(1) Number of pages 46

(2) Date of repair 25-11-87

(3) Initials of the Referencer

TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

Public Works DEPARTMENT

G.O. No. **B.P. No.**	358, W.	**Press.** **Mis.**
Dated	9 — 2 — 1886 ~~198~~ .	

Osborn

Not to be folded or roughly handled.

9TH FEBRUARY 1886, No. 358 W., PUBLIC WORKS.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

READ—the following papers :—

No. 545 M.D.

REPORT by the Superintending Engineer, VI Circle, on the revised estimate, amounting to Rs. 2,46,000, for constructing bridge across the Vaigai at Madura.

In G.O., Mis. No. 963 L.F., dated 29th October 1885, Government directed revised plans and estimates to be prepared in accordance with the suggestions made by the undersigned in his note, No. 273, dated 15th August 1885.

The following alterations in details are recommended :—

(1) The rear cut-waters and the front and rear half cut-waters of the abutments are designed semi-circular; this is not approved of. It is considered that the rear cut-waters should be similar to those in front, namely, the usual form of two segments with radius equal to breadth of pier; this form passes off the water in floods much better than semi-circular cut-waters, and it is also thought the appearance is better.

Again, if the half cut-waters of the abutments are made similar to the piers, the roadway between the wings will be wider and form a better approach to the bridge.

(2) In the piers and abutments allowance is made for cut-stone ties 2 feet in width, four in each pier and two in each abutment, to be built in the rubble hearting from basement to springing line. The cost of this is very great, and it is considered not necessary. In thin narrow piers faced with cut-stone ashlar, this precaution is advisable, but it is considered entirely unnecessary in these piers that are $8\frac{1}{2}$ feet thick and abutments that are 16 feet.

(3) The abutment is made 16 feet thick; it has a 6-feet counterfort in the centre. It is thought that a thickness of 12 feet is ample. The wings are designed each with two counterforts. It is considered that these might be left out.

(4) The retaining walls are made 3 feet thick at the bottom and $1\frac{1}{2}$ at top; it is considered that it will be as well to build them 3 feet thick throughout.

(5) The arrangement of piers and arches over the main arches is expensive and the weight saved on the foundations is trifling. As this is the case, it is recommended that the roadway over be made on ordinary earth and sand filling.

(6) The arrangement proposed for the drainage of the bridge roadway is not approved. It is thought not advisable to drain down through the centre of the piers; these drains would get stopped up and could not be cleared. A better arrangement is 4 inches or even 6 inches holes through the crowns of the arches; if it is thought necessary more drainage can be given down the pilasters in front and rear of each pier.

(7) The foot-paths and gutter are estimated at 8 annas a cubic foot. It is thought that this rate is not sufficient for the work proposed. A good foot-path could be made for the same money if the gutter, which is not thought necessary, is left out and the foot-path formed by a good curbing, say, 1 foot × $\frac{3}{4}$, and inside floored by granite paving 3 inches thick.

(8) The design for the parapet coping and cornice is not drawn up in sufficiently large scale on detail; this will have to be done hereafter.

(9) The design for centrings will require modification and consideration.

(10) Revetments both above and below are necessary.

(11) The item of asphalte covering over arches that is estimated at about Rs. 4,000 is not thought necessary. There are many large arches in Southern India that have been built for years that stand perfectly well without this protection, and there is no reason for the Vaigai bridge arches requiring it.

2. The approximate extra cost and saving of the above proposed alterations are as follows:—

		More. Rs.	Less. Rs.
No.	1. Alteration of cut-waters	4,200	...
,,	2. Omission of cut-stone ties	...	7,500
,,	3. Do. of buttresses in wings and reduction of width of abutment	...	2,100
,,	4. Increased thickness, retaining wall	800	...
,,	5. Omission of arches over spandrels and using ordinary filling	...	5,100
,,	6. Alterations of drainage	...	...
,,	7. Foot-paths, &c.	...	...
,,	8. Parapet coping and cornice	...	...
,,	9. Centrings	...	...
,,	10. Revetments	2,000	...
,,	11. Asphalte covering for arches	...	4,000
		7,000	18,700
			7,000
	Net probable saving ...		11,700

3. In the estimate 10 per cent. is allowed for petty superintendence, contingencies and sundries, and Rs. 26,850, or about 12 per cent. on the estimate, for establishment. This appears more than necessary as I believe the service of the Local Fund Engineer will be available for the direction of the work. Supposing the work is three years in hand, the amount is at the rate of Rs. 750 per month.

