

Public (1898.) Department.

ORDINARY MS.

G.O., No. 225.

DATED 7.2.98.

INDEXED.

Suble Rev
7.2.98

[Despatch Abstract.]

Coming to the Govt Astronomer from B.O.O.
Sanctioning the estimate of Rs 34,800 drawn
up by the Chief Engineer, B.O.O., for the
Observatory building at Kodaikanal in pursuance
of the one sanctioned in G.O. No 445 W. of 15th Feb/97.
and requesting that officer to report on the
Sutley Architects proposal with respect to the
supply of revolving drums required for the towers.

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

45-1-78 02
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20 98-1-98
 2 97 4-1-78
 16 95 9 16-12-97
 47-1-78 05

474. Pub.

BUILDINGS AND ROADS.
 CIVIL WORKS.

Government 1898 of Madras. PUBLIC WORKS.



Recd. 3rd Feb
 Regd. 3rd Feb. } 1898.
 cw 5/2/98

Enclosures
 Spare copies (advised)

G.O., No. 117 W., 17th January 1898.

JANUARY.

Order No 225 of 7.2.98
 Could be the
 foot Astronomer who
 will be requested
 to submit the
 report called for
 in para 2.

cxw 5/2/98
 7/2/98
 Govt Astronomer (Sec)

R mark back papers carefully
 Observatory building at Kodaikanal

Sanctioning, with remarks, the estimate of Rs. 34,800, drawn up by the Chief Engineer, for the — in supersession of the one sanctioned in G.O., No. 445 W., dated 15th February 1897.

cxw 5/2/98

7/2/98

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

READ—the following papers:—

From Lieutenant-Colonel O. V. BODDY, R.E., Superintending Engineer, VI Circle, to the Chief Engineer, Public Works Department, dated Camp Madura, 6th August 1897, No. 1110 M.D.

I have the honour to inform you that notices calling for tenders for the construction of the Observatory buildings at Kodaikānal were published both in the District and Fort St. George Gazettes, and that in response thereto but one tender was received from Syed Mohamed Ibrahim Sahib, a contractor in the Madura district.

2. His tender is herewith forwarded for your information and also a statement comparing his rates with the estimate rates. There is a third column in this statement in which the rates as now revised by the Executive Engineer are entered. It will be seen that for the items tendered the estimate amount is exceeded by Rs. 3,412.

3. I have also the honour to forward a copy of letter, No. 22 S.E., dated 2nd August 1897, from the Executive Engineer and also the data on which he found the rates entered in the third column of the statement.

4. This question of rates is a difficult one. No large work has been built by this department at Kodaikānal. All the materials, with the exception of stone, tiles and sand, have to be brought up the ghât. The site of the observatory is about 2½ miles from the bazaar at Kodaikānal, and it is some 700 feet higher than the top of the head of the ghât at the lake bund.

5. I consider that the contractor's tender should be accepted and that the estimate should be revised, the Executive Engineer's data for rates being accepted. The revised estimate will then be approximately Rs. 39,500. I have the honour to request your approval to this proposal, in which case the contractor will be ordered to proceed with the work at once.

6. The quality of the stone is not good as a rule. The Executive Engineer proposes to blast out some hard stone and use it on the exterior face of all the walls. This description of work may be pointed, but it is considered that with the ordinary stone available pointing will not suffice, and that the walls would have to be plastered. I recommend the blasted stone to be used.

7. Another important point is the width of the walls; the estimate allows a width of 1' 6" (with the exception of the tower walls). I am strongly of opinion that, with the material available, these walls should not be less than 2 feet thick, and I have directed the Executive Engineer to use this dimension in revising the estimate.

8. I am also of opinion that teakwood should be used throughout, as vengai is difficult to obtain, and being so much heavier than teak, the cost of the two descriptions of wood at site will be practically the same.

9. The Executive Engineer proposes to omit the concrete foundations to the walls; but I do not agree with this and have directed him to allow for concrete to ground level in the revised estimate.

10. I have also to report that the Government Astronomer has recently visited Kodaikānal and has finally selected sites for the buildings sanctioned in G.O., No. 2792 W., dated 29th September 1896.

11. For these buildings concrete foundations are allowed, but I do not consider that for these small buildings such foundations are necessary. None of the residences at Kodaikānal have such foundations, and looking to the fact that there will be extreme difficulty in obtaining sufficient lime for the observatory building, I consider that foundations such as are usually used in the locality, viz., stone in clay, should be substituted.

