

Public Works (1897) Department.

✓ G.O., No. 27516

DATED 2 October 1897

7/10/97

[Despatch Abstract.]

Quarters for the Port Officer at Tuticorin;
Estimate of Rs. 13930 for Constructing
—, sanctioned with remarks.

100
4

20087

new file

Estimate of Rs. 13,930 for constructing —, sanctioned with remarks.

The Honorable Sir H. H. Bliss K.C.S.E.

Presenting the Comptroller

P. W. DEPARTMENT.

Papers to be read in proceedings:—

Again G.O., dated

189 , No.

Again G.O., dated

189 , No.

Current No. 5906

of 1897, dated 13 June 1897, from the Marine Department.

" "

" 1897, " 28 July 1897, " the Chief Engr. P.W.D.,

" "

" 189 , " ; "

No 2751/W 22.10.97

ORDER.

The estimate amounting to Rs. 13,930, as altered by the Chief Engr. P.W.D., for constructing quarters with outhouses for the Port Officer at Tuticorin, is sanctioned.

2. Attention is drawn to the Chief Engineer's note recorded above.

3. The question of providing funds for the work will be considered after the restrictions on cash expenditure are withdrawn.

4. The sanction accorded in para 1 has been registered as Excluded Local No: 9 W of 1897-98, and classified as Civil Buildings, Original Works.

BS
27/9/97
A.M.
30.9.97

T
B

To The S. E. II Circle withy
" Esar. P. W. Accounts
" Marine Department.

24/9/97
23.9.97

28.9.97 30.9.97

29

Note by the Chief Engineer P.W.

It is, however, considered that the foundations proposed are suitable for sandy soil: it would be preferable to distribute the weight as shown in the three marginal diagrams. The extra cost thereby entailed should not exceed Rs 100.

2. For another Rs 100 rolled steel ~~beam~~ girders can be substituted for oak beams which are somewhat out of date. Girders of the following sections would be suitable:—

Downstairs rooms. 6 girders, each 12" x 5" weighing 39 lbs per foot run.

Upper story. 2 girders, each 12" x 5" weighing 32 lbs per foot run. Each girder should be 3 feet longer than the span for which intended.

P.W.
Marine (1897) Department.

CURRENT No. ~~814~~ 5906

Encl.
No. 400 & d/12 June 1897
Transferred to the
P.W. Dept.

From

Order

W.H.

The Presidency Port Officer,
Madras

for all

10.6.97

No. $\frac{1678}{204}$ G

Dated 1st June 1897

Received

Registered

Enclosures

Spare copies

SUBJECT.

Forwards for sanction and
allotment of funds an
Estimate amounting to Rs. 13,700/-
for constructing quarters with
outhouses at Tuticorin for the
use of the local Port Officer.

T
for check

C. H. M.

G.W.

15/6/97

14/6

ad.
9/10

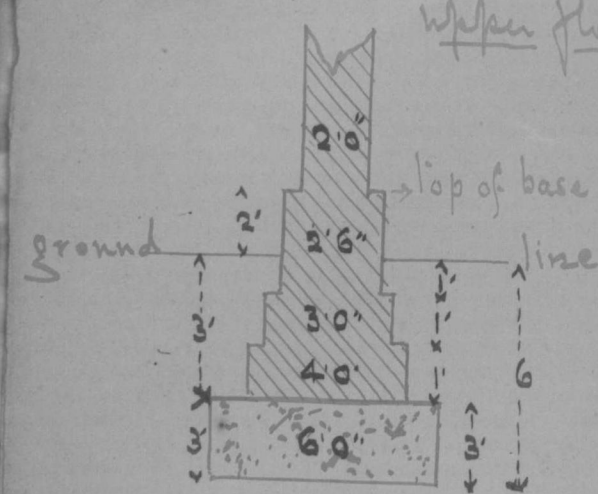
23/7 sent again 4/9/97 12/10

Presidency Port Officer.

