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MADRAS RECORD OFFICE

Government of Madras

Public Works. DEPARTMENT

G.O. No.	636	Press	<i>Rigunat</i>
B.P.-No.		Mis.	
Dated	5-3-	1875	-195-

Not to be folded or roughly handled

Read the following papers —

No. 152 From Major J. O. HASTED, R E, Superintending Engineer, Kistna, to Lieutenant-Colonel J. MULLINS, R E, Chief Engineer for Irrigation, dated Masulipatam, 25th January 1875, No 144

1 Comparative Statement

1 Estimate

1 Actual Data

1 Copy of letter, No 291, of 4th December 1874, from Mr Peters

I HAVE the honor to forward, herewith, a comparative statement and a supplemental estimate of work requiring to be done to complete the bridge at Perikood over the Ellore canal.

2 A revised estimate, amounting to Rupees 14,150, was sanctioned in G O, No 810, dated 14th March 1873, for this work, and included an item of Rs 1,548 for metalling approaches. The Local Fund Board declined to undertake the metalling work, which has not therefore been done, and which should reduce the total of the estimate to Rupees 12,602. The comparative statement shows that to complete the work without metalling approaches, the sanctioned amount, Rs 14,150, will be exceeded by Rupees 21-1-8.

3 A letter from Mr. Peters, Assistant Engineer, who has been in charge of the work, is enclosed, in which he explains the causes of the increased charges. The only items requiring notice are stone-work, brick work, and centering. Of these, rubble in chunam shows an excess of Rupees 401-13-2, the actual rate of work being Rupees 4-8-4½ per cubic yard against Rupees 4 estimated. This is in a great measure accounted for by the stone having been collected in 1868-69, and charged at the rate of 11 annas 6 pies per cubic yard, and the excess on labor is due to the workmen having to be brought from a distance.

4 Cut stone in chunam has been exceeded by Rupees 1,041-4-0, the actual working rate being Rupees 14-3-3 per cubic yard against Rupees 8-8-0 estimated. The estimated rate is altogether insufficient, and would have been noticed in my letter forwarding the first revised estimate, had that letter not been written

dated in G O, No 810, 14th March 1873 immediately after I joined the district and when I was in ignorance of what the rates should be. The working rate, however, is higher than it should be. Even making allowance for the difficulty of conveying stone after it is shaped for a distance of 26 miles and fitting it with unskilful masons, I think the rate should not have exceeded Rupees 13 per cubic yard.

5. Arch-work is exceeded by Rupees 336-5-2. The cost of the bricks was very high, but there is no soil suitable for brick-making within a considerable distance. It was, however, bad management not to have prepared the bricks in time, so that they could be brought down by water instead of by land.

6 Centering has cost a great deal more than it should, and there are several reasons for this excess. The Range Officer, as he states, at first allowed the pillars to be built of stone in mud, and they were built in wrong positions, and had to be constructed twice over, then during the time the arch was being built, there were heavy storms, and the pillars cracked, so that a substitute had to be found which led to much difficulty in striking the centres. I was present myself at this time, and am aware that a great deal of work had to be done to prevent accident, for which no provision had been made. The boxes and pistons will be brought into stock for Rupees 100, and the estimate relieved to this extent.

*Proceedings of the Madras Government, Public Works Department,
5th March 1875.*

7 An item of stone charged in excess and wastage is allowed in the estimate, amounting to Rupees 405, and Mr. Peters explains a portion of this by discovering that the punts, which convey stone when weighted to their full cargo mark, do not convey so many yards of stone as were charged for. The whole subject is being attended to, and shows that there was great carelessness formerly, but I believe myself that the measurement of stone will always vary, and there is a considerable difference in the weight of the different descriptions of stone found in the quarry. It is impossible to say how much has been overcharged, or it might be recovered from the quarries, but the whole amount should, I think, be added to the cost of the stone-work in the present estimate.

8 Mr. Peters has been in charge of the work throughout, and since I have been in the district, Local Fund Overseer Bhadrachalum Naidu and Delta Superintendent Mr. Pierce have been the subordinates on the work. Some allowance should be made for the length of time that has elapsed since the work was commenced, and for the out of the way position of it, but I am compelled to say that there seems to me to have been a want of good management which has led to waste of labor and a consequent increase of expenditure on cut stone and centering. This might have been avoided, had the Range Officer been able to devote more of his time to the work, but the duties in the Bezoarah Range are so extremely heavy that I am aware Mr. Peters, who spares himself no trouble nor exposure, is unable to pay sufficient attention to the works.

