

(1) Number of pages _____

(2) Date of repair _____

(3) Initials of the Referencer _____

MADRAS RECORD OFFICE

Government of Madras

Public Works DEPARTMENT

G.O. No.	1654	(W)	Press
B.P. No.			Misr
Dated	30-6-	1876	

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
30th June 1876. No 1,654.*

Read the following papers —

No 626 From Major P. MONTGOMERIE, R E, Officiating District Engineer, Presidency, to Major-General G. W. WALKER, R E, Chief Engineer and Secretary to Government, Public Works Department, dated Fort St. George, 29th May 1876, No. 985

I HAVE the honor to submit, for the early orders of Government, a plan and estimate, amounting to Rupees 3,200, for constructing a masonry arch, &c., over the central opening of St. Mary's Bridge on

the Cooum in place of the present wooden platform, which is now rotten and in a dangerous condition, the ends of nearly every one of the beams are decayed, and the roadway is principally, if not entirely, supported by the struts

2 This wooden structure appears to have been constructed in the year 1859-60, at a cost of Rupees 3,285, for the purpose of enabling boats to pass under the bridge. The clear headway under the proposed arch will be exactly the same as at the General Hospital Bridge, and only four inches less than under the present wooden structure

3 The General Superintendent, Public Works Stores, &c, reports that the approximate cost of an iron structure will be Rupees 5,550, to which must be added Rupees 450 for doing up the rest of the bridge, so that the total cost of this alternative plan would be about Rupees 6,000.

4 To renew the present wooden platform would be in my opinion objectionable as well as expensive, and, should the design and dimensions of the proposed semi-elliptical arch meet with the practical approval of the Chief Engineer, I would recommend it as the cheapest, neatest, and best plan

5. As the renewal of this bridge is urgently required during the present working season, early instructions on the subject are solicited. Meanwhile I have to inform you that I have brought to the notice of the Municipal Commissioners the unsound state of the bridge, and have requested the President to take the necessary steps to prevent accident by overcrowding, &c.

No 626-A. From the same Officer, dated Fort St. George, 15th June 1876, No 1,431.

In answer to your memorandum, No. T/311, dated 31st ultimo, and in continuation of my letter, No 985, dated 29th May 1876, I have the honor to furnish you with the following further information regarding St. Mary's Bridge over the Cooum, which it is proposed partly to renew —

- 1 Original old Plan
- 1 Extract
- 2 Plans
- 1 Estimate with Abstract
- 1 Specification Report
- 1 Data

1 The central bay of this bridge, which it is now proposed to reconstruct, was originally arched.

2. This arch was segmental with a span of thirty feet and rise of six feet, and appears to have had a clear headway at low water of seven feet as will be seen from the original plan herewith submitted.

*Proceedings of the Madras Government, Public Works Department,
30th June 1876. No 1,654*

3 This arch was not destroyed, but was removed in the year 1859-60 to make way for canal boats and a small steamer which was built on the Coorn about that period, when the present superstructure of oral wood with teak planking was also constructed.

4. To renew this superstructure with teak and make the bridge serviceable would cost about Rupees 3,230.

5. With reference to your fourth query, I have to inform you that I have again examined the bridge and am of opinion that the masonry of the piers is sound, and, as far as it was possible to do so (on account of the water in the river and the rough stone apron), I have endeavored to find out the depth of the present foundations by means of an iron rod bent slightly at the end; from the catching of this rod in the mud when pushed down alongside of the masonry to the depth of foundation indicated in the plan, viz., seven feet, it would appear that the depth of the foundation are as shown in the original plan. But this it will be impossible to decide for certain without the use of cofferdams and boring. The removal of the central arch has, however, caused both piers to incline inward, and they are now half inch in ten feet out of the perpendicular, and, although the side arches are not much cracked, the wing walls immediately behind the abutments are cracked. The removal of the segmental arch would, without doubt, prevent further subsidence, but I have left it for you to decide whether the elliptical arch now proposed would have the same effect and be also perfectly stable.

6 With reference to the rates which you take objection to, I have the honor to furnish you with an extract from the Range Officer's letter on this subject.

7. In again submitting the plans and estimates for the early orders of Government, I have to inform you that the bridge has now been closed to all traffic except foot-passengers and light spring vehicles.