4. As the estimate exceeds Rs. 5,000, it is forwarded to the Chief Engineer.

Trichinopoly,
15th January 1886.

(Signed) H. R. MEAD, Colonel, R.E.,
Superintending Engineer, VI Circle.

Note by the Chief Engineer, Public Works Department.

The Superintending Engineer, VI Circle, submits, with remarks, a revised plan and estimate for a bridge to be constructed across the Vaigai river near Madura. The first estimate for this work was submitted in March 1884 and amounted to Rs. 1,15,810. It was revised in accordance with the suggestions made by the undersigned in memorandum, No. 803 C., dated 2nd April 1884, and, after revision, amounted to Rs. 1,20,000. The estimate was sanctioned in G.O. (Financial), No. 1298, dated 12th June 1884 (G.O., No. 1658 W., dated 2nd July 1884); but under the authority conveyed in G.O. (Financial), Mis. No. 742, dated 31st March 1885, a further revised estimate for the work was submitted for sanction. It amounted to Rs. 3,70,000, and was rejected on account of the unnecessary expenditure entailed by the stone masonry. The revised estimate now under scrutiny is submitted in accordance with G.O., No. 963 L.F., dated 29th October 1885.

2. After careful scrutiny of the estimate, the undersigned agrees with the Superintending Engineer that it is not necessary to provide cut-stone ties for the piers and abutments; and this item may be omitted. The buttresses of abutments and wing walls may also be omitted, but it is not thought advisable to reduce the thickness of these walls.

3. Provision is made in the estimate to the extent of nearly Rs. 4,000 for asphalte covering over arches. The undersigned considers that this item may be omitted from the estimate. The arrangements proposed for the drainage of the bridge are defective. The plan suggested by the Superintending Engineer is approved, and should be adopted.

4. For the reasons assigned by the Superintending Engineer, the undersigned is of opinion that the rear cut-waters should be similar to the front ones. Revetments should be provided both above and below.

5. The arrangement of spandrel arches, as designed, is approved; for, though expensive, it is considered better than ordinary filling. Side railings or parapets should be provided for the approaches to the bridge. The designs for parapet cornice and centring require further consideration.

6. The rate of eight annas per cubic foot for foot-paths and gutter is thought to be insufficient. The gutter does not seem to be essential, and, if omitted, the work could be carried out at the estimated cost.

7. The undersigned is of opinion that a considerable saving will be effected by the alterations proposed. In the estimate a provision of 10 per cent. is allowed for petty supervision, contingencies, and sundries; and a further sum of Rs. 26,850, or about 12 per cent., for establishment. This appears to be more than is necessary, as it is understood that the services of the Local Fund Engineer will be available for the direction of the work.

8. With these remarks, the Chief Engineer has the honor to submit the estimate for the sanction of Government.

Order—dated 9th February 1886, No. 358 W., Public Works.

G.O., No. 1658 W., dated 2nd July 1884.

The revised estimate, amounting to Rs. 2,46,600, for constructing a bridge across the Vaigai river, near Madura, is sanctioned in supersession of the estimate of Rs. 1,20,000 accepted in G.O., No. 1298 (Financial), dated 12th June 1884.

2. Attention will be invited to the note by the Chief Engineer, Public Works Department, recorded above.

3. The sanction accorded in paragraph 1 of these proceedings has been registered as Local, No. 41 W. of 1885-86.

(True Extract.)

Major, R.E.,
Under Secy. to Govt., P.W.D.

To the Superintending Engineer, VI Circle.
,, Financial Department (L.F.) with twenty-six enclosures.

Exd. E. Fernandez.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of {1886} Madras.

PUBLIC WORKS.

Dated February, 9th.

Recd. Encl.

G.O., 9th Feb. 1886, No. 358 W.

FEBRUARY.

