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MADRAS RECORD OFFICE.

Government of Madras.

Public works DEPARTMENT.

G.O. No.	1286	Press
361/362		Mis.
Dated	14-5	1872.

Not to be folded or roughly handled

*Proceedings of the Madras Government; Public Works Department,
14th May 1872.*

Read the following papers :—

No. 361. Read the following Proceedings of the Madras Government in the Financial Department, dated 6th April 1872, No. 459 :—

Read the following Proceedings of the Board of Revenue, dated 6th March 1872.
From the Acting Collector and President of the Local Fund Boards, Godavery District, to the Secretary to the Board of Revenue, dated Jaggampeta, 12th January 1872, No. 1.

I HAVE the honour to forward, herewith, estimate, survey, etc., for the construction of a road from Rajahmundry to Rahitapuram along the east bank of the Godavery.

One survey.
Two masonry plans.
One abstract estimate.
One specification.

2. The estimate amounts to Rupees 46,300 without gravelling, the cost of which can be calculated after the project has been sanctioned. It lies within the limits of the Rajahmundry Circle, and has received the unanimous approval of the Local Board, on condition that the Government, for reasons stated below, will consent to bear a fair proportion of the cost.

3. The length of the road is 11 miles and 1,418 yards as at present estimated for; but it will probably be necessary to carry it on six miles further to the village of Purushottapatnam to secure the object in view. This is of a twofold nature, namely, to afford means of communication to a part of the district, at present wholly destitute of such accommodation, and to protect from inundation by the Godavery 1,329 acres of culturable land, assessed at Rupees 3,530, the property of Government, which are now annually submerged for want of a protecting embankment to the river. Taking the average cost per mile of the portion already estimated for at Rupees 3,940, the cost of the additional six miles will be, in round numbers, Rupees 20,000, or Rupees 70,000 for the total length of seventeen odd miles. The Sub-Collector, who has recently visited the locality, writes as follows :—

“I am of opinion that the work as an embankment will be of very great value to the villagers of that neighbourhood, and will greatly increase the value of their lands. I have obtained an account showing the area of Government land now waste on account of these floods, but which the people expect to be able to cultivate after the embankment has been made. It shows an extent of acres 1,329, assessed at Rupees 3,530. A capital sum of which this would be the interest at five per cent. only would amount to Rupees 70,600. The Zemindars who own some nine villages which will be improved by the work will, I have no doubt, subscribe. They have been addressed, but their replies have not yet been received.”

4. The Superintending Engineer expresses his views as follows :—

“As regards the road from Rajahmundry to Rahitapuram, I beg to observe no delta works are endangered by the river floods rising over the lands between those places. A very large tract of country is subject to inundation every year for want of an embankment thereabouts with suitable masonry works, and very considerable damage is done to lands belonging both to Government and to Zemindars for want of this protection; but the Sub-Collector of the District will probably be able to give the President more information on this point than I am

able to do as regards revenue matters. In a professional point of view, the banks of a delta river is the proper location for the road which, at the same time that it affords facilities of communication, can be taken along an embankment of such a height as to protect the adjacent lands from being inundated every year by the river. The cross road proposed to join the Korukonda road will afford no protection to the lands, and will be itself, during several days of the year, surrounded with water on either side, as it has to run through the low grounds I wish to protect. Of course, the cost of repair and maintenance of such a work will be considerable, and I do not recommend its continuation. If the work is carried out as an embankment, the Government would probably subscribe a fair share of the cost in proportion to the land belonging to them which would be protected."

5. Having thus demonstrated that the work in question will not only benefit local interests by opening up a rich tract of country bordering the Godavery river by a road passing through eight villages, exclusive of the important termini Rahitapuram and Rajahmundry, and opening the market of the last-named place to them, but will also, by the reclamation of an extensive area of country, bring in additional revenue to the State of between Rupees 3,000 and Rupees 4,000, I think I am justified in requesting that the execution of the project may be assisted by a grant from Provincial Funds. It has already been shown that, if the Government bore the entire charge, there would be a direct return of five per cent. The Local Fund Board ask the Government to pay half, on which they will get a direct return, in the shape of increased revenue, of ten per cent. on the outlay. It is anticipated that the Zemindars whose properties will be improved will contribute one-fourth, leaving one-fourth to be paid from Local Funds, *plus* the cost of metalling and gravelling (not included in the estimate), which, owing to the nature of the soil through which the major portion of the road passes (alluvial deposit), will be heavy, and also the cost of maintenance.

6. If the grant-in-aid now solicited is withheld, this useful project must, I fear, be abandoned, as the Board would not be justified in executing, without such assistance, a work by which the imperial revenues will so largely benefit; unless, indeed, the Government would consent to assign to the Board the lands which it is anticipated will be reclaimed thereby. As, under the Act, power is given to the Board to acquire land, there would be nothing irregular in this: the Government would risk nothing and lose nothing; whilst, on the other hand, what is now a submerged waste would be brought under cultivation, and would yield a remunerative return for the local funds invested.

