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MADRAS RECORD OFFICE

Government of Madras

Public Works DEPARTMENT

G.O. No.	3230	(W)	Press
-B.P.- No.			-Mis-
Dated	1-12		1876

Not to be folded or roughly handled

Proceedings of the Madras Government, Public Works Department.
1st December 1876 No 3,230.

No 3. Read again G O, No 852, dated 31st March 1875.

Read also the following —

From Major H M VIBART, R E, Officiating District Engineer, Presidency, to
Major-General G W. WALKER, R E, Secretary to Government, Public
Works Department, dated Fort St George, 17th November 1876, No 4,454

I HAVE the honor to submit, for the sanction of Government, a revised plan and
estimate, amounting to Rupees 45,440,
1 Plan together with comparative statement, for
1 Abstract Estimate widening the General Hospital Bridge on
1 Report one side only instead of two as originally
1 Comparative Statement sanctioned

2 The original estimate, amounting to Rupees 53,200, which was sanctioned in
G O, No 852, dated 31st March 1875, was for widening the bridge on two sides; but
for reasons stated in the Supervisor's Report, which accompanies the estimate, it will
be seen that it was impracticable to widen the bridge on both sides. Consequently
the bridge was widened on one side only, on the verbal orders of Major Ross Thomp-
son, R E, after the bridge was inspected by Major-General Walker, R E

3 A saving of Rupees 7,760 has been effected, which I beg to surrender from
the current year's allotment of Rs 28,200
provided for in the Provincial Budget Item
Amount of original sanctioned estimate ^{RS.} 53,200 No 67, under Communication, New.
Amount of revised estimate . 45,440

Saving ... 7,760 4 Explanations of differences are
given in the column of remarks of com-
parative statement

From Supervisor A MILNE, in charge Northern Range, to Major H M VIBART, R E,
Officiating District Engineer, Presidency, dated Fort St George, 24th October 1876

I SEND you the whole of the plans, estimates, &c, in connection with the General Hospital
Bridge

2 I do not know on what authority Major Ross Thompson, R E, ordered the bridge to be
widened on one side instead of both, nor am I sure of his reasons for doing so, what I believe
them to be are set forth below —

I —According to the sanctioned plan and estimate for widening the General Hospital
Bridge, 16 feet was to have been added to each side. This was found to be
impracticable, so the 32 feet was added to the south side for the following
reasons

II —The banks and bed are alluvial, made up of sand and decayed organic matter. some
parts of them when saturated is a quagmire. When the excavation nearly reached
the bottom of the foundations it became evident that to remove the earth from both
sides of the old bridge at once would endanger it. The percolation under the
north wing wall and bund was so much greater than that on the south as to show
that the addition should be on the south side, indeed the abutments in line with
the inside of the north wings cracked, and this crack ran along the shore arches
parallel to the face for about 6 feet. The crack was light, yet sufficient to show
the advisability of not adding on to this side

III — When the whole of the foundations were exposed it was found that the foundations of the abutments of the new part were to be lower than the old by 19 feet, and that of the piers 7 feet, below which wells 15 feet were to be sunk. With much difficulty it was found possible to build the foundation of the abutments 8½ feet lower than the old ones, but the foundations of the two piers could not be got lower than the old ones without running the risk of undermining the old work.

IV — No wells were sunk. First, because the sinking of them to a level lower than the old foundation and close to them would be sure to undermine the bridge. Secondly, boulders were found at a considerable depth just where the wells were to be sunk, the removal of which might endanger the bridge. General Walker, R E, inspected the bridge with Major Thompson, R E, but I do not know what transpired.

No 4 ORDER THEREON, 1st December 1876, No 3,230

CIVIL WORKS, No 1.

(a) Heads of Service — Provincial
Fund — Ordinary
Class — Original Works
Main-head — (2) Communications
Sub-head — 1, Main Roads
Name of Work — Widening the General Hospital Bridge
Amount — Rupees 45,440
Carried out by the Public Works Department

In 1875 an estimate amounting to Rupees 53,200 was sanctioned for widening the Hospital Bridge in the vicinity of the Central Railway Station, Madras. In this estimate it was contemplated to widen the bridge on both sides, which design had to be abandoned owing to the difficulties met with in securing good foundations on the northern side of the bridge. And under authority of the Chief Engineer it was determined that as fewer obstacles offered themselves on the southern side, the whole additional width required should be made entirely on that side. The work has now been successfully carried out, and the District Engineer submits a revised estimate of Rupees 45,440 for it with a comparative statement showing a saving of Rupees 7,760 over the original estimate, due chiefly to a considerable reduction in brickwork, earthwork, removal of old brickwork, and the preparation of foundation.

