

(1) Number of pages 18
(2) Date of repair 27.6.86
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TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

P.W.D.

DEPARTMENT

G.O. No. B.P. No.	- 1387 (W)	Press. Mis.
Dated	18.3.1878	197

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Not to be folded or roughly handled

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GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

18th March 1878, No. 1,367 W.

Buildings and Roads.

Civil Works.

Read the following paper:—

No. 256. Endorsement of the District Engineer, Presidency, dated Fort St. George, 5th March 1878, No. 6,854.

From J. N. GRAINGER, Esq., General Superintendent, Public Works Stores and Workshops, and Officer in charge of Guindy Water-works, to the District Engineer, Presidency, dated Chempauk, 1st March 1878, No. 36.

With reference to your endorsement, No. 2,084, of 12th July 1877, on G.O., No. 329 W, of 29th June 1877, I have

Six estimates.
One plan.

the honor to forward the following explanations in reply to the remarks of

His Grace the Governor in Council therein recorded:—

Firstly.—The time and labor required to fill the pumps when starting has been saved by connecting the feed chamber A with the discharge chamber B by the $1\frac{1}{2}$ inch pipe C as shown on the plan, so that by opening the cock on the pipe C the water in the main pipe between the pumps and the reservoir in Guindy Park flows back and thus fills the feed pipe. This addition has been carried out and works well.

Secondly.—The crank shaft now in use is an old one made in the late Mint, and has been unnecessarily weakened by being reduced in diameter between the cranks; hence any variation in the *velocity of the engine* is at once apparent by the vibration of the crank shaft. It was employed to work these pumps in order to save the expense of a new one, and I have no doubt it will be found strong enough for the work now that a heavier fly wheel has been put on the engine considerably reducing the vibrations. This fly wheel has been put on the engine temporarily as it has been borrowed from the Storekeeper of Machinery's Department until a new and slightly heavier one has been made.

That this is necessary is proved from the fact that the regulating power of a fly wheel for different velocities of the crank shaft varies inversely as the cube of the number of revolutions in the same time. Now assuming that the old fly wheel weighing 600 lbs. has been properly designed by the makers for regulating the engine when working at 80 revolutions per minute (ordinary working of this class of engine) we find that reducing the velocity of the engine to 60 revolutions per minute necessitates a fly wheel weighing $\frac{80^3}{60^3} \times 600$ lbs., or say roughly 2 to 1, and therefore the new fly wheel will be about 1,200 lbs. weight. The cost of this is included in the estimate for maintenance for 1878-79.

Thirdly.—Considering the marked improvement in the working of the pumps (by lessening the vibration) which has resulted from the use of the present fly wheel weighing 800 lbs., I trust that His Grace the Governor will be pleased to see that the spur gearing was not in fault and that the present proportion of 2 to 1 was necessary when considering the velocity of the pumps with a minimum reduction of velocity of engine.

Fourthly.—The tanks are old and more or less worn; in fact before they were handed over to me by the Executive Engineer, Mount Range, it had been found necessary to plug up holes in them by leaden plugs, one of

which I send for your inspection, as also a piece of the side of one of the tanks which was forced out by a file, and from which you will see that the metal is very much eaten away and quite weak and that new tanks are necessary.

Fifthly.—The pay of the engine driver (Rupees 30 per mensem) was paid by the Executive Engineer, Mount Range, during 1875-76, but when he was transferred to me I reduced the pay to Rupees 15 per mensem, as he (the engine driver) was then getting Rupees 15 from that officer as a Road Overseer, and it was only when his services were dispensed with as a Road Overseer that I gave him Rupees 20 per mensem, his pay originally being Rupees 30.

I beg therefore to resubmit the estimates.

SUBMITTED to the Chief Engineer, Public Works Department, with reference to G.O., No. 329 W, dated 29th June 1877.

(Signed) ROSS THOMPSON, Major, R.E.,
District Engineer, Presidency.

No. 257. ORDER THEREON, 18th March 1878, No. 1,387 W.

The undermentioned estimates for the Water-supply Project at Guindy are sanctioned:—

	Rs.	Register No.
1. Making and setting up a new set of pumps ...	4,911	21 ^a
2. Repairing the filter engine-house, engine driver's room, and the cook-house, providing new iron tanks on roof of the Government House, Guindy, and examining pipes leading to the kitchen ...	1,830	22 ^a
3. Putting in a new pipe connecting the valve chamber and the suction pipe boxes ...	49	23 ^a
4. Maintenance for the working of the boiler and engine at the filter for 1876-77 ...	1,647	24 ^a
5. Do. do. for 1877-78 ...	1,734	25 ^a
6. Do. do. for 1878-79 ...	1,945	26 ^a
	12,116	

B of 1877-78.

2. Funds were appropriated for items 1 and 4 in G.O., No. 807 W, of 29th September 1877. The District Engineer will apply for funds for the other items in his statement of demands against the Reserve of 1878-79 to be submitted in April next.

3. Mr. Grainger explains that by putting on the engine a heavier fly wheel, the excessive vibration complained of in G.O., No. 329 W, dated 29th June 1877, has been much reduced, and the crank shaft has been strengthened. Care should, however, be taken that the fly wheel is not too heavy for the end of the shaft, or it will tear off the shaft in the journal and otherwise endanger the apparatus.

4. This sanction has been registered as Provincial and numbered as shown above.

(True Extract.)

Colonel, R.E.,
Secretary to Government, P.W.D.

To the District Engineer, Presidency.
" Examiner of Public Works Accounts.
" Military Secretary to His Grace the Governor.