No 226-B

MEMORANDUM.

I THINK a thirty-feet elliptical arch may be built as proposed by Major Montgomerie with a rise of one-third the span on piers only four and a-half feet thick, but with a height of less than three feet and supporting the counterthrust of very flat segmental arches on the other side. But these side arches are already ~~cracked~~, and the wing walls behind them more so. There will be danger, therefore, of their giving way if the abutments on which the wooden bridge is supported are removed. It is the weight of these that has prevented the thrust of the side arches from overturning the piers when the centre arch was removed. And the constructive difficulty will be to cut away just sufficient of the abutments to insert the ends of the elliptical arch into them. Much will depend on the goodness of the masonry, and it is a work that will have to be very carefully carried out.

2 If successfully done, the substitution of an arch will be the most satisfactory in the end, but the attempt may lead to the entire structure having to be rebuilt. Under these circumstances, and with regard to the least possible interruption to traffic, it may be considered best simply to renew the existing wooden structure.

OUTACAMUND,
19th June 1876.

(Signed)

G. W. WALKER, Major-General, R E,
Chief Engineer, P. W. D.

*Proceedings of the Madras Government, Public Works Department,
30th June 1876 No 1,654*

No 627

ORDER THEREON, 30th June 1876, No 1,654

CIVIL WORKS, No 78

HIS GRACE the Governor in Council concurs in the opinion of the Chief Engineer that on the whole it would be best to renew the existing wooden structure. The cost of this work is calculated at Rupees 3,230. A regular estimate should be submitted, the work being proceeded with meanwhile in anticipation of a specific allotment of funds.

(True Extract)

Colonel,

Offg Under Secy to Govt, P W D.

To the District Engineer, Presidency
" Examiner of Public Works Accounts
" Financial Department

Exd J W Fischer
Spare Copies

Extract from the letter of Supervisor N.
 Range No 109 dated 13th June 1876.

Data for plastering corners with 3 coats of chunam.

Quantity	Particulars	Rate		Per	Amount	
		Rs	As		Rs	As
6	Paras Chunanam	"	4	8	1	8
	Cart hire to do	"	3	"	1	6
1 1/2	Cart load of mud or 8 Paras	"	1	"	8	8
1/4	do white do	1	4	"	5	"
1/4	do	30	"	Canby	3	"
3	the Jaggery	"	6	6	3	10 6
2	Bucklayers	"	3	6	"	5 3
1 1/2	Men	"	2	6	"	5 7 1/2
1 1/2	Women	"	2	"	"	10
2 1/4	Boys	"	"	"	"	1 5 1/2
5	Simdies	"	"	"	"	"
Total 17 1/2					7	11

For 1st purpose of the work done by N. Miller Supervisor No 109
 June 1876
 Comptd B. 13/6/76 By B. 13/6/76 In charge of Northern Range

Cost of putting up the wooden
 portion of the centering 35 - -
 Cost of removing the whole
 of the centering 35 - -
 Simdies 26-6-0

Total Rs. 550 - -

Extract from the letter of Supervisor N.
 Range No. 109 dated 13th June 1876.

IV. Rs 550 for centering is made
 up as follows.

900 cft Bricks in mortar at
 $2\frac{1}{2}$ as per cubic ft. 140--

16 Sand boxes & blocks at Rs 5 E^{ch}. 80--

300 Palmyrahs at Rs 25 per 100. 75--

540 Cft of Bricks in mud at
 $1\frac{1}{2}$ ad. 50-10--

11 bags of Plaster first with mud
 and then mortar at Rs $1\frac{1}{2}$. 16-8--

Cost of working up 260 cft
 of wood into centering at
 6 annas a foot. 91-8--

Cost of putting up the wooden
 portion of the centering. 35--

Cost of removing the whole
 of the centering. 35--

Sundries. 26-6--

Total Rs. 550--

P. No. 4309/76

▽. The rate of Rs. 1-2-0 per running foot is for Balustrades and not for parapets plastered with colored chunam. The rate of Rs. 1-8-0 per running foot will not be thought too high when it is known that the Wallajah Bridge parapets cost Rs. 2-5-8.