No 167-A.

Note by the Chief Engineer for Irrigation.

In G O, No 810, of the 14th March 1873, a revised estimate, amounting to Rupees 14,150, for a bridge across the Ellore Canal at Perikeed, was sanctioned, the original estimate having been Rupees 8,180. The Superintending Engineer now reports that, although, in consequence of the decision of the Local Fund Board not to metal the approaches, work of the value of Rupees 1,548 is not intended to be carried out. The bridge when completed will have cost Rupees 21 more than the full amount of the sanction, or an excess of 1,569 rupees on the items of the estimate carried out.

2. The first thing which must be noticed is that the Range Officer is much to blame for not making a full investigation of the circumstances of the work and a correct estimate in the early part of 1873. Several of the causes of excess now reported were then in operation, and had they been properly looked into, probably some of the excess would have been avoided.

3. I agree with the Superintending Engineer that the rate, Rupees 83 allowed for cut-stone masonry, was too low, and that the actual rate, Rupees 14-3-3, is excessive, but I believe that Major Hasted's estimate of Rupees 13 as a proper rate is too high. I judge from the cost of very excellent work executed with a harder stone in the Western Delta, Godavery.

4. It has been shown that a saving of Rupees 119 has resulted from the omission of a packed stone flooring under the bridge, which has been considered to be unnecessary. This is a correct conclusion as regards the current in the canal, which will, so far as due to the irrigation supply, be always very moderate, but it must be remembered that flood waters enter the

*Proceedings of the Madras Government, Public Works Department,
5th March 1875*

canal, and were an influx to take place on one side of the bridge and a breach to occur on the other side, there might be a very strong current. The Superintending Engineer should examine into this matter and should not omit the flooring which should extend several yards above and below the lines of the face walls if there be any possibility of its being of use.

5 The substitution of iron for wooden bars in the railings of the approaches will be unobjectionable if the uprights be placed sufficiently close together. The responsibility of substituting Chandra for teak wood must rest with the Superintending Engineer who, it is presumed, is acquainted with the character of the cheaper material.

6 Major Hasted has reported fully on the several items of excess. The management of the work has been far from satisfactory, and like all works which are carried on without due energy, the cost has been greater than was necessary. Two years should have sufficed to complete the bridge, and probably if built in that time, the expenditure would have been one-fourth less. Some weight may be given to the circumstance that the Range Officer had a good deal of work to look after, but there are indications that the arrangements were not properly made by him in the first instance, and that mistakes had to be corrected instead of being prevented.

CAMP AT CUDDAPAH,
9th February 1875.

(Signed) JOHN MULLINS, Lieut-Colonel, R E,
Chief Engineer for Irrigation.

No. 154

ORDER THEREON, 5th March 1875, No 636

IRRIGATION, No 9

THE Government sanction the revised estimate of Rupees 14,170 for the Perikeed bridge over the Ellore

Canal in the Kistna District, and concur with the Chief Engineer for Irrigation in considering that the management of this work has been very far from satisfactory. It is hoped that the Superintending Engineer will be able to ensure much better arrangements on all works carried out in the future, for Executive Officers must be held responsible that due forethought is exercised, and that easily avoidable mistakes are not committed.

2 Attention will be given to the remarks in paragraphs 4 and 5 of the foregoing note.

(True Extract.)

Colonel, R E,
Secretary to Government.

To the Superintending Engineer, Kistna
" Chief Engineer for Irrigation
" Controller of Public Works Accounts
" President of the Local Fund Board, Kistna

Exd A Grubert.
Spare Copies

3. A letter from Mr. Peters, Assistant Engineer who has been in charge of the work is enclosed in which he explains the causes of the increased charges. The only items requiring notice, are stone work, brick work, and centering of these, rubble in chunam shows an excess of Rupees 401-13-2, the actual rate of work being Rupees 2-4-3 per cubic yard, against Rupees 4 estimated, this is in a great measure accounted for by the stone having been collected in 1868/69, and charged at the rate of 11 annas, 6 pies, per cubic yard, and the excess on labour is due to the workmen having to be brought from a distance.