12. I beg also to point out that to enable these buildings and the observatory building to be properly supervised and to ensure good work which is essential, it is highly desirable that an European or East Indian subordinate be placed in charge, but that from my present establishment I can spare no one for this work.

From the Consulting Architect to Government, No. 1558, dated 2nd September 1897.

From Lieutenant-Colonel O. V. BODDY, R.E., Superintending Engineer, VI Circle, to the Chief Engineer, Public Works Department, dated Trichinopoly, 2nd September 1897, No. 1237 M.D.

In continuation of my letter, No. 1110 M.D., dated 6th August 1897, I have the honour to forward, herewith, an estimate for constructing the Solar Physics Observatory at Kodaikānal, amounting to Rs. 41,150, in which effect has been given to the recommendations I made in the above quoted letter.

The deviations from the original estimate consist in—

- (a) Putting in foundations to ground level in concrete, instead of part concrete and part rough stone in mortar.
- (b) Increasing the thickness of walls from 1' 6" to 2'.
- (c) Constructing the towers, spirals and pedestals and also the exterior of walls for a thickness of 1 foot of blue stone to be obtained by blasting.
- (d) The substitution of teakwood for vengai.
- (e) The substitution of the rates as arrived at by the Executive Engineer (*vide* data forwarded with above quoted letter).

2. I have already given my reasons for recommending these deviations.

As regards the rates we have no experience to go on, but I consider that the difficulty of doing good work at this site will be as great as at the Periyár. When at Kodaikānal lately I looked at many likely places for good sand, and I find that none is obtainable. I found that one contractor had resorted to washing earth to get a little sand out of it.

Probably we shall have to crush rock to obtain this material, and I am having some experiments made on mortar using this material.

I do not think that we are likely to get any other contractor than Syed Mohamed Ibrahim Sahib to tender for this work—and the great difficulty in the transport of material stands in the way of doing the work departmentally. I can only again recommend that the tender of the contractor be accepted.

From Lieutenant-Colonel O. V. BODDY, R.E., Superintending Engineer, VI Circle, to the Chief Engineer, Public Works Department, dated Trichinopoly, 27th September 1897, No. 1369 M.D.

I have the honour to forward herewith, for your orders, copy of endorsement No. 313 S.E., dated 8th September 1897, of the Executive Engineer, Madura division, on letter from the Sub-Divisional officer, Dindigul, No. —, dated 30th August 1897.

I have already referred to this question in my letter, No. 1110 M.D., dated 6th August 1897, and No. 1236 M.D., dated 2nd September 1897. The sites now selected by the Government Astronomer for the Assistant's quarters and peons' huts are on very sloping ground and they must be levelled to permit of the quarters being built and to allow of space around. The cost of this cutting has been estimated to be Rs. 250. Surveying the new sites cost Rs. 6, and the charges owing to change of site are Rs. 113. The total sum of Rs. 369 not provided for in the estimates is therefore a necessary extra charge.

I have already reported that for these small buildings the foundations may well be built of rubble of clay, and the Sub-Divisional officer shows that if so constructed a saving of Rs. 788 may be expected which will cover the cost of the above mentioned charges of Rs. 369.

He also points out that if the foundations are laid as originally proposed (*vide* letter from the Acting Consulting Architect, No. 2122, dated 22nd July 1896, printed with G.O., No. 2792 W., dated 29th September 1896), a saving of Rs. 514 may be expected, which would also cover the charges of Rs. 369. The original proposals were concrete foundations 3' wide and 2' high over this rubble in clay. This appears to have been altered into a block of concrete 3' 6" wide and 3' high, and in my opinion this is not at all necessary. If concrete is to be employed in the foundations, I request that the original proposals may be allowed to be reverted to.

ENCLOSURE.

From the Sub-Divisional Officer, Dindigul, to the Executive Engineer, Madura Division, dated 30th August 1897.

In returning your No. 715 S., dated 3rd August 1897, with enclosures, I beg to submit a site plan with levels showing nature of soil selected by the Government Astronomer and Executive Engineer for the construction of the three quarters for Observatory establishment at Kodaikānal.

The cutting that is required on these sites is as follows:—

	Rs.
Second Assistant's quarters, 14,324 cubic feet at Rs. 5-12-0 =	82
Third or Writer's quarters, 11,401 do. at do. =	66
Peons' huts for three peons, 17,813 do. at do. =	102
Total ...	250

The surveying of these sites has cost Rs. 6.