It is stated that the rate for 3 coats of colored Chumam is in excess of the District rate, this is not so. It is thought that the rate for 3 coats of white Chumam has been taken instead of the rate for colored Chumam.

With regard to the rate
of No 7-11- for plastering cornice
I beg to state that it is the
current

current rate and that I have
found that the work cannot
be done well under this rate.
I enclose the data.

VI. The rate for arch work has been increased from $\text{---}3\text{---}8$ per cft. to $\text{---}4\text{---}2$, it having been ascertained on the General Hospital Bridge that this is the rate for which it can be done. The rate provided for in the General Hospital Bridge estimate is $\text{---}4\text{---}6$.

I have &c.

Eq. A Invoice Sept 2000
In ch: A. Range

(True Copy).

Montrose's remarks
offer instructive lessons

available for the
 same of course the
 same will not be

P. No. 14309/76
 14

same of course the
 same will not be

same of course the
 same will not be

same of course the
 same will not be

same of course the
 same will not be

Abstract Estimate for Building an arch over the middle
 bay of Saint Mary's Bridge in place of the existing wooden
 platform and making general repairs Side District
 Engineer No 594 Dated 10th May 1876.

Quantity or Number	Description of work	Rate Per Sq ft	Amount	Total Amount
3599 1/2 C.ft	Bricks in mortar	C.ft 2 6	562 6 1	
77 1/2 C.ft	Ornamental parapet	C.ft 1 8	115 8	
2873 1/2 C.ft	Brick Arch work	C.ft 3 8	658 9 1	
43 1/2 C.ft	Common work	C.ft 3 6	9 7 7	
77 1/2 sq ft	Plastering with three coats of coloured chunam	sq ft 4 11 6	366 4 8	
5 sq ft	Plastering the cornice	sq ft 7 11	38 7	
254 sq ft	Forming the road with benches of broken stones & 2 inches of gravel	sq ft 1 6 6	110 2 6	
116 C. yards	Removing the existing road way	C.yd 2	14 8	
2308 1/2 C.ft	Removing old brick work	C.ft 6 7 2	2 3	
	Removing the existing wooden platform		30	
	Casting with lime & mortar pillars, parapets and the old beams of existing platform		550	
	Putting up two bands and casing		500	
	Structure		187 12 1/2	
			3300	
			Total Super 3300	

J. J. M. J. J. J.
 29th May 1876

C. J. M. J. J. J.
 in charge of the work

Charles B. J. J. J.
 24/5/76

W. J. M. J. J. J.
 Chief Engineer

2076 of 1876-77

Report to accompany a plan and estimate for the repair of Saint Mary's Bridge, Madras.

Amount of Estimate Rs 3200

This bridge has three openings, the outer are arched and the centre has a wooden platform as shown in the plan attached. This platform is in a very advanced state of decay and it is now necessary to renew it or to place an arch in its place.

The accompanying plan and estimate provides for arching it with a semielliptical arch having a major axes of $29\frac{1}{2}$ feet and a minor axes of 20 feet built of brick and mortar.

The waterway is ample and the height of the crown of the arch is exactly the same as that of the General Hospital Bridge and only 4 inches lower than the bottom of the beams of the existing platform.

(Dimensions will be found in detail in the plan and estimate.)

A. Miller Esq. Engineer & Surveyor

In charge of Northern Range

For St. George's
29 May 1876

Montague Esq. Engineer & Surveyor
District Engineer Madras

1076 of 1876-77
Abstract Estimate for
rebuilding an existing bridge
middle bay of Saint Mary's
Bridge, Madras
of the existing structure
of the existing structure
General Estimate
Amount Rs 3200

WORK

Estimate for building an Arch over the middle opening of Saint Marys Bridge in place of the existing wooden platform and making general repairs. Side District Engineer. 10594 of 10 May 1876.