2. His Grace the Governor in Council sanctions the substitution of the revised estimate of Rupees 45,440 for that of Rupees 53,200 sanctioned in G O, No 852, of the 31st March 1876. The saving of Rupees 7,760 surrendered by the District Engineer will be credited to the Provincial Reserve of 1876-77.

3. This sanction has been registered as Provincial No 190 W of 1876-77.

(True Extract)

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

Exd S T. Austin

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Major-General, R E,
Secretary to Government

No 166A Read the following letter from A McCALLUM WEBSTER, Esq, Acting Collector of Madras, to Colonel G W WALKER, R E, Secretary to Government, Public Works Department, dated Madras, 28th February 1874 —

In the laying out the line for the Carnatic Railway and the site for the Goods' Station it was found necessary to close the Male Orphan Asylum Road, and an alternative road was proposed (No 6 on Plan). The Railway Company were to construct the road, the Government giving the land.

2. I had lately to inspect one of the houses proposed to be demolished for this new road, and it appears to me doubtful whether the road itself is really necessary. If Government will refer to the Plan, they will see that access to the Male Orphan Asylum buildings can easily be obtained, from that part of the town lying near the South-Western Railway Station, by the Poonamallee Road and the road leading from it to the Police Commissioner's Office Road, while from St Andrew's Bridge the Pantheon Road, and from Egmore and the south the Police Commissioner's Office Road appear to me to afford sufficient facility of access. The distance from St. Andrew's Bridge to the Asylum will be slightly increased, but I do not think this is of much importance.

3. Access to the bungalows and buildings situated between the paddy fields and Whannel's Road can be obtained either from Whannel's, the Pantheon, or Kennett's Roads. The only building, access to which would appear from the plan to be blocked, I have marked in the plan with a blue cross, but probably the part of the Male Orphan Asylum Road outside the boundary of the Goods' Station site would afford the access required. Any way this building is not affected by the proposed new road.

4. I calculate that the net cost to Government of the lands taken up for the new road (No 6) and for the paddy-fields (marked 8) will be about Rupees 55,000, as shown below. Some of the lands have already been purchased at a cost of Rupees 16,632

	RS
For road diversion	36,632
For Land No 8	25,000
	61,632
Amount which will probably be realized by sale of materials	6,250
Net cost	55,382

5. Land No. 7 must be taken up for the play-ground for the boys in the Asylum, but the necessity of taking up No 8 is not so apparent. Moreover, I have been directed to take it up under class D. Lands of that class are defined to be "lands required in consequence of the works of a Railway and (which) do not come into the occupation of the Railway Company, and (which) will be (used) exclusively for roads either new roads leading to Railway Stations or diversions or changes of old roads made necessary to the Railway works." This land No 8 is certainly not required for Railway purposes, or for the diversion of the road,

and is entered in the Schedule as required for Government purposes Its acquisition will cost nearly Rupees 25,000 On this point, however, I will address the Consulting Engineer for Railways I only mention it now to show what will be the total cost of the lands south of the Male Orphan Asylum Road which have been directed to take up

6 I have brought this matter to the notice of the President of the Municipality, and have pointed out to him that unless the new road is really required its construction will entail an annual useless charge on the Municipality for its maintenance On receipt of his reply I will address Government again, but as there is some land still to be taken up, and the official year is drawing to a close, it is, I think, best not to wait for Mr Loch's opinion, but to at once refer the matter for the order of Government as to whether the acquisition of any further land should be stopped until the matter receives further consideration If Government decide to defer the acquisition of the land, a portion of the allotment for the purchase of Railway lands will be set free Pending receipt of orders I have directed my Deputy to take no further steps in the acquisition of the lands.