Bridge across the Vaigai River near Madura

Revised estimate for constructing a —, sanctioned.

Madura Dist. Board Office
30th December 1885.

No. 46.

From,

C. S. Crole Esquire,
President, District Board,
Madura.

To,

The Honorable W. Wilson
Ag. Chief Secretary
to Government,
Madras,
through the Superintending Engineer,
6th Circle.

Sir,

Referring to G. O. No. 963 L.F.× (Miscellaneous) dated 29th October 1885 I have the honor to submit revised plan and estimate for the Vaigay Bridge, prepared by the Local Fund District Engineer in accordance with the suggestions made by the Superintending Engineer in his report No. 273 M.D. dated 15th August 1885, and to request that the sanction of Government may be accorded at an early date.

× Resubmitted with enclosures for reference.

2. It will be observed that the estimated cost of the Foundation and

superstructure of the Bridge is Rs 160,313 which is within Col. Mead's probable cost of the work. The centrings, compensation for land, culverts for Anoopānadi and Sellūr Channels, petty superintendence, contingencies &c and Tools and Plant which last item appears to have been omitted by mistake in the previous estimates, have brought up the figure to Rs 246,000.

I have the honor to be
Sir,
Your most Obed. Servt.

President.

30/12

[illegible] Comp [illegible]

e drainage area segmental arches, each of

1885.

ENGINEER 5 JAN 86

L. F. DEPARTMENT.

From, G.O. 1001 W D/86

The President,

Local Fund Board,

Madura.

Encl. 4 - (No. 4 in

NO. Ref 1 / 420/85

Dated 30 } December 1885
Received }

No. 46.

ENGINEER 5 JAN 86

Subject.

Submitting for sanction of Government, revised plan and Estimate for the Bridge across the Vaigai river at Madura

---

G.O. 358 W dt 9-2-86

1

Note

The estimate for the Vaigai bridge near Madura now submitted in obedience to G.O. No 963 L.F. of 28th Oct/85 may be sanctioned with the following alterations.

The cut stone ties may be omitted as suggested by S.E. VI

The buttresses of abutments & wing walls can be omitted but it is not thought advisable to reduce the thickness of these walls.

The asphalte covering over arches may be dispensed with

The drainage arrang

segmental arches, each of

requires further consideration.

The rate of Rs 8 per sft for footpath & gutters appears low & it is thought that the gutter might be omitted as suggested by the S.C & the work can then be carried out at the estimated cost.

A considerable saving will be effected by the alteration proposed. 10 per cent has been allowed for petty supervision, and in addition to this Rs 26850 (about 12 p.c) has been added for establishment

segmental arches, each of

1358

are defective and
should be altered
as suggested by S.P.
The rear cutwaters
should be made similar
to the front ones for
the reasons given by
the S.E.
The arrangement of
spandril arches as
designed may be
allowed for though
expensive it is thought
better than ordinary
filling
Revetments should
be provided above
& below
Side railings or
parapets should be
provided for approaches
The design for parapet
cornice & coping

rnamental arches, each of

ENGINEER
5 86

this appears high but the L. F. Board seem to have accepted the charge, and if the bridge is to be constructed by a special Officer whose salary will be charged to the work it is probably not too much

The plans & estimates have been agreed by neither the Resident nor S.E. VI.

28/1/86

X On this point I am disposed to concur in the S.E.'s remarks.

25.1.86

2. The bridge is to consist of fifte
segmental arches, each of

ENGINEER
5 . 10 . 86

C.E. N. 9/358

Please have a short
note written, stating the
different alternatives that
have been prepared for
this bridge & why they
were revised. As far as
I can make out one plan
& estimate seems to have
been sanctioned in G.O. 1058
of 12th June 186[illegible] & I cannot
see why another plan was
been prepared.

State also if the bridge
[illegible] & [illegible]
regarding the [illegible]
[illegible] [illegible]
in an isolated spot

but I [illegible] the
[illegible] in [illegible]
rate for
rough stone in chunam
brick in chunam

[illegible]
26/8/8[illegible]

[illegible] The bridge is to consist of fifteen
segmental arches, each of

[illegible] ENGINEER
5 [illegible] 86

C.E. N 9/1/86

Please have a short note written stating the different estimates that have been prepared for this bridge & why they were revised. As far as I can make out one plan & estimate seems to have been sanctioned in G.O. 1250 of 12th June 186[illegible] & I cannot see why another plan has been prepared.

