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MADRAS RECORD OFFICE.**Government of Madras.****Public Works DEPARTMENT.**

G.O. No. 2375	Press Mis.
Dated 5 10	18 70.

Not to be folded or roughly handled

19

*Proceedings of the Madras Government, Public Works Department,
5th October 1870.*

No. 61. Read the following letter from the Acting Consulting Engineer for the Madras Irrigation and Canal Company, to the Secretary to Government, Public Works Department, dated Madras, 10th September 1870, No. 66:—

I HAVE the honour to submit, for the orders of Government, an estimate, amounting to Rupees 20,870, for distribution works in the 2nd Range of the 4th Section, together with the plans and the correspondence on the subject noted in the margin.

Six letters, in original, from Agent.
Three do. to do.
Two Plans.
Three Estimates.
One Tabular Statement.

2. The particulars of the estimate are—

From Agent, No. 303, dated 11th July 1870.
To " " 118, " 20th " "
From " " 339, " 9th Aug. "
To " " 148, " 13th " "
From " " 358, " 19th " "
Do. " " 386, " 8th Sept. "
Do. " " 383, " 7th " "
Do. " " 355, " 17th Aug. "
To " " 159, " 23rd " "

	RS.	A.	P.
Earthwork	5,194	12	0
Subsidiary Channels, at 10 Annas an acre	6,569	6	0
Contingencies, 10 per cent.	1,175	14	0
Masonry works	7,930	0	0
Total...	20,870	0	0

The length of channels is 19 miles 8½ chains, and the masonry works are—

Aqueducts	3
Double sluice	1
Culverts	7
Weir and sluice	5
Low weirs	30
Road crossings	16
Total... *62	

* The course of the channels and the position of each masonry work are clearly shown in the general plan.

The area to be irrigated is 10,511 acres which, at the abovenamed expenditure, would give an average of Rupees 1-15-9 per acre; but in striking this average the Chief Engineer has not noticed the sanction of Rupees 4,687 for sluices in connection with those irrigation works, as shown in the 2nd paragraph of Major

Mullins' letter† to Government. The cost of sluices, Nos. 1, 8, 9, and 10, in the Main Canal has also been omitted, although they supply the irrigation channels. I pointed this out to the Company's officers, but they have taken no notice of it.

The rates for channel excavation vary from 8 to 10 cubic yards per rupee, and the masonry works are designed and estimated as proposed for similar works for the 5th Section, which I recently‡ reported on and do not call for remark.

† Letter to Government, No. 53, dated 25th August 1870.
‡ The Chief Engineer remarks that the rates are for work only, and that the per-centage for stores, store charges, plant, and contingencies is for depreciation only, by which I understand that plant and tools which have been in use are available for this work.

3. The designs of the works do not require special mention, except to record that for all drainage areas of less than one-eighth square mile, the drainage is passed

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5th October 1870.*

across the channels by low weirs, on which the banks can be reformed after a flood has passed. For larger areas the drainage is passed under the channels by culverts, and in one case a permanent weir is provided.

4. It will be observed that one class of channels only is shown on the plan and included in the tabular list, and that 10 Annas per acre is provided for subsidiary channels. I objected to the amount, as 6 Annas an acre had been provided in former irrigation schemes, and the

* No. 1,328, 3rd September, to Agent.

Chief Engineer has to-day* informed me that it was an error. In former estimates 6 Annas an acre was provided as a compensation to the ryots for the immediate distribution of water to the fields, but from the letter now received the Chief Engineer seems undecided how this is to be done. I think the practice adopted in former cases had better be followed now, and 6 Annas an acre be provided in the estimate, leaving it an open question how the small distribution channels shall be dug, until the land is about to be adapted for irrigation, when the Chief Engineer can deal with each case according to circumstances.

5. The only other matter that calls for particular notice is that the channels are designed to discharge the uniform quantity of two cubic yards per hour per acre, although the area to be irrigated under the channels varies from 80 to 1,885

My No. 118, 20th July 1870.

acres. On first receiving this project I drew the Chief Engineer's attention to the principle which the Consulting Engineer suggested should regulate the carrying capacity of a channel, and which the Government approved of, and I

G. O., No. 2,882, 10th September 1868.

enquired if the disregard of those principles was intentional, and, if so, that I might be made acquainted with his views on the subject. In reply, I was furnished with a copy of the Executive Engineer's letter, explaining that there would be no difficulty in enlarging the channels, and that he would not require any additional sanction for the purpose if the enlargement might be made in the manner he proposed; and, in forwarding this communication, the Chief Engineer simply added "that he did not see how the Company will prevent great waste of water if the channels be made needlessly large."