Detail of Work.	Number	MEASUREMENT IN FEET			Area or Contents.	Total quantity of each Description of Work
		L	B.	D.		
Plinth and border						
New base	2	27½	4	1½	330	
Reckling	2	27½	2½	2½	633½	
do	2	27½	14	3	2310	
Face wall	2	17	2½	2	170	
Blocking course	2	38½	2	¾	115½	
Total of plinth and border						3599½
Ornamental parapets	2	38½	1-3	3	77½	
Cornice work	2	38½	¾	¾	43½	43½
Arch work						
Centro Arch	1	38	2¾	27½	2873¾	2873¾
Plastering -						
Piers and cutwaters	2	75	3		450	
Abutments & cutwaters	2	37½	3		225	
Wing walls	4	30	6½		780	
Face of small arches	4	31½	7½		945	
Face of large arch	4	17½	5		346	
Returns	4	4½	13		231	
Subtotal of small arches	2	27½	30		1650	
Large	2	27½	39		1072½	
Parapet wall not including the new portion	2	130	8		2080	
Total						7768½
Plastering cornice	2	168½	1½		505½	505½
Relaying the road	1	100	25		2500	2500

Continued

1319
11/2/95

Detail of Work	Number	MEASUREMENT IN FEET			Area or Con- tents	Total quantity of each Descrip- tion of Work
		L	B	D		
Remodelling roadway	1	65	24	2	3120	
Remodelling brick work						
Top of pier	2	27 1/2	4 1/2	9	222 1/2	
Part of parapet	4	4 1/2	1 1/2	3	81	
Total cubic feet					2381 1/2	

Fort St George
29th May 1876

A. Michel Esq. Superintendent
In charge of Fort St George

Checked
B. 24/5/76

Chas. F. Rice Esq. Major R.E.
Asst. Engr. Presidency

PRESIDENCY DISTRICT ENGINEER'S OFFICE,

Fort Saint George,

15 June 1876

No. 1431,

From

THE DISTRICT ENGINEER,

PRESIDENCY,

To

THE

Off^r Deputy Chief Engineer
D. 11

Sir

Encls
1 Original old
Plan
1 Extract
2 Plans
1 Set with
abstract
1 Specimen
report
1 data

In answer to your
Memo to I dated 31st ult.
and in continuation of my
letter No 985 dated 29th May/76
I have the honor to furnish
you with the following further
information regarding Saint
Mary's Bridge over the Coom
which it is proposed partly
to renew.

The Central Bay of this
Bridge which it is now proposed
to reconstruct was originally
arched.

2. This arch was segmental with a span of 30 feet and rise of 6 feet and appears to have had a clear headway at low water of 7 feet as will be seen from the original plan herewith submitted.

3. This arch was not destroyed but was removed in the year 1859/60 to make way for Canal boats and a small steamer which was built on the Crown about that period, when the present superstructure of eril wood with teak plank ing was also constructed.

4. To renew this superstructure

with teak and make the Bridge serviceable would cost about Rs 3230.

5. With reference to your 4th query I have to inform you that I have again examined the Bridge and am of opinion that the masonry of the Piers is sound, and as far as it is possible to do so (on account of the water in the river and the rough stone apron) I have endeavoured to find out the depth of the present foundations by means of an iron rod bent slightly at the end, from the catching of this bend in the rod when pushed down along

side of the masonry to the depth
of foundation indicated in the
plan viz 7 feet it would appear
that the depths of the foundation
are as shown in the original
plan. But this it will be
impossible to decide for
certain without the use of
cofferdams and bailing. The
removal of the central arch
has however caused both
piers to incline inwards and
they are now $\frac{1}{2}$ " in 10 feet out
of the perpendicular, and
although the side arches are
not much cracked the wing
walls immediately behind
the abutments are cracked.
The renewal of the segmental
arch would without doubt
prevent

21
prevent further subsidence, but
I have left it for you to decide
whether the elliptical arch
now proposed would have
the same effect & ^{be} also perfectly
stable.

With reference to the
rates which you take objection
to I have the honor to furnish
you with an extract from
the Range Officer's letter on
the subject.

In again submitting the
Plans & estimates for the early orders
of Govt I have to inform you
that the Bridge has now been
closed to all traffic except
foot passengers & light spring
vehicles. I have ^{the honorable} most obedt servt
Wm Geo Macle Mayor
of the District

Handwritten text on the left page, appearing as a list or series of entries, possibly related to a botanical or scientific study. The text is written in cursive and is somewhat faded.