Some plans of the bridge were of stone & others [illegible] to be somewhat [illegible] [illegible] [illegible]

but I [illegible] the [illegible] on each side for

wrought stone in abutments

[illegible] brick in abutments

26/1/86

Public Works Department, 1885-86.

10/358

Public Works Department, 1885-86.

Current No. 420

Letter No. 545 B.

Dated the 15th January /86

From the S.E. VI Circle

NOTE OF REMARKS.

1. In obedience to G.O. No. 963 L.F. (Mis.) of the 29th October /85 the accompanying plans and estimate for constructing a bridge over the Vaigai near Madura have been revised in accordance with the suggestions made by S.E. VI. in his Note No. 273 of the 15th August /85. — The estimate now amounts to Rs. 2,46,600. — the bridge — Rs. 1,60,937-11-5; the centerings — Rs. 16,500; compensation for land — Rs. 10,000; the Anoopanady culvert — Rs. 1,580; the Selloor culvert — Rs. 2,495; tools, plant and machinery — Rs. 8,000; petty supervision — Rs. 10,260; contingencies — Rs. 9,977-4-7; and Establishment — Rs. 26,850.

2. The bridge is to consist of fifteen segmental arches, each of

60 feet span and 12 feet rise, which rest on two abutments, each 15 feet thick, two abutment-piers, each 15 feet thick, and twelve piers each 8½ feet thick. The wing walls are to be 43 feet long and from a bottom width of feet rise to a top width of 2¼ feet at a height of 28½ feet by footing on the inside and a batter on the outside. The height of the springing line above the floor level is 12½ feet, or 2½ feet above M.F.L. — The foundations vary in depth from 6 feet to 10 feet between which depths a sound kunkur basis is met with in the river bed. — A rough stone flooring 2 feet deep resting on a concrete bed 1 foot thick, strengthened by stone retaining walls on both sides, runs under all the arches. The flooring is to be further protected by aprons of large stones laid dry and 3 feet in depth. — The apron on the up-stream side to be 6 feet wide; that on the down stream side 12 feet wide. —

The foundations of the piers, abutments and wing walls are to be of rough stone-in-mortar, and the superstructure also is to be rough stone-work but faced with finely dressed stones. — Tie or bonding walls of cut stone are to run through piers and abutments — The mortar is to be hydraulic. The arches, skew backs, spandrel walls, blocking courses and parapets are to be of brick-in-mortar. The cornices and the copings of the parapets are to be of dressed stone. — The width of metalled roadway is to be 21 feet over the crowns of arches. A raised stone footpath 3 feet wide runs along the parapet on each side

3. It would be well if as suggested by S.E. VI. the rear cutwaters receive the same form as those in front — the intersection of two arcs of circles having as radius the width of the piers. The gain in cost by the adoption of the semicircular form for the rear cutwaters

ould be trifling
n his Report accompanying the
esign S.E.VI suggests the omissi
the tie walls of cut stone in piers
nd abutments on the grounds
f their great cost but it must
e remembered these walls
orm as it were a well bonded
rame for the comparatively
ll jointed rough stonework,
nd that if not essential they
re very desirable.— S.E.VI.
proposes to reduce the thickness
f the abutments to 12 feet but
alculated by formula
$= (1+0212(2r))\sqrt{\frac{r}{2} \times \frac{3t}{t+e}}$, the width
r thickness due to the abut
ment is 17.8 feet, or roughly 18 feet.
he arch is of brick and the
butment of stone in the case
n point so that the greater
weight of stone must be taken
into account but still the
f[illegible] due to this cause would
scarcely warrant the proposed
change even with the additional
backing obtained from the
counterfort, 6 feet square, in
rear.— It will be admitted

that the buttresses of the wing walls appear superfluous but before dispensing with them the great height of the wing walls must be considered. The mass of earth these walls will have to sustain is very great.— Possibly it would be well to retain the counterforts at the ends of the wing walls and to dispense with those in the centers.