Chief Engineer to Agent, No. 1,200, 5th August 1870.

He had in a former letter mentioned that the additional cost of adapting the channels on the principles referred to above would, for the distribution works of the 4th and 5th Sections, amount to 20 per cent. on the cost of earthwork, or Rupees 3,000 for both sections, say Annas 2 Pies 6 an acre; but he added that he did not think this necessary, and that the channels might be tried as he had proposed.

6. Soon after the Chief Engineer forwarded an enquiry from the Executive Engineer, Kunder Division, who had

From Agent, No. 358, 17th August.

similar schemes in hand, whether distribution must be calculated according to Major Mullins' figures, or only the principle observed, and giving his and the Deputy Chief Engineer's opinion, that where the discharge of a channel is under 500 yards, a capacity for 4 cubic yards per hour

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5th October 1870.*

per acre would suffice, and 3 cubic yards for a discharge under 1,000. I replied that I did not feel at liberty to authorize a departure from the principles approved of by Government, and that if the Chief Engineer should resolve on fixing any smaller quantities as the maximum water per acre per hour, the masonry works at any rate should be of full size.

7. I have now received a further communication from the Chief Engineer on this subject, No. 1,308, of 31st August, to the Agent. In this letter the Chief Engineer says he has carefully considered the principles advocated by Major Mullins, and the carrying capacity of channels with reference to area to be irrigated as proposed by that officer, and that he has no intention of proposing the general adoption of that scale, nor does any order of Government enforce it on the Company.

8. It would be useless to follow the Chief Engineer through his letter, as it is totally at variance with all that he had previously written on the subject, and with the Executive Engineer's opinions which he had communicated to me; the purport of it is that he regards the principles suggested as an experiment, proposed to be tried on a gigantic scale at the Company's expense, which they are not in a position to afford, and that he does not purpose to follow the scale of dimensions suggested by the Consulting Engineer to Government, or indeed to deviate from the usual proportions of channels, which, according to all the estimates that he has submitted to this office, is the uniform quantity of 2 cubic yards per hour per acre.

9. It is greatly to be regretted when the Consulting Engineer raises important points of this nature, and which meet with the approval of Government, that the Company's professional officers do not take up the subject, discuss it fairly and fully, and let the matter be settled in good time one way or the other, instead of throwing the papers aside, when they are lost sight of for two or three years, and then, when the estimates come in, and it is found that the principles which had been suggested to the Company for guidance have been completely ignored, reasons and arguments in opposition are hastily brought forward. With regard to the estimates now submitted, the Chief Engineer informs me

His No. 1,308, 31st August, to Agent.

that the masonry works, as designed, will pass the water in the channels without sensible acceleration, and might easily and safely pass double that quantity; and in a later communication he explains that, while the channels as excavated will carry 2 cubic yards an hour, the quantity may be doubled by taking the banks into account and allowing the water to flow at a greater depth. Accepting this explanation as a step in the right direction, without admitting that it is acting up to the principles advocated, I would propose that the estimates, when corrected, by allowing 6 Annas per acre for distribution in lieu of 10, might be sanctioned. The amount will be as follows:—

	RS.	A.	P.
Earthwork	5,194	12	0
Subsidiary channels, at 6 Annas an acre	3,941	10	0
Contingencies, at 10 per cent	781	8	0
Masonry works	7,930	0	0
Total	17,847	14	0

Proceedings of the Madras Government, Public Works Department,
5th October 1870.

No. 62.

ORDER THEREON, 5th October 1870, No. 2,395.

IRRIGATION, No. 9.

The Acting Consulting Engineer for the Madras Irrigation and Canal Company submits with this letter an estimate of Rupees 20,870 for distribution works to the lands proposed to be irrigated from the 2nd Range of the 4th Section of the Main Canal, and states that through inadvertence on the part of the Company's officers the rate per acre for subsidiary channels has been set down at 10 Annas instead of 6 Annas, which has hitherto been allowed in irrigation schemes.

2. After making the necessary corrections the amount that will require the sanction of Government is Rupees 17,847-14-0. Colonel Carpendale considers the principles upon which the present project has been prepared to be similar to those generally approved by Government, and he suggests that sanction be accorded to the estimate as revised by him.

3. Under these explanations and in accordance with the recommendation of the Acting Consulting Engineer, His Excellency in Council sanctions the reduced estimate.

4. The Chief Engineer's attention will be drawn to the remarks and suggestions in paragraphs 4 and 9.

(True Extract.)

Colonel, R.E.,

Secretary to Government.

To the Acting Consulting Engineer for the Madras Irrigation and Canal Company.
do. Agent and Manager do.

Exd. S. T. Augustin.

