarily incurred by it," I have the honor to report as follows:-

1st The Apparatus has been taken to pieces, and after having been well oiled, is now packed up in a Shed outside the Sea Gate - One person is in charge, whose pay, with small Sundries for occasional oiling, amounts to Rupees 10 per mensem - The machinery ought not to remain in its present place, for the Sea air will corrode and injure it. I recommend its being removed to the Garrison Engineer's work Yards, so soon as the Civil Architect obtains other

accommodation

accommodation - At present there is not room.

2nd. It has driven 81 piles an average depth of 16 feet between tides opposite the Flag Staff necessary for the foundation of a Wooden tunnel to let fresh Sea water into the Fort Ditch. The subjoined letter from Mr Thompkinson, the Engineer in charge, will best explain the difficulties encountered from the unusually bad weather, and from the novelty of working the Machine, for the first time, by people who were totally unaccustomed to the operation.—

3rd. The machine will undoubtedly be soon required to drive the piles for the foundations of the South Redan, the rebuilding of which pile must I presume be much longer deferred - I believe it will also be required for driving piles around the mouths of the new drains on the North Beach, so as to prevent the Stones placed in front to protect the drains from being scattered about, and damaging the Boats when beaching.—

4th. The ordinary working expenses of the Machine, as shown in the subjoined Statement from Mr Sub Engineer Lurkey are.

	Rs	As	Ps
For setting up the Engine at the work required	37½	—	—
For dismantling and packing	320	—	—
For each full working day including Supt pay and all Sundries	27	10	8
For Oem and oiling when not at work per mensem	10	—	—

5th

5th. The Engine is a 4 to 5 H. P. - Its maximum stroke is 2½ tons - its minimum, 10 ℔ or even less. It can strike 50 blows per minute, and it takes 10 minutes to drive a pile, 1 foot diameter, 15 feet deep, in Sand or loose earth.

6th. The actual cost incurred at the tunnel for driving the 81 piles is Rupees 1175—12—6 or about Rupees 12½ per pile - This, however, is not a fair criterion for the reason assigned by Mr Thompkinson - The cost of setting up and dismanting the apparatus is included, and of course the fewer the piles to be driven the greater the expense in proportion. The Machine will drive 60 piles per day, to a depth of 15 feet in ordinary soil.—

I have &c—

Fort Saint George
30th May 1857

Signed H. M. Rawlins, Capt
Offg Garrison Engineer.

No. 143.

From,
The Offg Garrison Engineer,
Fort Saint George.

To,
The Adjutant of Engineers,
Fort Saint George.

Sir,

In continuation of my letter No. 139 of the 30th Ultimo, I beg to add, as a proof of the great economy in using the Steam Pile Driver, that the cost of driving

Similar

similar piles in loder sand at the Coorum Bar Bridge in 1845, was upwards of 30 Rupees per pile; so that had the same primitive apparatus been used at the Tunnel, the 81 piles would have cost 2,430 instead of Rs. 1175. The saving effected amounting to 15½ Rs. per pile, or an aggregate of Rs. 1255.—

I have &c

Fort St. George,
1st June 1857.

Signed H. W. Rawlins, Capt.
Offg. Garrison Engineer.

Commandant of Engineers Office
No. 191.

From,
Lieutenant P. O'Connell,
Offg. Adjutant of Engineers.

To,
The Chief-Engineer D. F. W.

Sir,

I have the honor by order to forward for submission to Government the Accompanying Report by the Officiating Garrison Engineer on the subject of the Steam Pile Driving Machine prepared in reply to Extract Minutes of Consultation No. 785 under date 25th April 1857.

2 It is to be observed that this Machine was sent out by the Court of Directors (in accordance with the recommendation of a Committee who reported in the month

month of July 1854 on the Repairs required) to drive down piles for the foundations of such parts of Fort St. George as should be reconstructed.

3 An Estimate for the execution of partial Repairs was forwarded in January 1854 it amounted to Company's Rupees (5,08,609) Five Lacs, eight thousand and six hundred, and 22 Estimates for thoroughly repairing the Fort were forwarded, in the aggregate to Company's Rupees (14,48,470) Fourteen Lacs, forty eight thousand, four hundred and seventy but as neither of these works have yet received the Sanction of the Honorable Court, the Pile driving Machine has not been so fully and regularly employed as it otherwise would have been.