5. S.E.VI. recommends that the spandrel spaces between the arches be filled in with ordinary earth and sand instead of the proposed spandrel piers and arches which he considers too expensive — but, subject to approval, his proposal for filling in the spandrel spaces with earth and sand is objectionable in the case of a bridge of the importance and dimensions of the one now under examination— The spandrel arches acquire an undue importance from their position for by the partial

failure or subsidence of an arch the roadway above would sink and the bridge would probably be rendered impassable – at least to wheeled traffic, but might not this defect be remidied by substituting slab stones for the arches? – The bays between the spandrel piers or walls could easily be spanned by stones of suitable dimensions, and the height of these walls might be increased by 3 feet to bring the masonry of this portion of the bridge to its present relative level.

6. The proposed arrangement for the drainage of the roadway is defective, and should be corrected. Subject to approval, the item 'asphalte covering over arches' (Rs. 3,996) may safely be omitted. — S.E.VI. considers additional revetments necessary; and that the cross section of the retaining walls should be of an uniform width of 3 feet.

The height of the embankments of the approaches seems to render it very desirable that the roadway on them should be protected by side railings or parapets. – It would be an improvement if sand-boxes were employed to lower the centering.

7. It may be noticed that while the item 'Petty supervision' is set down at Rs. 10,260, Rs. 20,850 are charged for 'Establishment' which appears too high when the circumstances of the case are considered – However the L. F. Board have accepted the charges under these headings.

8. The Anapanady culvert consists of a single semicircular arch of 12 feet span, and the Sellore culvert of one semicircular arch of 18 feet span. The estimate shows that these culverts are to be of rubble masonry except the arches which are to be of hammer-dressed stone.

7. The revised design for the Vaigai bridge is approved by the L.F. Board of Madura but neither plan nor estimate has been countersigned by the Resident. — S.E. VI. also has omitted to countersign the plan and estimate.

22nd January
B.H.

The Vaigai bridge.

With G.O. No. 509 of the 8th March 1884 an estimate, the first for this work, was submitted to this office — The bridge provided for was one of 21 arches, each of 40 feet span and 7 feet wide. The masonry of the arches was to be of brick-in-mortar, and of the piers abutments and wing walls of stone-in-mortar — The estimate amounted to Rs. 115,810.

The foregoing estimate was revised as suggested by E.W. in his memo. No. 80 of the 2nd April/84 and the revised estimate amounting to Rs. 1,20,000, was sanctioned in G.O. No. 1298 F of the 12th June 1884 and recorded in G.O. No. 1658 W. of the 2nd July/84 — Here too the masonry of the arches was to be of brick-in-mortar, and of the piers abutments and wing walls of stone-in-morta

(At the request of the Madura L. F. Board.)

Under authority conveyed in G.O. No. 742 (Mis) of the 31st March/85, an estimate, revised, was submitted for the Vaigai bridge. The bridge was now to consist of 15 arches, each of 60 feet and 15 feet rise. The arches were to be of cut stone & mortar, and the piers, abutments and wing walls were also to be of stone masonry. This estimate amounted to Rs. 3,70,000. This design was rejected for the unnecessary expenditure entailed by the stone masonry. E.W.'s Note No. 446 E of the 24th September/85.

To D.W.

Cu
26.1.86.

No. 545 M.D.

15

9th Feby/86. No 35

Report by the Superintending Engineer 6th Circle on the Revised Estimate amounting to Rs 2,46,000 for constructing Bridge across the Vaigay at Madura

Enclosures

Letter from the President District Board to the Chief Secretary to Govt. Madras with its enclosures.

sent separately

1 Drawing of of Bridge plan.

1. Map of the Madura Dist.

both sent separately

In G.O. No. 963 L. F. (Mis) dated 29th October/85, Government directed revised plans and Estimates to be prepared in accordance with the suggestions made by the undersigned in his Note No. 273 dated 15th August 1885.