Handwritten text on the right page, continuing the list or series of entries from the left page. The text is also in cursive and appears to be a continuation of the same study.

P. W. 1876 Department
No. 4309

PRESIDENCY DISTRICT ENGINEER'S OFFICE,
Fort Saint George,

No 9857.

29 May 1876

From
The offg. Dist. Engr.
Presy.

From
THE DISTRICT ENGINEER,
PRESIDENCY,

To
THE Chief Engineer, and
Secretary to Government

To The Dy. Chief Engr.
P. W. D.

Dated 15 June 1876
Order 16 June 1876
2-Engr

Engr
8 x
3 1/2 inches
Lebanon

Furnishes further information
regarding the proposed
renewal of St Marys
Bridge over the

Encls
2 Plans
1 Estimate
1 Specification

I have the honor to submit for the early orders of Government, a plan and estimate, amounting to Rs 3200 for constructing a masonry arch bridge over the central opening of St Marys Bridge, on the Corom, in place of the present wooden platform which is now rotten and in a dangerous condition the ends of nearly every one of the beams are decayed and the roadway is principally in its entirely supported by the struts.

2 This wooden structure appears to have been constructed in the year 1859, at a cost of Rs 3,285 for the purpose of enabling boats to pass under the bridge. The clear heading under the proposed arch will be exactly the same as at the General Hospital Bridge and only 4" less than under the present wooden structure.

3. The General Superintendent P. W. Stores reports that the approximate cost of an iron structure will be Rs 5,550 to which must be added Rs 450 for doing up the rest of the bridge so that the total cost of his alternative plan

N 6260

Order 27-6-76 P.W.D. 30.5-76
En. 20.6.76 P.W.D. 27.6.76
Res. to En. 16-6-76

plan would be about the same.
4. To answer the present, and in future, would be in my opinion objectionable as expensive, and should the design in dimensions of the proposed semi elliptical meet with the practical approval of the Engineer I would recommend it as the cheapest and best plan.

5. As the renewal of this bridge is urgently required, during the present working season early instructions on the subject are solicited. Meanwhile I have to inform you that I have brought to the notice of the Municipal Commission the present state of the bridge and have requested the President to take the necessary steps to prevent accidents by over-crowding &c.

I have the honor to be
Sir,

Your most obedient servant

Phoebe Maria Mappin.
Off. District Engineer
Brisbane

On Recd. 1/11/87
J.P.

P. W. 1876 Dept

No. 3852

Recd 29th May 1876.

The Chief Engineer
of the
San Antonio
River
Commission

C.E. Recd 31st May 1876.

Aug. 10 1876
To the
San Antonio
River
Commission
San Antonio
Texas
Dear Sir
I have the honor to
acknowledge the receipt
of your letter of the 29th
inst. in relation to the
proposed bridge over the
San Antonio River at
San Antonio, Texas.
I have the honor to
inform you that the
San Antonio River
Commission has no
objection to the
proposed bridge over
the San Antonio River
at San Antonio, Texas.
Very respectfully,
C.E. Recd 31st May 1876.

No 626

Recd 27.6.76 P.W. 30.6.76
C.E. 20.6.76 P.W. 27.6.76
Desd 6.6.76 P.W. 16.6.76

No. 311.
Letter No. 980 of 29th May 1876 from the St.

to
I think a 30" Elliptical
Arch may be built no
proposed by Mr. Montgo.
some with a rise of one
third the span on piece
only 1 1/2" thick, but with
a height of less than 3",
and supposition the cornice
to be made of a very flat
segmental Arch on the
other side - But these
side Arch are nearly
crushed, and the wing
wall behind them more
so. There will be danger
therefore of their giving
way if the abutments on
either side are built
as proposed.

Plastering 3 coats
the cause of the high rate of Pay. as 11 for
Plastering cornice requires explanation.
Yours faithfully
J. H. Farewell
offy. San Antonio
J.H.F.

May 1876.

P. W. 1876

No. 4/311.

Letter No. 985 of 29. May 1876 from the St.