The levelling and cutting of the sites selected near Mr. Dhol's house, and subsequently given up on account of their not being approved by the Government Astronomer and on account of its being found that they would drain into the proposed reservoir at Kodaikānal, has cost Rs. 113.

These sums, amounting to Rs. 369, require sanction as there is no provision in the estimates for cutting and levelling the sites.

The plan and estimates provide for concrete for foundations, but for these small buildings concrete is not necessary.

Uncoursed rubble in clay foundations of the same width and height of concrete would be quite sufficient, and if concrete is thus dispensed with, the following will be the saving:—

	Concrete.			Rubble in clay.	
	Rs.			Rs.	
Second Assistant's quarters, 2,161 cubic feet at Rs. 26 =	562		2,161 cubic feet at Rs. 10 =	216	
Writer's quarters, 1,568 " at " 26 =	408		1,568 " at " 10 =	157	
Peons' " 1,151 " at " 26 =	310		1,191 " at " 10 =	119	
Total ..	4,920	1,280		492	

Saving Rs. 1,280—492 = 788.

and this saving can go to meet the additional amount requiring sanction Rs. 369 and other charges for making roads, drains, &c.

If, however, it is considered necessary to lay concrete, a work which is never laid in private buildings, I consider that foundations partly with concrete and partly with rubble in clay as originally proposed—*vide* plans and estimates—will also do, and in that case the following will be the savings to meet the additional outlay required:—

	Originally proposed.	Since sanctioned.
	Rs.	Rs.
Second Assistant's quarters—		
Estimate ...	2,759	2,950
Writers ...	1,980	2,090
Three huts for peons ...	1,657	1,870
Total ...	6,396	6,910

Saving will be Rs. 6,910—6,396 ... 514

I consider the soil good enough to construct the foundations as proposed in the original, and the same plans revised or modified.

No. 313 S.E.

Copy submitted to the Superintending Engineer, VI Circle, Trichinopoly, with reference to his endorsement No. 1047 M.D., dated 26th July 1897.

8th September 1897.

(Signed) A. JOYCE,
Executive Engineer, Madura Division.

From O. V. BODDY, R.E., Superintending Engineer, VI Circle, to the Chief Engineer, Public Works Department, dated Trichinopoly, 14th October 1897, No. 1486 M.D.

With reference to G.O., No. 2355 W., dated 25th August 1897, sanctioning an estimate for Rs. 19,663 for constructing a residence for the Government Astronomer at Kodaikānal, I have the honour to forward herewith copy of a letter, No. 369 S.E., dated 1st October 1897, from the Executive Engineer, Madura Division, also copy of another letter, No. 389 S.E., dated 7th October 1897, from the same officer, together with a deviation statement.

2. I am myself strongly of opinion that the thickness of all the walls should not be less than 2 feet; the material rough stone in clay requires this thickness, and I request that this deviation be sanctioned.

3. I also agree with the Executive Engineer that it is advisable to face all the exterior walls with picked blue stone, which will, however, result in an increase of rate as this stone must be blasted out.

4. I think the doors could be made at Kodaikānal a little cheaper than at Madras by substituting blue gum for mango, but blue gum is not good wood. In roofs the life does not exceed 15 years.

5. As regards the rates which the Executive Engineer considers necessary, I have already reported on this point in connection with the observatory building in my letter, No. 1110 M.D., dated 6th August 1897, with which I submitted data for these rates. I have had no reply to that letter at present.

6. In the deviation statement which I submit the items of concrete in mortar and of uncoursed rubble in mortar have been omitted, and rubble in clay has been substituted. I have reported on this question with reference to the observatory buildings. Lime is very difficult to obtain. In this case, however, in order to keep the cost of the work within the estimate amount, the substitution proposed is essential.

7. I have the honour to request that you will let me know, if these proposed deviations are approved, as soon as possible, and I will then have the estimate revised.

ENCLOSURES.

From A. JOYCE, Esq., Executive Engineer, Madura Division, to the Superintending Engineer, VI Circle, dated 1st October 1897, No. 369 S.E.

I have the honour to address you concerning the plans, estimates, &c., lately received for the house of the Government Astronomer at Kodaikānal—

(1) *First, the rates, &c.*—Concrete, Rs. 25 is given in the estimate, whereas the rate at the observatory site has been fixed at Rs. 30.