4. Cut stone in Chunam has been exceeded by Rupees 1046-11-2, the actual working rate being Rupees 14-3-3 per cubic yard, against Rupees 8-8-0 estimated. This estimated rate is altogether insufficient, and would have been noticed in my letter forwarding the

printed in S.O. No 810
11th March 70

the first revised estimate. Had that letter not been written, I immediately after I joined the District, and when I was in ignorance of what the rates should be. The working rate however is higher than it should be. Even making allowance for the difficulty of conveying stone after it is shaped for a distance of 26 miles, and fitting it with unskilful masons, I think the rate should not have exceeded Rs 13 per cubic yard.

5. Arch work is exceeded by Rs 336-5-2. The cost of the bricks was very high, but there is no soil suitable for brick making within a considerable distance, it was however had management not to have prepared the bricks in time, so that they could be brought down by water instead of by land.

6. Centering had cost a great deal more than it should, and there are several reasons for this excess. The Range Officer as he states, at first allowed the pillars to be built of stone in mud, and they

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For the item of stone charged in
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8. Mr. Peters has been in charge
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him, able to devote more of his time to the work, but the duties in the Regatta Range are so extremely heavy that I am aware Mr. Peters, who spares himself no trouble nor exposure, is unable to pay sufficient attention to the work.

I have the honor to be
your most obedient servant
Major R. E.
Suff. Engineer Division.

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Note by the Chief Engineer for Irrigation

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The first thing which must be noticed is that the Range Officer is much to blame for not making a full investigation of the circumstances of

to the Chief Engineer for Irrigation

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of the work, and a correct estimate in the early part of 1873. Several of the causes of excess now reported were then in operation, and had they been properly looked into probably some of the excess would have been avoided.

3 I agree with the Superintending Engineer that the rate Rupees 8 1/2 allowed for cut stone masonry was too low, and that the actual rate Rupees 11-3-3 is excessive, but I believe that Major Hasted's estimate of Rupees 13 as a proper rate is too high. I judge from the cost of very excellent work executed with a harder stone in the Western Delta, Godavary.

4 It has been shown that a saving of Rupees 119 has resulted from the omission of a packed stone flooring under the bridges, which has been considered to be unnecessary. This is a correct conclusion as regards the current in the Canal, which will so far as due to the irrigation supply

be always very moderate, but it must be remembered that flood waters enter the canal and were an influx to take place on one side of the bridge and a breach to occur on the other side, there might be a very strong current. The Superintending Engineer should examine into this matter and should not omit the flooring, which should extend several yards above and below the lines of the face walls, if there be any possibility of its being of use.

5 The substitution of iron for wooden bars in the railings of the approaches will be unobjectionable if the uprights be placed sufficiently close together. The responsibility of substituting Chandra for teak wood must rest with the Superintending Engineer, who it is presumed is acquainted with the character of the cheaper material.

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Camp at
Cuddapah
9th February
1875

Wm. L. L. L.
Chief Engineer for Irrigation

To The Secretary to Government
P. W. D.

Dep^y Sec^y W. Dept

Proceedings of the Honors Government
Read the following

From
The Chief Eng^r for Irrigation (H-E-167A. 89th Febr^y/75)

(736)

The Government sanction
the revised estimate of Ru-
pees 14,170 for the Perished
bridge over the Ellore Canal
in the Hista District, and
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forethought

W. D.

P. W. 1875 Dept.
H. 167A
No: 1075
From
The Chief Eng^r for
Irrigation

The Perished
Canal 1. 2. 3.
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17th — — — }
8 1875.

Note on the revised
estimate amounting
to Rs. 1,100 in a bridge
across the Ellore
Canal at Perished.
E.C. No: 636. S. 1-78.

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1619-2-78

O. W. D.

forethought is exercised, and
that easily avoidable mis-
takes are not committed.

2 Attention will be given
to the remarks in paras 1,
and 5 of the foregoing Note.

W. 13/2/75

[Signature]

V^o 152-154

The Supt. of the District
- Chief of the Delegation
- Controller of V. W. accounts
- President of the Local
Sind Board Kistna

Chap. 8-8-75

1075

St. of 1875 Madras.

PUBLIC WORKS.

The Supergr
District

Dated

Secd

Encl

O. O. S. No. 636

No. 152-154.

erected bridge over the
Pore Canal, The line of

The revised Estimate
of Rs. 14,170 for the bridge
and its foundations with remarks.