Enclosures-
6 letters in orig from Agent
3
2 plans
3 estimates
1 tabular statement
12.

Consulting Engineer's office
Irrigation and Canal Company
Madras, 10th September 1870.

No. 66.
Sir,
Colonel, Carpendale
R. E. Carpendale
Secretary to Government
Public Works Department

I have the honor to submit for the orders of Government an estimate amounting to Rupees 20,870 for distribution works in the 2nd Range of the 4th Section, together with the plans and the correspondence on the subject.

From Agent 17-303-11 July 70
To - 118-20-
From - 339-9 Aug 70
To - 118-23-
From - 358-19-
To - 386-8 Sept 70
From - 383-7-
To - 355-17 Aug 70
To - 159-23-
2.

The particulars of the estimate are:

Earthwork	Rs 5194-12-
Subsidiary channels @ 10 Annas an acre	6569-6-
Contingencies 10 per cent	1175-14-
Masonry works	7930-
	20870-

The length of channels is 19 miles 8 1/2 chains, and the masonry works are:

Aqueducts	3
Double sluice	1
Culverts	7
Weir and sluice	5
Low weirs	30
Road crossings	16
Total	62

* The course of the channels & the position of each masonry work is clearly shown in the first plan.

The area to be irrigated is 10511 acres which, at the above named expenditure, would give an average of Rupees 1.15.9 per acre, but in striking this average the Chief Engineer has not noticed the sanction of Rupees 4,607 for sluices in connection with those irrigation works as shown in the second paragraph of Major Mullins' letter to Government. The cost of sluices Nos 1-8 and 10 in the Main Canal has also been omitted although they supply the irrigation channels. I pointed this out to the Company's officers but they have taken no notice of it. The rates for channel excavation vary from 0 to 10 cubic yards per rupee, and the masonry works are designed and estimated as proposed for similar works for the 5th Section which I recently reported on and do not call for remark. The Chief Engineer remarks that the rates are for work only, and that the percentage for stores, store charges, plant and contingencies is for depreciation only, by which I understand that plant and tools which have been in use are available for this work.

3. The designs of the works do not require special mention except to record that for all drainage areas of less than one eighth square mile, the drainage is passed across the channels by low weirs on which the banks can be reformed after a flood has passed. For larger areas the drainage

* G.O. No 2822-10
Sept 1/18

* Letter to Govt No
53-25 Oct 1/18

No 1320-3rd Sept
to Govt.

My No 118-20 July 18

is passed under the channels by culverts, and in one case a permanent weir is provided. 4. It will be observed that one class of channel only is shown on the plan and included in the tabular list, and that 10 annas per acre is provided for subsidiary channels. I objected to the amount, as 6 annas an acre had been provided in former irrigation schemes, and the Chief Engineer has today informed me that it was an error. In former estimates 6 annas an acre was provided as a compensation to the ryots for the immediate distribution of water to the fields, but from the letter now received the Chief Engineer seems undecided how this is to be done. I think the practice adopted in former cases had better be followed now and 6 annas an acre be provided in the estimate, leaving it an open question, how the small distribution channels shall be dug until the land is about to be adapted for irrigation when the Chief Engineer can deal with each case according to circumstances.

5. The only other matter that calls for particular notice is that the channels are designed to discharge the uniform quantity of two cubic yards per hour per acre, although the area to be irrigated under the channels varies from 20 to 1005 acres. On first receiving this project I

draw

draw the Chief Engineer's attention to the principle which the Consulting Engineer suggested should regulate the carrying capacity of a channel, and which the Government approved of, G.O. No. 2882-10th Sep

and I enquired if the disregard of those principles was intentional, and if so, that I might be made acquainted with his views on the subject.

In reply, I was furnished with a copy of the Consulting Engineer's letter explaining that there would be no difficulty in enlarging the channels, and that he would not require any additional sanction for the purpose if the enlargement might be made in the manner he proposed: and in forwarding this communication the Chief Engineer

simply added that he did not see how the Company "will prevent great waste of water if the channels be made needlessly large". He had in a former letter mentioned that the additional cost of adapting the channels on the principles referred to

above, would, for the distribution works of the 4th and 5th sections amount to 20 per cent on the cost of earthwork, or Rs 3,000 for both sections - say 2¹/₂ c an acre - but he added that he did not think this necessary and that the channels might be tried as he had proposed.

6. Even after, the Chief Engineer forwarded

an inquiry from the Executive Engineer, Munda Division, who had similar schemes in hand, whether distribution must be calculated according to Major Mullins' figures, or only the principle observed, and giving his and the Deputy Chief Engineer's opinion, that where the discharge of a channel is under 500 yards a capacity for 4 cubic yards per hour per acre would suffice, and 3 cubic yards for a discharge under 1,000 - I replied that I did not feel at liberty to authorize a departure from the principles approved of by Government, and that if the Chief Engineer should resolve on fixing any smaller quantities as the maximum water per acre per hour, the masonry works at any rate should be of full size.