813

is supported and removed -
It is the weight of these
that has prevented the
thrust of the side arches
from overturning the
piers upon the center
arch has removed -
And the constructive dif-
ficulty will be to cut
away just sufficient
of the abutments to
insert the ends of the
elliptical arch into
them - Much will de-
pend on the condition
of the masonry; and
it is much more will
have to be considered
by the architect

if success fully done } The
substitution of an arch as to
will be the most satisfactory
- tory in the end - However
The attempt to carry load instructed
to the entire structure
leaving to be relieved - arch
Under these circumstances
and with regard to the cause
and possible interruption
tion to the, it may be
be considered the question
to be removed the question
may be considered the question
may be considered the question

Octacumund
19th June 1876

Plastering 3 coats
The cause of the high rate of Pay. as 11 for
plastering cornice requires explanation.

W. H. Farewell
off. Haverley. 1876

31st May 1876.

Recd 27.6.76 M.A. 30.6.76
Civ. 26.6.76 P.A. 27.6.76
Prop. 6.7.76-6.76.

P. W. 1876

No. 311.
Letter No. 385 of 29. May 1876 from the St.
Eng. of Presidency. 13

The St. Eng. will be as good as to
submit further information called for
below regarding the bridge in question.

1. Is the bay now proposed to be reconstructed
originally arched.
2. If so, what was the description of arch,
its height above the water you saw.
3. How was it destroyed, and can the cause
be given.
4. Has the St. Eng. satisfied himself that the
masonry of the existing pier is in a thoroughly
sound condition, and has he verified the
depths of foundations shown on his plan.
5. What would be the cost of renewing the
timber superstructure on the existing design.
6. The rate of Rs 500 for centering appears
excessive and should be explained.
7. The following excess over St. rates should
be reported above.
Ornamental parapet work. Rs 100
Plastering 3 coats. Rs 200
The cause of the high rates of Rs 4. 20 11 for
plastering cornice requires explanation.

Yours faithfully,
H. J. Farewell
off. Secy. to Govt.
S. P. B.

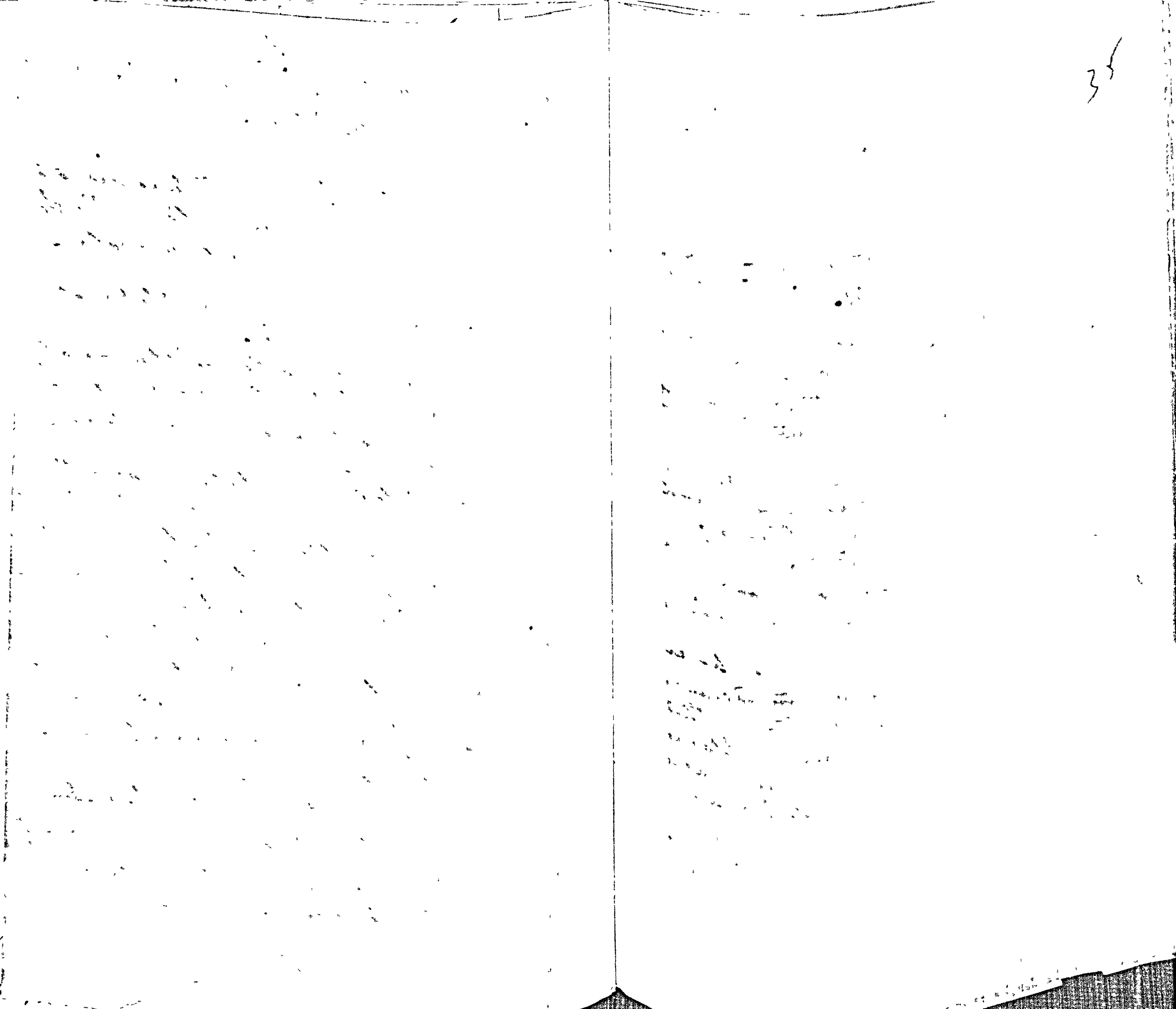
31st May 1876.