7 I should be obliged by the early return of the accompanying Plan as it is the only one I have in the Office

No 166B ORDER THEREON, 15th April 1874, No 984A

RAILWAY, No 25

THE Collector of Madras in his letter above recorded refers, for the orders of Government, the question of the land to be taken up and the diversions of existing roads which will be necessitated by bringing the line of the Carnatic Railway through the portion of the town lying between the Male Asylum premises and the site of the Passenger Station near the Penitentiary

2 The probable amount of compensation payable by Government with the cost of the Passenger Station is estimated as follows —

1 Friend-in-Need Society	..	Rs
2 Passenger Station site	..	21,254 paid.
3 Do building	..	20,000
4 Diversion of Sydenham and Lang's Garden Roads	..	2,20,000
5 Frontage Poonamallee road	..	2,000
6 New Road to Male Asylum ...	..	70,000
7. Enlargement of Asylum play ground	..	20,000
8 Reclamation land north of the Police Commissioner's Office	..	16,632
		25,000
	Total	3,91,856
Deduct recoveries {	6,250	
	6,800	
	2,800	
		15,850
	Net	3,79,036

3 His Excellency the Governor in Council is of opinion that it will be unnecessary to supply the place of the present Asylum Road by the new one

marked in the Survey, or to take up the land between it and the Police Commissioner's compound The saving on these two items will amount to Rupees 45,000. His Excellency the Governor in Council is also not prepared to lay out a sum of Rupees 70,000 in widening the Poonamallee Road at the place numbered 5 in the Plan, when sufficient space may be obtained with little or no cost by a slight diversion of the line of Railway to the opposite side, which would involve the surrender of only a small portion of the Penitentiary enclosure The proposed tramway from the Salt Cotaurs to the Carnatic Goods' Station should not come in at this spot, but may be more conveniently taken through Vepery and turned in a southerly direction along the new road running past the Doveton College compound and the Church Mission premises, or by Rundall's Road

A slight modification of the line of Railway near the Goods' Shed also appears necessary In the Survey the line is shown as being carried along the centre of Jordan's Road and continued up to the Male Asylum Road, which is for the most part included within the station boundary The inconvenience of closing up this road may be obviated by taking up the portion of land at the south-west corner of St Andrew's church compound on which an out-house is now standing, and diverting the line of Railway in this direction, at the same time curtailing the station boundaries to such an extent as will leave the Male Asylum Road untouched The inclusion of this road, while adding little to the area of the station site, would depreciate the value of house property in the vicinity, and might give rise to claims to compensation which would prove costly to settle

A sum of Rupees 20,000 is set down as the value of the site of the Passenger Station This land belongs to the Penitentiary and is Provincial property Provincial Funds should accordingly be credited with the value of the ground if surrendered to the Railway Company, but no action should be taken in the matter till the details called for in paragraph 3 of G. O., No. 2,518, dated 25th October 1872, in regard to the Passenger Station Plans have been laid before Government and their orders passed thereon The widening of the Hospital Bridge is held in abeyance pending a decision as to the elevation of the station building, and no further time should accordingly be lost in supplying the required information.

(True Extract)

(Signed) G. W. WALKER, Colonel, R E,

Secretary to Government.

To the Collector of Madras
.. Revenue Department
.. District Engineer, Presidency
.. Financial Department
.. Judicial
.. Consulting Engineer for Railways
.. Officiating Controller of Public Works Accounts

Exd S T Austin.

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*Proceedings of the Madras Government, Public Works Department,
7th May 1874*

No. 161. Read the following Proceedings of the Madras Government in the Financial Department, dated 17th April 1874, No 606 —

ABSTRACT — *Madras Municipality* — The adoption of the system of payment of grants-in aid by results approved, but the rules laid down by Government for general adoption to be maintained. The resolution adopted by the Commissioners expressing a hope that Government will direct the construction of an entirely new bridge in lieu of the proposal to increase the width of the General Hospital Bridge, referred to the Public Works Department for disposal

No 162 ORDER THEREON, 7th May 1874, No. 1,220.

RAILWAY, No 20

As stated in the Orders of the 15th April 1874, No 984A, action in the matter of the General Hospital Bridge is delayed pending report as to the elevation of the Carnatic Railway terminal building, called for in G O, No 2,524, of 16th October 1873.