Stone in lime.—The rate given is Rs. 30, whereas the rate at observatory site should be Rs. 33.

Cement flooring.—The rate given is Rs. 18, whereas the rate at observatory site should be Rs. 30.

Plastering with lime.—The rate given is Rs. 5-8-0, whereas the rate at observatory site should be Rs. 7-8-0.

Pointing with cement.—The rate given is Rs. 5, whereas the rate at observatory site should be Rs. 12.

Pointing.—The rate given is Rs. 5, whereas the rate at observatory site should be Rs. 5-8-0.

Doors and windows, &c.—The rate given for these when of teak is Rs. 1-10-0, whereas the rate fixed finally for observatory site is Rs. 2.

(2) I notice, however, that these are to be prepared in Madras and then forwarded on. By this means a saving is supposed to be made. This may possibly be the case; but I rather doubt if it would be cheaper than having them prepared in the ordinary way by Messrs. Brown and Co. of Calicut and then forwarded on. I notice also that some of the more ordinary or common doors, &c., are to be made of mango wood. Now I am very much of opinion that I could make much better and cheaper doors at Kodaikānal itself out of blue gum. I am making accurate inquiries about this now.

(3) I would further desire to point out what I also consider grave defects in the design. I notice that it is proposed to build almost all the walls of stone in mud. Now, none of these walls are more than 18 inches thick, indeed some few are only 15 inches thick. From my experience of buildings on the Palni Hills, I am most decidedly of opinion that no wall built of rubble, more especially rubble in mud, ought to be less than 2 feet thick. In the month of August last, and I suppose even now, there was standing, not very far from the observatory site, but in a much less exposed position, a house in a very dilapidated condition showing what rain can do to stone in mud walls in Kodaikānal. This disaster happened in the cyclone about Christmas 1895. It is absolutely impossible to make sure of having good bonding stones in walls of less thickness. I am also of opinion, derived from experience of building in Kodaikānal, that all outside walls should be faced on the outside with picked blue stone. This, at the observatory site, will require blasted stone. Thus, the total rate of outside walls would be raised from Rs. 12 to Rs. 16.

(4) All these circumstances would of necessity increase the cost of the house in question. But, I think, that I can arrange some savings in other items. I notice that there is a considerable sum proposed to be spent on concrete in foundations and also stone in lime. Now this, I consider, totally unnecessary. In fact, it is never customary to build in this manner ordinary dwelling houses in Kodaikānal. If these unnecessary items are omitted and essential precautions as to stability taken, I believe most firmly that I can, without altering the design in any detail, so reconstruct the estimate that the house in question could be built for the sum at present allowed. I would further bring forward, as showing the unsatisfactoriness of building walls in Kodaikānal less than 2 feet thick, the case of the cemetery. Here I consider that the failure was due to want of good bonding stones and thinness of the wall, not to defective foundations.

(5) I am now preparing a deviation statement which I hope to forward in a few days showing the extra expenditure and savings on certain items in detail. In order that there shall be as little delay as possible, I am now about calling for tenders. If you can obtain sanction of Government to these alterations quickly, I shall be very much obliged. I intend at present not beginning a new estimate or the alteration in the plans until I know that Government approve of my proposals.

(6) I would desire to point out that I should very much like to commence all work with regard to the observatory immediately after Christmas. The rains will then be over and I have a full working season before me.

From A. JOYCE, Esq., Executive Engineer, Madura Division, to the Superintending Engineer, VI Circle, dated 7th October 1897, No. 389 S.E.

In continuation of this office, No. 369 S.E., dated 1st instant, I have the honour to forward herewith for sanction a deviation statement for constructing a residence to the Astronomer at Kodaikānal.

2. The superstructure walls of main building and out-houses are now made 2 feet thick and rubble in clay is substituted for concrete and rubble in mortar in foundations and basements.

3. The increased rates allowed in the proposed arrangement are similar to those provided in the revised estimate for observatory for which data have been submitted.

4. Data in support of rates provided for rubble in clay in foundation and superstructure are enclosed herewith.

5. The excess is trifling when compared with the importance and the stability of the building and I request that the deviation statement may be sanctioned.

From A. JOYCE, Esq., Executive Engineer, Madura Division, to the Superintending Engineer, VI Circle, dated 27th October 1897, No. 429 S.E.