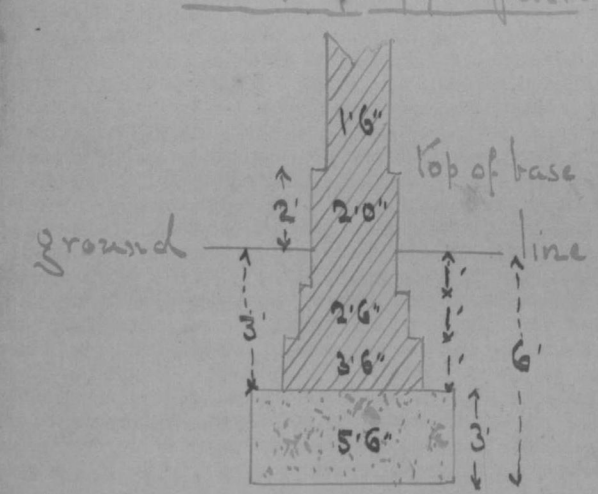
ms. 275

Comment: W. 5906

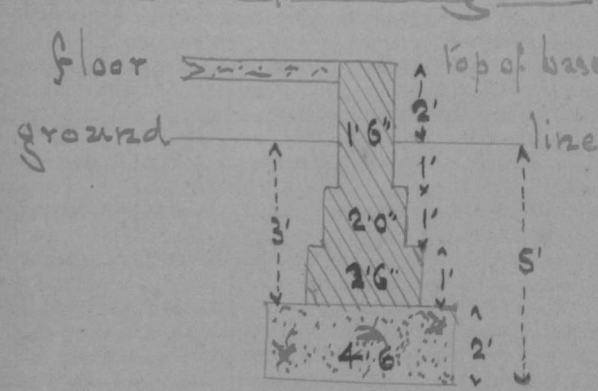
Section of main wall carrying
upper floor.



"Section of minor walls not
carrying upper floors."



Section of retaining walls



HC
into that the
death order on this
case is the correct
the Hon. Sir Henry Philip
is promising this in a
report into -
R. S.
27 Dec 87

The estimate has been re-
vised as ordered.

The revised sections will be as per margin. These revised sections will be inserted on plan before it issues & the estimate corrected in red.

The excess by the alteration in proposed will be only Rs 2.30 made up as under.

alteration in section of foundations & c
Substitution of steel joists for
timber beams

deduct savings in contingencies Rs 23

What Green # 23

The load on the rolled steel joists will be as follows:

= lower story crop, sitting & bed rooms

Since - $16 \times 7\frac{1}{3} \times \frac{3}{4} \times 120 = \text{---} 10,560$

12 x $7\frac{1}{3}$ x $\frac{1}{4}$ x $\frac{5}{12}$ x 46 = 42
 16 x $7\frac{1}{3}$ x $\frac{1}{4}$ x $\frac{5}{12}$ x 46 = 42

$$\frac{10 \times 1/8 \times 120}{10} = \frac{150}{10} = 15$$

What would the 2500

$W = 11.19 \times 16 = 179.04 \text{ tons for which}$

a section of 12" x 5" weighing 39 lb

with small wide plate of page 2

of Roman Kings tables on the

Sections. The experiment taken
in this case being

in 1881 and 1882.

500

Load on upper girders.

Timber - $16\frac{1}{2} \times 7\frac{1}{2} \times 3\frac{1}{4} \times 120 = 11138$
 joists - $12 \times 7\frac{1}{2} \times 2 \times 5\frac{1}{2} \times 46 = 431$
 Live load - $16\frac{1}{2} \times 7\frac{1}{2} \times 120 = 14850$

Dead load the 26419
 or tons 11.80.

$W = 11.80 \times 16.50 = 194.90$ Tons.

a section of 12" x 5" weighing 32
 lbs per foot with rivets with
 coefficient 3, side plate 66,
 page 25.

Data for welded steel girders?

Cost of girders at present Messrs & Co

per cwt = Rs 9.... or per ton 180....

Rail fair, as per South Indian Rail
 guide, shows $\frac{1}{2}$ a pie per mile,

per annum of 82 $\frac{3}{4}$ lbs, or 27

tons per ton = 18 $\frac{1}{2}$ pies per ton

per mile. Distance between

Madras & Tuticorin = 443 miles

$\therefore$ Carriage by rail = $443 \times 18\frac{1}{2}$

Loading & unloading charges at

each station say 10-8

Carriage to & from stations to site 2....

What cost per ton Rs 225.0.0

Working charges - do - 10....

Total cost at Tuticorin 225....

or Rs 11.8... per cwt.

say Rs 12.... per cwt.

23.9.97.

costs.

costs.

Lower story - 4446 lbs. vide detailed
 upper " 1248 " estimate

2240) 5694 (2.54

4480

12140

11200

- 9400

8960

say 2.55 - 60

$180 \times 2.55 = Rs 459.00$

$Rs 35 \times 2.65 = 89.25$

$10 \times 2.55 = 25.50$

Add for wrapper

Story at Rs 1 per cwt.