This estimate for making a road 11 miles and 1,418 yards long between Rajahmundry and Rahitapuram, at a cost of Rupees 46,300 (exclusive of metalling), will be submitted for the orders of Government. The importance of establishing a communication between these two places is clearly proved.

2. It is anticipated that the road must be prolonged six miles, at a total expense (exclusive as before of gravelling) of Rupees 70,000.

3. The road being carried on a raised embankment on the bank of the river will then protect from annual inundation 1,320 acres of cultivable land, assessed at Rupees 3,530, the property of Government, besides improving the property of certain Zemindars.

4. The Circle Board expect that the Zemindars will subscribe one-fourth of the cost of the road, and they are ready to pay one-fourth of the cost of road-making and the whole of the sum required for metalling, as well as to keep the road in repair when it is once made.

5. They request that Government will bear the remaining half of the cost of making the road (exclusive of metalling), or about Rupees 35,000. The return on this outlay from the assessment of reclaimed land will be ten per cent.

6. The President proposes that the money should be supplied from Provincial Funds, but the Board of Revenue consider it is a matter for imperial expenditure, ordinary or extraordinary, as Government may deem best.

7. The road appears as Item 14 in Part I. of this year's Budget with an allotment of Rupees 2,000.

(True Extract.)

(Signed) J. GROSE,
Secretary.

THE Government approve and sanction the construction of the proposed road along the left bank of the Godavery river, from Rajahmundry up to Rahitapuram and Purushottapatnam.

2. It is proposed that Government shall contribute Rupees 35,000 towards the total estimated cost of Rupees 70,000, in consideration of the security and advantage to the public revenues which will be derived from the embanking and reclaiming of cultivated and culturable land, now exposed to flooding and injury every year. The proposal seems reasonable, and it will be considered in the Public Works Department how funds from the agricultural grant, ordinary or extraordinary, can be allotted for the purpose.

(True Extract.)

(Signed) W. HUDLESTON,
Officiating Chief Secretary.

No. 57.

No. 361A. Note by the Acting Chief Engineer for Irrigation on the Plan of the Sluice over the Thovigedda Drain.

THIS work as designed appears to be much too slight.

2. The piers for the bridge though 22½' high are only 2' thick.

3. By a clerical error the H. F. M. of the river is shown on the wrong side of the section.

4. Supposing no water to be passing down the drain when the river flood is at its highest or at 26.5, the pressure against the lower and upper shutters would be upwards of 37,000 × 30,000 lbs. respectively, the shutters should consist of 4" instead of 3" planking.

5. In the section of the stream a water-mark is shown at 8.69; it is not clear what is meant by this water-mark, for the ordinary water level, exclusive of floods from July to November, in the river would appear from the water registers to be from 12 to 14 above datum. During these five months therefore when drainage would chiefly have to be discharged, the backwater from the river must stand at from 12 to 14 in the drain, and any drainage water to be discharged must rise above this level.

6. The object of the proposed work is clearly to exclude flood waters of the river during high floods, and while floods last the drainage must accumulate in the Thovigedda drain until the water in rear of the sluice rises above the level of the water in the river; if heavy rain fall when the river was in flood the water in rear of the sluice might rise to the level of that in the river, and then for all practical purposes the sluice would not answer the purpose for which it was constructed; it is worthy of consideration, therefore, whether the lands which are now submerged during high floods by water backing up the Thovigedda drain, may not be more economically and effectually protected by embanking both sides of the drain and carrying the banks up the stream till a point is reached where the natural level of the country rises above the surface level of the water, as it would be during high floods, and to provide for any drainage which may have to enter the channel where it is now proposed to embank it by means of sluices with their floors on or about the level of the country.

7. Judging by the single section of the Thovigedda drain which is given, and which is taken probably at the proposed site of the sluice, it would appear that on the one side the country rises above the level of the highest fresh, and on the other is about $2\frac{1}{2}$ feet below that level. The site of the work is some ten miles above the delta proper, and if the country falls towards the river the Thovigedda drain may probably be embanked at a trifling cost; if, however, the country falls from the river landwards as in deltaic formations, embanking the drain and providing a bridge at its mouth may prove to be more expensive than excluding the flood waters of the river.

8. In the latter case it will be necessary to determine what quantity of water the drain may have to discharge or what is the area drained by it, the nature of the drainage basin, and whether there are tanks within the basin which are liable to be breached; in the latter case it would perhaps be well to provide for the maximum rain discharge under a head of 1 foot, or say with a velocity of 5' per 1" through the sluices.

9. The ordinary H.W. mark during the north-east monsoon appears to be from 12 to 14' above datum, and the highest water-mark of the last four years at 18.75 above datum; if, therefore, the flood waters have to be excluded a work similar to that shown in the accompanying sketch might with advantage be adopted. The number of vents required must be determined relative to the quantity of water to be discharged.