2 The Consulting Engineer will explain the cause of the lengthened delay which has occurred in the submission of the report, and call on the officers of Carnatic Railway Company to forward to him the requisite plans, etc, if they have not already done so.

(True Extract)

(Signed) G. W. WALKER, Colonel, R E,
Secretary to Government.

To the Consulting Engineer for Railways.
,, Financial Department.

Ex1. S. T. Austin.
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9

*Proceedings of the Madras Government, Public Works Department,
10th July 1874.*

No 189A. Read the following letter from Lieutenant Colonel J. H. M. SHAW-STEWART, R E, Consulting Engineer for Railways, to Colonel G. W. WALKER, R E, Secretary to Government, Public Works Department, dated Madras, 2nd June 1874, No 326 —

ADVERTING to my letter, dated the 24th April 1874, No 248, and to the Proceedings of Government, dated the 15th April 1874, No. 984-A, I have the honour to submit, for the consideration of His

* No 495, 25th May 1874

Excellency in Council, a letter* from the

Agent of the Carnatic Railway, accompanied by a report from the Chief Engineer and by certain plans, sections, and other drawings, therein enumerated.

2 With regard to the terminal station buildings, it is explained by Mr. Logan that, looking to the probable cost which the acceptance of Mr Chisholm's handsome design would entail upon the Company, he has deemed it advisable to recommend the construction of a building less ornamental and less expensive. A photograph of the elevation designed by Mr Chisholm is submitted for the information of Government, with reference to their Proceedings, dated the 18th February and the 25th June 1873, Nos 544 and 1,653

3 I agree with the Railway Authorities in the opinion that the designs submitted by Mr Logan provide accommodation sufficient for all immediate requirements, and there can be no doubt that the cost of the building now recommended for construction will be considerably less than if Mr Chisholm's designs had been accepted. Looking, however, to the possibility that increased accommodation may before long be called for, it seems to me that, in constructing the terminus, some mode of conveniently adding to it should be kept in view, and, with this object, I would suggest that the foundations and walls of the eastern portion of the building, as far as the commencement of the passenger platforms, should be constructed to carry an upper storey.

4 It will be seen in the accompanying plans that provision has been made for carrying out the two suggestions contained in paragraph 3 of the Order of Government No 984-A. The existing width (80 feet) of the Poonamallee Road at the cross-roads near Law's Bridge has been maintained by making a slight encroachment upon the Penitentiary enclosure, thus obviating the necessity of paying the exorbitant demand of Rupees 70,000 for pulling down the wretched hovels on the north side of the road, and, by cutting off a small corner of St Andrew's Church compound, the Asylum Road is set free to the north of Whannell's Road

5. In the Order of Government, dated the 7th May 1874, No. 1,220, it is stated that action in the matter of the General Hospital Bridge is delayed pending report as to the elevation of the Carnatic Railway terminal building, called for in the Order of Government, No 2,524, of 16th October 1873, and I am called upon to explain the cause of the lengthened delay which has occurred in the submission of the report. The only explanation I can give is that the Order of Government in question, dated the 16th October 1873, was not understood as calling for any report upon the elevation of the Carnatic Railway terminus. In the first paragraph of the order it was stated that His Excellency the Governor in Council was not prepared

*Proceedings of the Madras Government, Public Works Department,
10th July 1874.*

to reverse his decision on the subject of the Hospital Bridge without more definite information as to certain specified relative level, but, in the second paragraph, it was suggested by Government, as an alternative expedient, better and less costly than lowering the Hospital Bridge, that a level crossing should be substituted for an over-bridge at the point where Sydenham's Road crosses the railway. In my letter, No 658, dated the 8th December 1873,

* Proceedings of Government, dated 29th Dec 1873, No 2,081-C C

I reported that the alternative course suggested by Government had been accepted by the Carnatic Railway Company, and it was then understood that information regarding the relative levels specified in the first paragraph of the Order of Government, No 2,524, was not required. It was only upon receipt of the orders of Government now under acknowledgment that it was known that the widening of the Hospital Bridge was held in abeyance pending receipt of that information. It has now been furnished by the Railway Authorities, and the relative levels are as follow —

Headway afforded by the present Hospital Bridge—above ordinary water level ...	FEET
Do. do. above highest known water level .	10 58
Headway of Madras Railway girder bridge above ordinary water level	5 90
Height of Hospital Bridge roadway above rail level as now proposed .	9 8
Do do shown highest known flood level .	5 51
	10 13

6 I beg that I may be favoured with early instructions upon the points noticed in my letter No. 248, dated the 24th April 1874.