$1248 \text{ lbs} \times 60 \text{ cwt} = 11.25 \text{ at } 11.25$

Total for Rs

rolled steel plates = 585.00

Federal-Cash beams

137 cubic feet at Rs 3.8 = 479.50

say Rs 12.... per cwt. India work = Rs 105.50

Costs

28.7.97.

The Honorable Sir Henry Bliss K.C.S.I.

P. W. Dept.

Read the following.

C.N. 5906.

2757 W

Port officers residence
 at Tuticorin

For Orders

As objections have been
 raised to the high cost of the
 residences proposed for the Port
 officers at Mangalore and

* please see the
 linked files

Of course it is not money
 and I should be glad if the Port
 could be reduced by the use of whether the estimate of Rs 13,700
 cheaper materials - But the position
 at Tuticorin is this: - Houses submitted by the Presidency
 not to be had and it is not, I believe,
 still a cheap place to build in - The Port Officer for constructing quarters
 accommodation proposed is not un-
 reasonable - I should face the expense for the Port Officer at Tuticorin
 But given the work must not be
 begun until the recent restrictions on can be accepted.

Cost of expenditure on the house -
 This leads me to ask whether we
 ought not to stop our light house building
 for the present - The delay in beginning work
 until (say) January could not, I imagine, do any
 cause any loss or do any harm. But and the
 officers of the light house rise & do no
 doubt be usefully employed elsewhere in the
 interval

6/9/97

HS

10/9/97

ARM

7-9-97

HC

FOR ORDERS.

Note for the Honorable Sir H.W. Bliss.
K.C.S.E.

With reference to the H. In's inquiry whether the estimated cost of the Post Office's residence at Tuticorin could be reduced by the use of cheaper materials, the following reply given by the Hon. Architect to a similar question put to him in connection with the Post Office's quarters at Negapatam is submitted for information:-

"It is advisable to build public buildings in this country 'pukka'. The decay is so rapid and repairs so costly that savings in first cost are soon wiped out."

2. In regard to the stopping of the light house work until January next, Mr. Ashpitel has been asked to report whether this could be done without loss to Govt.

I think the C.A. goes too far - But the case of Tuticorin is no doubt a special one.

BS
27/5/97

BS
BS

24/9/97

May

cross
23/5/97

Public Works Department.

Current No. 5906
 Letter No. 400 E
 Dated 12 June 1897
 From the Marine Dept.

TECHNICAL NOTE

Name of Work Constructing quarters with
 one house for the Post Office at Tuticorin.

Amount of Estimate, Rs. 13,700

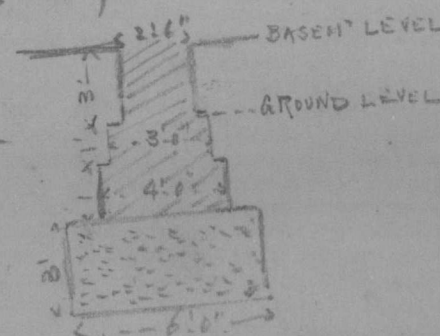
PARTICULARS OF ESTIMATE.

Main Building	<u>quarters</u>	Rs. <u>11,570</u>
Subsidiary Buildings	<u>Kitchen & servants' Qr. Coach house & stables</u>	<u>680 600</u>
Contingencies	<u>5% (Rs 641)</u>	<u>"</u>
Petty Supervision	<u>2 1/2% (Rs 348)</u>	<u>"</u>
Land Compensation	<u>"</u>	<u>"</u>
Compound wall	<u>"</u>	<u>850</u>
Total Rupees	<u>"</u>	<u>13,700.</u>

PARTICULARS OF CONSTRUCTION.

Surface soil sand to a depth of 7 1/2 feet.
 Sub-soil not mentioned.
 Foundations of walls of rooms to be 6 feet deep
 & those of retaining walls of verandahs
 5 feet. The upper one foot throughout to
 be coral stone in mortar & the remain-
 ing depths laid with Surki cement.
 Basement is to be raised 2 feet & built of
 coral stone in mortar
 Walls of the basement floor are to be raised
 15 feet & those of the first floor 12 1/4 ft.
 to top of joists & built of coral stone
 in mortar with archwork over voids.