10. In the revised design foundations to a depth of $5\frac{1}{2}$ ' are allowed, as in the original design, but it is not stated on what the foundations are to rest; this should always be noted on the plans of masonry works. Care must be taken that the foundations, as designed, are carried down to rock, or gravel, or stiff clay, and if laid on the last a rough stone apron in rear of the work should be provided. If only sand is met with at 6 or 7' below the drain-bed well foundations will have to be adopted.

11. If the Thovigedda drain can be embanked at a small cost a plate girder bridge, such as those over the canals of 50' span, might be provided for the drain, or even a smaller bridge may prove to be sufficient.

FORT ST. GEORGE,
30th April 1872.

(Signed) R. F. OAKES, Captain, R.E.,
Acting Chief Engineer for Irrigation.

No. 362.

ORDER THEREON, 14th May 1872, No. 1,286.

CIVIL WORKS, No. 16.

THE estimate for the road from Rajahmundry to Rahitapuram amounts to Rupees 46,300 divided as follows: for

masonry works Rupees 18,630, for earthwork, etc., Rupees 27,670; of these sums a moiety is to be provided from the Agricultural grant. The Rupees 13,835 for earthwork may be met from the extra grant of Rupees 25,000 to the Godavery Division, allotted in G. O., No 935, dated 9th April 1872, and if, later in the year, the Agricultural grant for repairs requires to be supplemented, application should be made for such further amount as may be required.

2. The grant to be made for masonry works is Rupees 9,315. Of this sum Rupees 3,000 is provided from the Reserve under Agricultural New Works. Thus with the amount to be provided from Local Funds Rupees 12,315 will be available for expenditure on the masonry works in 1872-73, and this sum is not likely to be exceeded inasmuch as the estimate for the sluice for the Thovigedda drain must be revised with reference to the observations in the Note by the Acting Chief Engineer for Irrigation.

3. The Superintending Engineer will afford the information required to admit of its being determined whether the flood waters must be excluded from the Thovigedda drain, or whether the drain may be embanked; should the former be necessary the design for the work proposed by the Acting Chief Engineer for Irrigation should be adopted, the number of vents required being determined relative to the area drained and the nature of the valley to be drained.

(True Extract.)

(Signed) R. F. OAKES, Captain, R.E.,
Acting Joint Secretary to Government.

To the Acting Superintending Engineer, 1st Division.

- .. Controller of Public Works Accounts.
- .. Acting Chief Engineer for Irrigation.
- .. Financial Department.

Exd. S. T. Augustin.

N^o 57.

Note on the Plan of the sluice over
the Shorigedda drain.

Enclos 7.

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6. The object of the proposed work is clearly to exclude flood waters of the river during high floods & while floods last the drainage must accumulate in the Thorjeddah drain until the water in rear of the sluice rises above the level of the water in the River: if heavy rain fell when the River was in flood the water in rear of the sluice might rise to the level of that in the River and then for all practical purposes the sluice would not answer the purpose for which it was constructed - it is worthy of consideration
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7. Judging by the single section of the Thorjeddah drain which is given & which is taken probably at the proposed site of the sluice, it would appear that on the one side the country rises above the level of the highest fresh
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Fort St George W. F. Bates Capt R.E.
30th April 1872 to the Chief Engr for Irrigation.
So

The Secretary to Govt P.W.D.

W.F.B.

Public Works Department
No 1286.
Proceedings of the Madras Government
Read the following

Pro. of the M. Govt. Financial Dept. } H.E. No 4594/6th April 1872
From the Actg Chief Engr for Irrigation } " " " 574/80th " " "

J. D. S.

The Estimate
for the Road from
Pujakmundry to Pa-
hitapuram amounts
to Rupees 46,300 divided
as follows, for Masonry
Works Rupees 18,630 for
Earthwork Rs 27,670 -
of these sums a moiety
is to be provided from
the Agricultural grant.
The Rupees 13,835 for
Earth

Earth work may be met from the extra grant of Rupees 25,000 to the Godavery Division allotted in G.O. No 935 dated 9 April /72, and if, later in the year, the Agricultural grant for repairs requires to be supplemented application should be made for such further amount which may be required.

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the drain may be con-
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-posed by the Acting
Chief Engineer for Irri-
-gation should be adopted,
the number of Vents
required being determined
relative to the Area
drained and the nature
of the Valley to be drained -

11/9

G.M.W.
1.5.72

Decr. 22/5/72

45
5

6th The Supd. Engineer
5th " Controller
5th " Ch. Engineer for Engrs
11th " Finl. Secy

x Decr 27/5/72

Public Works 1872, Department
Proc of Govt for M & F
-85-2180

From
The Atchafalaya Com^{rs}
for Migration
To the Secretary to Govt
W. W. D.

N^o 57.

Dated 30th
Des^{pt} 30th April 1872
Rec^d 1st May
Encl^d 7.

Note on the plan
of the sluice over the
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N^o 1286-14th May 72

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