From W S BETTS, Esq., Agent, Carnatic Railway, to Lieutenant-Colonel J H M SHAW-STEWART, R E, Consulting Engineer for Railways, dated Negapatam, 25th May 1874, No 495

In reply to your letters marginally noted, I beg to forward copy of a report (No 1,747, dated the 23rd instant,) from the Chief Engineer, together with the plans and sections referred to therein, regarding the extension of the line between Whannell's Road and the Penitentiary

2 I concur with the Chief Engineer in opinion that the extent of accommodation proposed to be provided at the passenger terminus will be sufficient for the business which will have to be transacted there for some time to come, and I trust Government will consider the building itself sufficiently ornamental

CARNATIC RAILWAY

Letter from the Chief Engineer, to the Agent, dated the 23rd May 1874, No 1,747

Your C/484 316, 494 329, 555 383, and Consulting Engineer's Nos. 85 and 91

WITH reference to the letters marginally noted, I have now the pleasure to forward the following plans and sections —

Plan No 101, showing the land to be taken up between the proposed goods yard at Madras and the terminal station as last sanctioned

Plan No 101-A, showing the land to be taken under the alterations proposed in G O, No 984-A, of the 15th ultimo

*Proceedings of the Madras Government, Public Works Department,
10th July 1874.*

Plan No 101-B, showing general arrangement of the terminal station with reference to the approaches thereto and the limits of the Penitentiary

Plan No 52-A, enlarged ground plan of arrangements of proposed terminal station buildings

Plan No 52, elevation of proposed station buildings

Plan No 52-B, cross section of proposed station buildings

Plan No 82, section to show formation level originally proposed between goods yard and terminal station and the formation level now proposed

Plan No 40, elevation of Hospital Bridge

2 With reference to the alteration proposed in G O, No 984-A, it will be observed that by partially reverting to Mr Dibblee's original proposition, to take the line through part of the Scotch Kirk compound, the Asylum Road will be left untouched and only a small portion of the compound at one corner cut off

3 Opposite the north-west corner of Poonamallee and Sydenham's Roads, I have shifted the centre line 23 feet to the south, which leaves a clear width of 80 feet for the Poonamallee Road, doing away with the necessity for cutting into the buildings at the corner where so excessive a price has been asked for property

4 I have managed this shifting of the centre line so as not to carry us much further than before into the river Cooum, but it involves a slight encroachment on the Penitentiary enclosure, (as shown on Plans 101A and 101B)

5 With reference to the terminal station buildings, as you are aware, Mr Chisholm prepared a very handsome design for them, without reference to the question of the amalgamation between this Company and the Great Southern of India Railway Company, after you took charge of the affairs of the two Companies, and looking to the near prospect of their becoming one, we agreed that a much less expensive design with a considerable reduction in the accommodation would satisfy first requirements

6 I have accordingly in the designs now submitted aimed at providing ample accommodation for the public and for the working staff, and while endeavouring to produce as good a general effect as the nature of the case will permit, I have tried to avoid expenditure on mere ornamentation

7 The general features of the design are as follows — A corrugated iron-roofed shed of about 400 feet long by 100 feet wide is provided to cover the platforms and part of the offices. The roof in two spans of 50 feet each supported in the middle by a row of cast iron columns. A short length of shed 115 feet long by 50 feet wide is added laterally at the south-east end of the main shed to cover a portion of the offices which could not well be included under the main roofing

8 The second roof (counting from the Poonamallee Road) is carried forward so as to form a good and sufficient porch, and an arcade or covered way is provided along the whole front (east end) of the building for the accommodation and shelter of intending passengers. The booking office and gentlemen's waiting-room under the middle roof form an isolated building with wide passages on each side, shut off by open iron-work gates so as to give facilities for a free circulation of air through the building from end to end

9 On the right of the third-class booking passage a space is provided for third-class passengers to wait in. This space is railed off only from the passage to allow of free ventilation