T. Your note is by no means
 complete. The important question
 of existing has not been considered.
 The foundations are deep enough. But
 it is a question whether they are broad
 enough at bottom to withstand the
 effect of crushing due to their own depth
 plus 36 feet height of walls. It is
 desirable to distribute the weight in a structure
 of this kind & this may be a suitable
 section for the
 foundations.



Please calculate
 what will be the
 weight per square
 foot at bottom
 of foundations
 and what at bottom at walls.
 Also what weight will coral stone
 support without crushing? A
 1-6" wall is probably too narrow
 for a wall of such material, particularly
 at angles. It should be not less
 than 2-0" at basement.

2. Wooden beams for the
 principal rooms are not as
 safe. Rolled beams should be
 substituted.
 Please revise the estimate on the
 above lines.

(The interior & exterior of the building are to be plastered with 2 coats of chunam, except for basement which is to be of cement.)

Flooring is to be of $2\frac{1}{2}$ " Portland cement concrete over $3\frac{1}{2}$ " ordinary concrete.

Roofing is to be tiled with brick on edge & throughout, except the verandahs & verandah rooms, which are to be of Bengal or sloping tiles.

Doors and Windows are to be of the descriptions noted in the estimate of work & painted with 2 coats of Silicali paint.

Roof timbers to be of teakwood & woodwork 2 coats.

Scantlings are correct.

Rates are fair.

The plinth area of the main building is 3940 square feet, and the cost per square foot will be Rs. 2.15.8 for a double story.

The plans and estimates have been countersigned by the Presidency Port Officer and transferred to this Dept. by the Marine Dept.

REMARKS.

The plans & estimate under review, amounting to Rs. 13,700, have been framed with reference to G.O. No. 1305 W dated 23rd Apr 96, and provide for constructing quarters with out-houses for the Port Officer at Tuticorin, in the Tinnevely Dist.

The accommodation proposed is as follows:-

Ground floor, Sitting room 22'0" x 16'0"
2 bed rooms each 22'0" x 16'0"
2 bath rooms - do. 15'3" x 13'0"
Store room 12'0" x 8'0"
Staircase room 12'0" x 8'0"
2 inner verandahs 22'0" x 8'0"

9 $\frac{1}{2}$ feet wide.

First floor - Bed room - 22'6" x 16'6"

Dressing room - 22'6" x 8'0"

Bath room - 12'6" x 8'6"

Staircase room 12'6" x 8'6"

with front & side verandahs 9 $\frac{1}{4}$ feet wide.

The design for the main building is stated to be in accordance with that of the one constructed at Pamban with additional verandahs all round & with an upper floor consisting of a bed & bath room with verandahs.

The out-houses will consist of two blocks, viz. Kitchen and Coach house blocks. The former will consist of a kitchen 10' x 10' & two servants' godowns each 10' x 10' & the latter a coach house 14' x 10' & two stalls each 12' x 8'. The design for the out-buildings are in accordance with type design circulated with G.O. No. 2978 W dated 7th Nov 1891.

The site has not been definitely fixed, it is, however, proposed to erect the building on the reclaimed foreshore, close to the pier and to the east of the Protestant church compound. This site being close to the beach road, it is proposed to construct a masonry screen wall 162 feet long & 1.5 feet high.

Current 5906

Post office quarters at Tuticorin.

Weight of walls per sq ft at bottom of
foundations as per revised
dim in margin.

Foundation, concrete $6 \times 3 \times 1 = 18 \times 120 = 216$

Local stone walling
lower step, foundation $4 \times 1 \times 1 = 4$
upper - do - do - $3 \times 1 \times 1 = 3$
basement - $2 \frac{1}{2} \times 1 \times 3 = 7.5$
superstructure - $2 \times 1 \times 15 \frac{3}{4} = 31.5$
- do - $1 \frac{1}{2} \times 1 \times 13 = 19.5$
Parapet - $1 \frac{1}{2} \times 1 \times 2 = 3.0$
Total cft 68.5