The following alterations in details are recommended:

1st. The rear cutwaters and the front and rear ½ cutwaters of the abutments are designed Semicircular; this is not approved of. It is considered that the rear cutwaters should be Similar to those

those in front, namely, the usual form of 2 Segments with radius Equal to breadth of pier; this form passes off the water in floods much better than ~~many~~ Semicircular cutwaters and it is also thought the appearance is better.

Again if the ½ cutwaters of the abutments are made similar to the piers, the Roadway between the wings will be wider and form a better approach to the Bridge

2nd In the piers and abutments allowance is made for cutstone ties 2 ft in width, 4 in Each pier and 2 in Each abutment to be built in the Rubble hearting from basement to springing line - the cost of this is very great and it is considered not necessary. In these narrow piers faced with cutstone ashlar this precaution

is

is advisable, but it is considered Entirely unnecessary in these piers that are 8½ ft thick and abutments that are 16 ft.

3rd The abutment is made 16 ft thick, it has a 6 ft counterfort in the centre. It is thought that a thickness of 12 ft is ample. The wings are designed each with 2 counterforts. It is considered that these might be left out

4th The retaining walls are made 3 ft thick at the bottom & 1½ at top, it is considered that it will be as well to build them 3 ft thick throughout

5th The arrangement of piers and arches over the main arches is Expensive and the weight saved on the foundations is trifling: as this is the case it is recommended that the roadway over be made on ordinary earth and sand filling.-

6ly The arrangement proposed for the drainage of the Bridge roadway is not approved; it is thought not advisable to drain down through the centre of the piers; these drains would get stopped up and could not be cleared - A better arrangement is 4" or even 6 inch holes through the crowns of the arches, if it is thought necessary more drainage can be given down the pilasters in front & rear of each pier.

7ly The footpaths and gutter are estimated at 8 annas a cubic ft; it is thought that this rate is not sufficient for the work proposed A good footpath could be made for the same money if the gutter which is not thought necessary is left out and the foot path formed by a good curbing, say 1ft x 3/4 and inside floored by granite paving 3 inches thick.

8ly The design for the parapet coping and cornice is not drawn up in sufficiently large scale or detail; this will have to be done hereafter.

9ly The design for centring will require modification and consideration.

10ly Revetments both above and below are necessary

11ly The item of asphalt covering over arches that is estimated at about Rs 4000 is not thought necessary. There are many large arches in Southern India that have been built for years that stand perfectly well without this protection and there is no reason for the Vaigay Bridge arches requiring it

II. The approximate Extra cost and saving of the above proposed alterations are as follows:—

		More	Less
No. 1.	Alteration of cutwaters . . .	Rs 4200 -	
" 2	Omission of Cutstone ties		7500
" 3	Omission of Buttresses in Wings & reduction of width of abutment		2100
" 4	Increased thickness Retaining wall.	800 -	"
" 5	Omission of arches over spandrils and using ordinary filling		5100
" 6	Alteration of Drainage		-
" 7.	Footpaths &c		-
" 8	Parapet coping & cornice		-
" 9	Centring		-
" 10	Revetments	2000 -	.
" 11	Asphalt covering for arches		4000
	Rs	7000 -	18,700
			7000
	Net probable saving Rupees . . .		11,700

III In the Estimate 10 per cent is allowed for petty Superintendence, Contingencies & Sundries and Rs 26,850, or about 12 per cent on the Estimate for Establishment, this appears more than necessary as I believe the Service of the Local Fund Engineer will be available for the direction of the work. Supposing the work is 3 years in hand, the amount is at the rate of Rupees 750 per month.

4. As the Estimate exceeds Rs 5000, it is forwarded to the Chief Engineer.

W. R. [illegible] Col R.E.
Superintending Engineer
6th Circle

Supdg Engrs Office
Trichinopoly 15th Jany 1886

MG 459

No. 165 W d/20.1.85.
" 2357 d/3.10.84 (Spl.)
" 828 W d/13.3.83
" 2251 d/13.12.84
" 908 W d/16.4.85
" 958 W d/23.4.85
" 554 C d/17.3.85
" 553 C d/17.3.85
" 344 W d/13.2.85
" 646 E d/24.9.83
" 171 E d/23.5.84
" 803 C d/2.4.84

From,
The Supdg Engineer
6 Circle

To,
The Chief Engineer
P W D

No. 545 M D
Dated 15 January /86

4/2/86

Report on the Revised estimate amounting to Rs 2,46,000 for constructing Bridge across the Vaigai at Madura

Cm. 4.2.86.