4 It will be seen from the Letter of the Officiating Garrison Engineer No. 139, dated 30th May 1857 Para 6 that Piles have been driven down by it at an average cost of 1½ Rupees each, they have been forced down to a depth of about 17 feet and under such circumstances that it is useless to compare the operations of the Machine with those effected with the means usually employed in India, it would have been simply impossible to have driven down these Piles without the Steam Pile

driver

driver.

I have &c.

Fort Saint George,
1st June, 1857.

Signed P. O'Connell Lieut.
Offg Adjt of Engineers

P.S. Since writing the above I have received the accompanying letter No 143 dated 1st June 1857 from the Officiating Garrison Engineer in which he states that the Piles at the Bridge over the Coorum Bar were driven at the rate of more than Rupees 30 or at double the cost of those driven in by the Pile driving apparatus.

I True Copies.
Arthur Fraser Colonel.
Chief Engineer

Capt
M.E. Madras

Central Office of C. Works.
Fort Saint George.
27th June 1857.

No. 1594.

From,

The Chief Engineer.

To,

The Secretary to Government F. W. D.

Sir,

I have the honor to forward copies of letters received from the Officiating Garrison Engineer and from the Mechanical Engineer in charge of the Steam pile driving Machine, affording the information called for by Government in Extract of Mins: Cons: No. 785 dated 25th April 1857.

* No. 139 d/30th May/57.

2. The machine was sent out on the recommendation of the Committee appointed to report upon the Repairs necessary for Fort Saint George for the purpose of driving piles upon which the foundations were to be rebuilt.

3. The Repairs to the Fort have not yet received Sanction, and the only work upon which the machine has

Enclosure in a Letter from the
Chief Engineer
To the Secretary to Government F. W. D.
Dated 27th June 1857.
Received 30th June 1857.
No. 1594

P.W. 1297/57.

Copies of Correspondences
on the Subject of the Steam
Pile Driving Machine.

24

has hitherto been employed is driving piles into the beach opposite the flag Staff Redan, on the Sea face of the Fort for a Sluice to fill the ditch with fresh Sea water, and it seems to have done the work economically and well. Compared with the cost of the ordinary way, the piles having been driven by it to a depth of 17 feet, at a cost of 11½ Rupees each, and that under circumstances of difficulty which greatly enhanced the cost, indeed under circumstances and in a situation in which without the aid of Steam they could not have been got down at all.

4 The piles to the Cooum bar for the construction of a bridge cost by the usual method 30 Rupees each. (the depth being the same viz: 17 feet) or at rather more than double the cost of driving them home by Steam.

5 The Machine has been packed up, and is lying in a shed close to the Sea, it should be removed to the Garrison Engineers Yard as soon as he can conveniently receive it there, until it is required for the work for which it was originally intended, or until some other work of the same

same description requires its services.

6 A second similar apparatus is in the Arsenal exactly as received from England.

7 Captain Rawlins might use the Steam pile driver to drive piles for the security of the heads of two drains which were destroyed at the same time that the road was carried away near the P. & O. Office, and I recommend that permission be given to adopt this precaution, which together with the groin now under construction, will, I trust, effectually prevent a recurrence of injury to that communication.—

I have the honor to be,
Sir,
Your most Obt Servant,
Arthur Cotton Colonel
Chief Engineer.

Central Office of C. Works,
Fort Saint George,
27th June 1857.

To,
The Secretary to Government
P. W. D.

Consp. Office of Clerks &c.
6—6

Pr.
Diary 28th April 1857 pages 7813

Pub: Works 1857 Department
No. 1297
From
The Chief Engineer
To
The Secretary to Government
P.W.D.
Dated 27th } June 1857.
Received 29th }
No. 1574
Enclosure 1
From do dated 17 Nov 58 No 2773
in
Forwards information as to the
work of the Steam Pile driving machine
past working it, work done &c
with Reference to Ex. Cons:
Cons: No 785 dated 15th
April 1857 —

No 27 & 28

With an order
No. 1321. 9th July

4th July 57

No. 1321

From the information contain
ed in the papers now laid before
Government by the Chief Engineer,
they are satisfied of the usefulness
of the Steam Pile driving machine.
It should be removed to the Garrison
Engineer's yard as soon as possible
and carefully protected from injury.
2 The machine can be employ
ed from time to time on any work in
which it may be useful with the
approval of the Chief Engineer, and the
permission of Government on each
specific occasion is not necessary.

Fort St. George
9th July 1857
By Order of the Chief Engineer