Rd. T. D. Ryan.
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Notes on the

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P.S.
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PRESIDENCY WORKSHOPS, D. P. W.,
Chepauk, Madras, March 1878.

No. 36.

From

THE GENERAL SUPERINTENDENT,

To

PUBLIC WORKS WORKSHOPS AND STORES,
and Offices in charge of Gundry Waterworks,
The District Engineer

Presidency,

Fort Saint George.

Sir,

Enclosure

With reference to your Endorsement No. 308 of 12th July 1877 on G. W. 329 W. of 29th June 1877, I have the honor to forward the following explanations in reply to the remarks of His Grace the Governor in Council, thereon recorded.

Firstly. The time and labor required to fill the Pumps when starting has been saved by connecting the feed Chamber A with the discharge chamber B by the 1 1/2 inch pipe C as shown on the plan so that by opening the Cock, on the pipe C, the water in the main pipe between the pumps and the reservoir in Gundry Park flows back and thus fills the feed pipe. This addition has been carried out and works well.

Secondly. The Crank shaft now in use is an old one made in the late Mint and has been unnecessarily weakened by being

reduced

reduced in diameter between the Cranks -
hence any variation in the velocity of
the Engine is at once apparent by the
vibration of the Crank shaft. It was
employed to work these pumps in order
to save the expense of a new one and I
have no doubt it will be found strong
enough for the work now that a heavier
fly wheel has been put on the Engine
considerably reducing the vibrations.
This fly wheel has been put on the
Engine temporarily as it has been
borrowed from the storekeeper of
Machinery's Department until a
new and slightly heavier one has
been made.

That this is necessary is proved from
the fact that the regulating power of a
fly wheel for different velocities of the
Crank shaft varies inversely as the
cube of the number of revolutions in
the same time. Now assuming that
the old fly wheel weighing 600 lbs. has
been properly designed by the makers
for regulating the Engine when working
at 80 revolutions per minute (ordinary
working of this class of Engine) we find
that reducing the velocity of the Engine
to 60 revolutions per minute necessitates

187 2
a fly wheel weighing $\frac{80^3}{60^3} \times 600$ lbs. or say
roughly 2 to 1 and therefore the new fly
wheel will be about 1200 lbs weight. The cost
of this is included in the Estimate for main-
tenance for 1878-79.

Thirdly. Considering the marked improvement
in the working of the Pumps (by lessening the
vibration) which has resulted from the use of the
present fly wheel weighing 800 lbs. I trust that
His Grace the Governor will be pleased to see
that the Spur gearing was not in fault and
that the present proportion of 2 to 1 was ne-
cessary when considering the velocity of
the pumps with a minimum reduction
of velocity of Engine.

Fourthly. The tanks are old and more or
less worn in fact before they were handed
over to me by the Executive Engineer Mount
Range it had been found necessary to plug
up holes in them by leaden plugs one of which
I send for your inspection as also a piece of the
side of one of the Tanks which was forced
out by a file and from which you will see
that the metal is very much eaten away
and quite weak and that new Tanks are
necessary.

Fifthly. The pay of the Engine Driver (Rs.
30 per mensem) was paid by the Executive
Engineer Mount Range during 1875/76 but

when

I have the honor to be, Sir
Your Most Obedt Servant
A. A.

Genl Supt of Store, Workshops,
and Office work of the Institution

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So Mr. 329 is 1899
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St. Louis, Mo.
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NO. 176
INFORMATION

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The General Superintendent,

THE UNIVERSITY OF CHICAGO

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The District Engineer
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Dated 5 March 78

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Submits Enforcers
report on the _____

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N^o 1387 W Public Works Department.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Witness date the 18th March 1781

Read the following :—

From the District Registrar } H. 1. 13 6854 dated 5th May 1877 -
Puducherry.

The under-mentioned estimates for the Water Supply Project at Kivindy are submitted -

1. Making and setting up a new set of pumps No 14911
 2. Repairing the Feller Engine House, Engine
Driver's room and the Cook House providing
new iron tanks on roof of the Government
House, Quincy, and examining pipes leading
to the kitchen No 1830
 3. Putting on a new pipe connecting the valve
chamber and the suction pipe boxes No 49
 4. Maintenance for the working of the boiler
and Engine at the Feller for 1876-77 No 1647
 5. " " " " " " for 1877-78 No 1734
 6. " " " " " " for 1878-79 No 1745
- No. 12, 196

Funds were appropriate.

- led for items 1 and 2 in
G.O. No 807. H. of 29th Septem-
ber 1877. The District Au-
-gencies will apply for funds
for the other items in his
statement of demands a-
-gainst the Reserve of 1877
to be submitted in April
next.

2. Mr. Kranger explains
that by putting on the
engine a heavier fly wheel,
the excessive vibration
complained of in G.O. No
329 H. dated 29th June 77
has been much reduced.
and the crank shaft has
^{been} strengthened - Care should
however be taken that
the fly^{wheel} is not too heavy
for the end of the shaft,
or it will tear off the
shaft in the journal

and other were endanger
the apparatus

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10.3.78

This sanction has been
registered as Provincial and
numbered as shown above.

Ex. P. 6500. with 6 Estimates
Mileage to this from the
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Buk. 27-3-78

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Subt. of (1878) ~~Public Works~~
PUBLIC WORKS

No. A. G. Presidency

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C. O. 18 Mar 1878 No. 4876

No.

Water Supply Project at
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Sanctions with Remarks
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But no reply