In returning herewith your endorsement No. 1529 M.D., dated 20th instant, I have the honour to inform you that in your endorsement No. 1487 M.D., dated 14th October 1897, you have stated that the deviation statement submitted by me for increasing the thickness of walls of the main building as well as of the out-houses of the residence of the Government Astronomer at Kodaikānal and also revising rates has been forwarded to the Chief Engineer for approval, but in your endorsement under reference you call for a report whether the work cannot be constructed as per sanctioned plan and estimate.

2. The necessity for the deviation has been fully explained in my letter No. 369 S.E., dated 1st October 1897.

3. Under these circumstances I request to know whether the out-houses are either to be constructed as per sanctioned plan or as per deviation statement.

4. As I reported in my letter, No. 369 S.E., dated 1st October 1897, I have invited tenders for the work and the date fixed for opening them is 1st November 1897. A copy of my tender notice has been sent to Mr. Lloyd.

No. 1593 M.D.

Copy submitted to the Chief Engineer, Public Works Department, for orders with reference to paragraph 3 of G.O., No. 2708 W., dated 29th September 1897. A deviation statement for the residence for the Government Astronomer at Kodaikānal has been forwarded with this office letter No. 1486 M.D., dated 14th October 1897.

(Signed) O. V. BODDY, Lt.-Col., R.E.,
Superintending Engineer, VI Circle.

4th November 1897.

From A. JOYCE, Esq., Executive Engineer, Madura Division, to the Superintending Engineer, VI Circle, dated 1st November 1897, No. 438 S.E.

With reference to my letter No. 133 E., dated 10th August 1897, submitting for sanction revised plan and estimate for constructing an observatory building at Kodaikānal, I have the honour to inform you that the best working season that could be availed of at Kodaikānal for commencing the work is from January next. I request therefore that you will be good enough to furnish me with the required sanction as early as possible.

No. 1623 M.D.

Copy forwarded to the Chief Engineer, Public Works Department, for information and with reference to this office No. 1237 M.D., dated 2nd September 1897.

(Signed) J. INGLIS,
for Suptg. Engineer, VI Circle.

6th November 1897.

From Lieutenant-Colonel O. V. BODDY, R.E., Superintending Engineer, VI Circle, to the Chief Engineer, Public Works Department, dated Camp Pápanásam, 15th December 1897, No. 1851 M.D.

With reference to your Memo. No. 4571 C., dated 5th November 1897, I have the honour to forward herewith a revised estimate, with comparative statement and plan, for constructing a residence with out-houses for the Government Astronomer at Kodaikáanal.

2. I also forward the estimate and plans sanctioned in G.O., No. 2355 W., dated 25th August 1897.

3. In the revised estimate provision has been made for the same description of work as that provided for in the original estimate by the Consulting Architect with the following deviations:—

- (a) The thickness of all walls has been made 2'.
- (b) Blasted blue stone has been allowed as a facing for one half the thickness of all exterior walls.
- (c) Rates as tendered have been entered throughout.

4. I have also allowed the same footings in foundations as in the original estimate. This makes the breadth of concrete 4' 6"; it might, I consider, be reduced to 3' 6" and the walls built up therefrom 2' thick.

5. The total amount of the estimate at tendered rates comes to Rs. 26,768.

6. In paragraph 2 of the above quoted Government Order it has been ordered that all the materials, with the exception of the masonry, should be prepared in Madras and forwarded to Kodaikáanal.

7. In the comparative statement which accompanies the estimate I have placed the letter M against those items which I presume are to come from Madras, and the letter K against those items which will be wholly carried out at Kodaikáanal.

8. The estimate may therefore be divided into —

	Rs.
Kodaikáanal work	13,590
Madras work	11,812
Sundries and supervision	1,366
	26,768

9. If the rates as entered by the Consulting Architect for the Madras work be adhered to, the estimate would be—

	Rs.
Kodaikáanal work	13,590
Madras work	10,107
Sundries and supervision	1,366
	25,063

or Rs. 1,705 less than the amount of the revised estimate, but still much in excess of the limit of Rs. 20,000 which has been placed on the cost of this building.

10. I forward herewith, for your information, a deviation statement in which, besides allowing for building all walls of a thickness of 2', facing exterior walls with blue stone and entering tendered rates, the following deviation has been made—concrete in mortar, and uncoursed rubble in mortar in foundations and basement have been dispensed with, and rubble in clay has been substituted in the place thereof.