P.W. Department

fo 5

18/258

Note by the Chief Engineer
P.W. Deptt.

The Superintending Engineer VI Circle submits with remarks a revised plan and estimate for a bridge to be constructed across the Vaigai river near Madura. The first estimate for this work was submitted in March 1884, and amounted to

Rs 1,15,810 - It was revised in accordance with the suggestions made by the undersigned in memo No 803 C d/ 2nd April 1884; and, after revision, amounted to Rs 1,20,000 - This estimate was sanctioned in G.O. (Financial) No 1298, d/ 12th June 1884 (G.O. No 1658 W d/ 2nd July 1884); but under the authority conveyed in G.O. (Financial) No 742 Mis d/ 31st March 1885, a further revised estimate for the work was submitted for sanction - It amounted to Rs 3,70,000, and was rejected on account of the unnecessary expenditure entailed by the stone masonry - The revised estimate now under scrutiny is submitted in accordance with G.O. No 963. L.F. d/ 29th October 1885 -

2 After careful scrutiny of the estimate, the undersigned agrees with the Superintending Engineer that it is not necessary to provide cut stone ties for the piers and abutments; ~~they~~ and this item may ~~should accordingly~~ be omitted - The buttresses of abutments and wing walls may also be omitted, but it is not thought advisable to reduce

20/35 the thickness of these walls -

3 Provision is made in the estimate to the extent of nearly Rs 4,000 for asphalte covering over arches. The undersigned considers that this item may be omitted ~~it is not necessary to cover the arches with asphalte and this item should be omitted~~ from the estimate. The arrangements proposed for the drainage of the

bridge are defective. The plan suggested by the Superintending Engineer is approved and should be adopted.

4. For the reasons assigned by the Superintending Engineer, the undersigned is of opinion that the rear cutwaters should be similar to the front ones. Revetments should be provided both above

p 8

7/35

and below.

5 The arrangement of spandrel arches as designed is approved; for, though expensive, it is considered better than ordinary filling. Side railings or parapets should be provided for the approaches to the bridge. The designs for parapet cornice and centring require further consideration.

6. The rate of eight

annas per cubic foot for foot paths and gutter is thought to be insufficient - The gutter does not seem to be essential, and, if omitted, the work could be carried out at the estimated cost.

7 The undersigned is of opinion that a considerable saving will be effected by the alterations proposed.

In the estimate a provision of ten per cent is allowed for petty supervision, contingencies, and sundries; and a further sum of Rs 26,850, or about twelve per cent, for establishment - This appears to be more than necessary, as it is understood that the services of the L.F. Engineer will be available for the direction of the work

8 With these remarks,

the Chief Engineer has the honor to submit the estimate for the sanction of Government.

Vaigai Bridge

Note by C.E.

1/2/86

1.2.86

Circ. 4.2.86

A

27/386 No. 358 W.

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT,

UNDER date the February 9. 1886.

READ the following

From the Supdg. Engineer VI Circle, H. E. No: 545 M. D. d/15th January 1886.

Note by the Chief Engineer P. W. Department. d/ February 1. 1886.

G.O. No: 1658. W. 22-7-84.

1. The revised estimate amounting to Rs. 2,46,600, for constructing a bridge across the Vaigai river near Madura, is sanctioned in supersession of the estimate of Rs. 1,20,000 accepted in G. O. No: 1298 (Financial) dated 12th June 1884.

2. Attention ~~is drawn~~ will be invited to the note by the Chief Engineer P. W. Department recorded above.

3. The sanction accorded in para 1 of these proceedings has been registered as Local No. 41. W of 1885-86.

1.2.86

Desr. W

To

The Supdg. Engr. VI Circle
" Financial Deptt. (L.F.) with 26 enclos.
(To The Chief Secretary for favor of counter-initials)

17/2

1/2/86

4-2-86

~~Hon. H. E. Sullivan~~

4 FEB

FEB

Cns. 4. 2. 86

24/358