7. I have now received a further communication from the Chief Engineer on this subject, No. 1300 of 31st August to the Agent. In this letter the Chief Engineer says he has carefully considered the principles advocated by Major Mullins, and the carrying capacity of channels with reference to area to be irrigated as proposed by the officers, and that he has no intention of proposing the general adoption of that scale, nor does any order of Government enforce it on the Company.

Chief Engineer to Agent
No. 1200-5th Aug 11

from Agent No. 5582
17th Aug

an inquiry from the Executive Engineer, Munda Division, who had similar schemes in hand, whether distribution must be calculated according to Major Mullins' figures, or only the principle observed, and giving his and the Deputy Chief Engineer's opinion, that where the discharge of a channel is under 500 yards a capacity for 4 cubic yards per hour per acre would suffice, and 3 cubic yards for a discharge under 1,000 - I replied that I did not feel at liberty to authorize a departure from the principles approved of by Government, and that if the Chief Engineer should resolve on fixing any smaller quantities as the maximum water per acre per hour, the masonry works at any rate should be of full size.

I have now received a further communication from the Chief Engineer on this subject, No. 1300 of 31st August to the Agent. In this letter the Chief Engineer says he has carefully considered the principles advocated by Major Mullins, and the carrying capacity of channels with reference to area to be irrigated as proposed by the officers, and that he has no intention of proposing the general adoption of that scale, nor does any order of Government enforce it on the Company.

8. It

9. This greatly to be regretted when the Consulting Engineer raises important points of this nature, and which meet with the approval of Government, that the Company's professional officers do not take up the subject, discuss it fairly and fully, and let the matter be settled in good time one way or the other, instead of throwing the papers aside when they are lost sight of for two or three years, and then, when the estimates come in and it is found that the principles which had been suggested

Hartford Collected.
Salovey & Co. Company.

Proceedings of the Madras Govt.

Read the following

From the Asst. Secy. for the
Madras Dy. Co. } R.E. 26. 7/10. Sep/70/

The Acting Consulting Engineer for the Madras Irrigation Canal Company submitted with this letter an estimate of Rs 20870 for distribution works to the lands proposed to be irrigated from the 2^d Range of the 4th section of the main canal, and states that through inadvertence on the part of the Company's officers the rate per acre for subsidiary channels has been set down at 11 annas instead of 6 annas which has hitherto been allowed in irrigation schemes.

After making the
necessary corrections the amount
that

27. 1878 Oct.
John J. Norton Esq
Brooklyn N.Y. 3596
The New England C. Co.
Boston
The Secretary's Office.

Wick 10" } Schiff 1/10.
Bau: 1/2 - 3

June 18

Endorse for the order
of credit an "advance amount-
ing to \$100.00 with interest
for distribution within
2nd range of 4th section -



1. *Chrysomelidae* (Colorado potato beetle)
 2. *Curculionidae* (Colorado potato beetle)
 3. *Curculionidae* (Colorado potato beetle)
 4. *Curculionidae* (Colorado potato beetle)
 5. *Curculionidae* (Colorado potato beetle)
 6. *Curculionidae* (Colorado potato beetle)
 7. *Curculionidae* (Colorado potato beetle)
 8. *Curculionidae* (Colorado potato beetle)
 9. *Curculionidae* (Colorado potato beetle)
 10. *Curculionidae* (Colorado potato beetle)

15-01-2011

Amesbury, Oct. 14. 1887. O.S. 26.

that will require the sanction
of Govt. is Rs 17847 12. Colonel
Barnard considers the princi-
ples upon which the present
project has been prepared to
be similar to those generally
approved by Govt. and he sug-
gests that sanction be accorded
to the estimate as revised by
himself. He also suggests
that the explanation
and in accordance with
the recommendation of the
Consulting Engineer, Mr. G.
Debbsey, in former sanction
the reduced estimate.

The Chief Engineer
attention will be drawn to the
remarks and suggestions in
para 4 & 9. It is noted
that the estimate is revised
on the basis of the above.

Yours faithfully,
[Signature]

Received
[Signature]
[Signature]

21/11/70
The Acty. Comdg. Engr for the
M. C. of South India
Agents Manager do

The Chief Engineer
attention will be drawn to the
remarks and suggestions in
para 4 & 9. I am, Sir,
Yours faithfully,
J. H. H. H.

Rec'd 6.10.70