11. The total amount of the estimate with these deviations comes to Rs. 22,320. This amount may be sub-divided into —

	Rs.
Kodaikáanal work	9,142
Madras work	11,812
Sundries and supervision	1,366
	22,320

and if, as before, the Consulting Architect's rates be taken for the Madras work, then a saving of Rs. 1,705 can be effected, and the amount of the estimate reduced to Rs. 20,615, or nearly to the limit of cost placed on the building.

12. In paragraph 3 of your memorandum under reply, I have been asked to state my opinion definitely on the suitability of stone in clay as a building material at a hill station exposed to heavy rainfall.

13. Stone in mortar is of course an infinitely better material than stone in clay, and I should much prefer to build with it. The Executive Engineer, Madras division, Mr. Joyce, who has had considerable experience with buildings at Kodaikáanal, is strongly of opinion that stone in clay is a sufficiently good material of which to construct this building, and points out that this material has been almost universally used on the houses already built at Kodaikáanal.

14. From motives of economy only did I suggest that stone in clay should be used in the foundations, and I consider that if great care is taken in laying the stones, which should be selected, and if the soil on which they are laid is hard, such as at the site of the Astronomer's residence, this material can be used without danger of failure.

Note by the Chief Engineer, Public Works Department.

The Superintending Engineer, VI Circle, having found it impossible to obtain a contractor to undertake the construction of the observatory buildings at Kodaikáanal at the rates provided in the sanctioned estimates, the works were, in G.O., No. 3460 W., dated 10th December 1897, transferred to the charge of the Consulting Architect for execution departmentally. Revised estimates, based on the tendered rates, have been submitted by the Superintending Engineer, VI Circle, and these compare as follows with the sanctioned estimates:—

	Sanctioned estimate.	Superintending Engineer's revised estimate.
	Rs.	Rs.
Observatory	35,060	41,150
Astronomer's residence	19,663	26,768

2. The original and revised estimates for the observatory building have been carefully examined by the Chief Engineer, in communication with the Consulting Architect, and by obtaining some of the materials of construction, and carrying out other suggestions of the latter officer, the amount of the estimate has been reduced to Rs. 34,800. It is recommended that this sum be sanctioned in supersession of the estimate of Rs. 35,060 sanctioned in G.O., No. 445 W., dated 15th February 1897.

3. The estimate provides for three revolving drums for the towers at a total cost of Rs. 9,600. The Consulting Architect has proposed that only one of these drums be obtained by indent on the Home Government and that after its receipt, the remaining two should be made up locally, by copying from the first. This suggestion might be referred to the Government Astronomer for remarks. The Consulting Architect is convinced that it can easily be done.

altering

4. The revised estimate for the Astronomer's residence might be transferred to the Consulting Architect for scrutiny and for consideration as to whether, as the work is to be done departmentally, it cannot be carried out at a cost not exceeding the sanctioned amount.

5. The Superintending Engineer's remarks regarding the constructive details of the Assistant's quarters will also be considered by the Consulting Architect.

10th January 1898.

(Signed) W. B. DEWINTON,
Ag. Chief Engineer.

ORDER—No. 117 W., dated 17th January 1898.

The estimate drawn up by the Chief Engineer, amounting to Rs. 84,800, for the observatory building at Kodaikānal, is

- * Imperial No. 2 W. of 1897-98, Civil Buildings—Original Works. sanctioned* in supersession of the estimate of Rs. 35,060, sanctioned in G.O., No. 445 W., dated 15th February 1897.

2. The Government Astronomer will be requested in the Public Department to report on the Consulting Architect's proposal with respect to the supply of the revolving drums.

3. The Consulting Architect's attention will be drawn to the other remarks in the Chief Engineer's note, to which he will give due consideration.

(True Extract.)

Stromm
Under Secretary to Government.

To the Consulting Architect to Government, with enclosures.
" Superintending Engineer, VI Circle.
" Examiner, Public Works Accounts.
" Public Department.

When given for copying 7/2
When copied 7.2
When examined 8.2 1898
When signed _____

READ AGAIN G.O., No. 189

DATED

CURRENT No.

ENCLOSURES TO G. No.

ORDER OF GOVERNMENT

A A A A A A A

LETTER OF GOVERNMENT.

STATEMENT WITH DITTO.

PAPERS NOT FILED UP, BEING MEANT FOR DESPATCH
IN ORIGINAL.

H.B.—

A = Copy in full.
B = Not to be copied.
P = Copy abstract only.
Q = Copy heading only