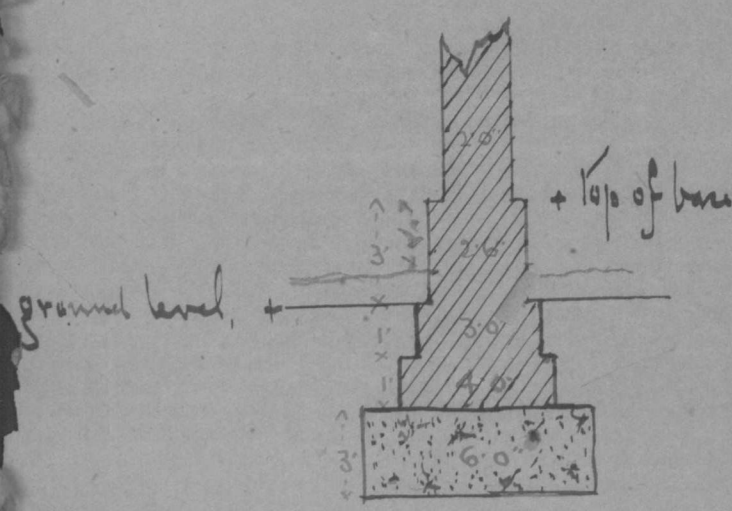
- do in the $68.5 \times 160 = 11000$
Service floor right $8 \times 1 \times \frac{3}{4} = 6$
- do - left $4 \times 1 \times \frac{3}{4} = 3$
- do - roof $8 \frac{1}{2} \times 1 \times \frac{3}{4} = 6$
Total cft 15
- do in the $15 \times 120 = 1800$

Roof terrace - $4 \frac{1}{2} \times 1 \times 4 \frac{1}{2} = 2$
Total the $2 \times 100 = 200$

Wind pressure of sloping roof $4 \frac{1}{2} \times 1 \times 35 =$
Live load on floor right $8 \times 1 = 8$
- do - left $4 \times 1 = 4$
- do - do - roof $8 \frac{1}{2} \times 1 = 8$

Total sq ft 20
- do - the $20 \times 120 = 2400$
Total weight in the 10

Weight per sq ft at bottom of ground
 $\frac{16958}{6} = 2826 \text{ lbs} = 1.26 \text{ tons}$



vide supplemented note.

high to the north west of the pre-
-posed main building, a portion
of this wall will form the rear
wall of the coach house block.
The necessity for the height of 10
feet for this wall is probably
to screen the out buildings or
-ing to their position being situated
near the road.

The main building is to be built
on the recently reclaimed portion
of the foreshore, the soil of which
is reported to be sand, it might
therefore be well to increase the
width of the foundations of the
main walls, carrying the upper
floor, from 5 to 6 feet & the
minor walls from $4 \frac{1}{2}$ to 5 feet,
the depth even may be increased
from 6 to $7 \frac{1}{4}$ feet.

The cost of the building calc-
-culated according to Code rules
will be as under:-

Estimated cost of construction Rs 13700
Add 10% for slab work & plaster 1370
Value of site nil

Total capital Rs 15070

4% on capital for interest Rs 602.80
3% on - do - for repairs - 452.10
10% on repairs for slab work & plaster 45.21

Total annual rent Rs 1100.11
- do - per annum Rs 91.68

or say Rs 92. The salary
of the Post Office is not known.

the rules as regards
limit of expenditure
do not apply to
building construction
from excluded local
funds.

according to Civil List
the Post Office salaries are
payable by the Government - Rs 275

Weight per sq ft at bottom of base:
 - ments.

Total weight as calculated be:
 = from the 16,958.

Orin: ancient foundations 2,160
 - do. lower & upper slips } 3,280
 in foundations 7 x 160 = 1,120
Total lbs 13,678.

∴ load on 1 sq ft = $\frac{13678}{2.50} = 5471 \text{ lbs} = 2.44 \text{ tons.}$

Weight per sq ft at bottom of walls.

Total weight as above, lbs 16,958.

Orin: foundations 3,280
 - do. Basement 7.5 x 160 = 1,200 } 4,480
Total lbs 12,478

∴ load per sq ft = $\frac{12478}{2.50} = 6,239 \text{ lbs or}$
2.79 tons.

As no information is available
 as to the crushing strength of coral
 stone in masonry.

The weight of a cft. of coral stone
 in masonry is assumed at 160 lbs.

The estimate will be altered
 if the revised section of foundation
 is approved - also added beams
 substituted for wooden ones.
lbs.

19.7.97.

If it is fit to build with at
 all it will stand a pressure
 of 2.79 tons per sq ft.

Original & be
 altered
 according to these
 revised sections.

AMM.
 19.7.97.

Wm
 estimate altered according
 with supplemental note attached

AK
 23.7.97

40
 31
 10%