No 22613.

Recd. - 27.6.76
Civ. 20.6.76 M. 27.6.76
At. 8. 27.6.76

Recd. 27.6.76 M. 30.6.76
Civ. 20.6.76 M. 27.6.76
Prop. 5. 16.6.76.

33



GOVT } 1876. } PW
OF MADRAS } DEPT

SECRETARY.

Fort St. George, 10 July 1876.

OFFICE NOTE
Letter 14 dated 15. June 76 for Pres.
To W. D. L. with enclosure --

From Messrs. Asst. Eng.
Messrs. Asst. Eng. Asst. Asst.
reported to be cracked &
his private information,
regarding the foundation
of the pier can be given
I cannot recommend the
the construction of the
Skeptic's Arch design.
It is recommended a separate
idea would be simply to
remove an arch that had
to be removed to be
under the circumstances
believe it best that
the timber flat form
should simply be re-
moved & replaced.

W. H. S. W.

Letters from the District Engineer Presidency
Nos 985 of 29th May 1876 and 1431 of 15th June.
Memorandum of the Chief Engineer P.W.D.
dated 17th June 1876
FOR ORDERS.

Submitted for orders.

Major Genl. R. B.
Secretary to Govt. P.W.D.

I think we had better
follow the suggestion
and under the wooden
structure. Both the
Chief Engineer & Deputy
doubt the construction
of the arch forming
structure --

R. B. B.
22/6

Discretion is in
letter & c. c. For action
under this case
22/6

OF 187

1854

Public Works Department

PROCEEDINGS of the MADRAS GOVERNMENT.

Under date the 30th June 1876

Read the following —

From

The Dist Eng^r Presidency (H.E. No. 985 of 29th May 1876)
— do — do — (No. 1431 of 15th June —)
Chief Engineer's Memorandum (— of 19th —)

His Grace the

Governor in Council concurs
in the opinion of the Chief
Engineer that on the whole
it would be best to renew
the existing wooden structure.

The cost of this work is
calculated at Rs 3,230.

A regular Estimate should
be submitted, the work
being proceeded with
meanwhile in anticipation

of

of a specific allotment
of funds.

Dist. Engr. Presiding
Ex. P. W. Account
Fin. Dept.
Sept 19/16

K-626-627

X-111

4309 of 385211

Dist. of 1870

PUBLIC WORKS.

The N. B. Railway

1272

0.0.22 Jan 1st 1870

No. 626-627

1870

Notice

Notice

Notice

Concerning the
situation of the City of
the various the various
and calling on the
commissioner of the
situation of the various

in the various the
work may be provided
the in anticipation
of funds.

1870