10 A large space is also provided between the offices and the ends of the platform to accommodate passengers waiting for trains, and so obviate as far as possible unnecessary and dangerous crowding of the platforms

11 The urinals and latrines I propose to place to one side (the south), entirely outside the main building, in some convenient spot opposite the departure platform. Even with the greatest care and cleanliness buildings of this kind are apt to be offensive in this hot climate, and I think it advisable therefore not to have them under the main roof of the building

12 The approaches proposed are shown on Plan No 101-B

*Proceedings of the Madras Government, Public Works Department,
10th July 1874.*

- 13 A large porch or covered way is provided on the side of the station next the Poona-mallee Road for the vehicles of passengers arriving by train
- 14 The whole of the offices under the roofing are intended to be inexpensively built, and they are so planned as to be easily altered or cleared away according to the requirements of the future
- 15 On Plan No 40 I have given the information called for in paragraph 6 of the Consulting Engineer's letter, No 91, but I enter it here also, viz —

Headway afforded by the present Hospital Bridge—above ordinary water level	FEET
Do highest known water level	10 38
Headway of Madras Railway girder bridge (higher up) above ordinary water level	5 90
Height of the Hospital Bridge roadway above rail level as now proposed	9 80
Do do above highest known flood level at Hospital Bridge	5 51
	10 13

- 16 On the plans now forwarded the ground level around the station is shown at platform level (or one foot above rail level) in order to do away with steps which are often the cause of accident in working with large crowds of people
- 17 It will probably, however, be found necessary to allow a step of about 6 inches in execution so as to keep the floor of the building above any danger of the drainage water getting in.

No. 189B.

ORDER THEREON, 10th July 1874, No 1,855A.

RAILWAY, No. 23A.

His Excellency the Governor in Council is satisfied with the manner in which his instructions conveyed in paragraphs 3 and 4 of G O, No. 984-A, of 15th April, are proposed to be worked out, and permits the immediate erection of a new inclosure wall to the juvenile ward of the Penitentiary, as a necessary preliminary for the transfer to the Railway Company of the portion required to be added to their premises. This work and the diversion of Lang's Garden Road will, it is presumed, be carried out by the Railway Officers at the charge of Government, their cost, and that of all compensation remaining to be given, should now be calculated and reported.

2 The Consulting Engineer, concurring in opinion with the Railway Authorities as to the sufficiency of the accommodation provided in the station plan, now submitted, for all present requirements, His Excellency the Governor in Council will leave it to the latter to decide whether they will act on the Consulting Engineer's suggestion that the eastern portion of the building be constructed to carry an upper storey. The arrangements seem to have been judiciously planned with reference to available space and means of approach.

3 His Excellency the Governor in Council observes with satisfaction that the permission to dispense with overbridges, and consequent raising of the level of the line by $6\frac{1}{4}$ feet, and $4\frac{1}{2}$ feet above highest known flood level, has led to very great improvement of the gradients between the two stations. Looking to the fact now reported, that the headway given by the Madras Railway Bridge

*Proceedings of the Madras Government, Public Works Department,
10th July 1874.*

above ordinary water level of the canal is 9 inches lower than that of the existing Hospital Bridge, and to the facts that the substitution of girders, at the lesser height, for the present flat central arch of the latter, will admit of considerable reduction of the height of its roadway, while actually greatly increasing the average headway across 48 feet of the width of the canal, His Excellency the Governor in Council modifies his Order, No 1,756, of 8th July 1873, so far as to permit of such substitution of girders for the existing central arch and there use together with screw piles for the additional width on each side

4 The Presidency District Engineer will prepare the necessary plans and estimates in time for sanction and inclusion in the Imperial Budget of 1875-76 under "Communications," and in carrying out the work will arrange for the additional side accommodation being provided before the central arch is replaced so as to obviate obstruction of traffic as far as possible.

(True Extract.)

(Signed) G. W. WALKER, Colonel, R.E.,
Secretary to Government.

To the Consulting Engineer for Railways.

.. District Engineer, Presidency.

.. Judicial Dept.

Ld. S T Austin
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No 330 of 1876-77.

15

Abstract Estimate

Head of Service — Provincial

Spind — — — — — do.

Classes — — — — — Original Works

Main Head — — — — — Communications

Sub Head

Items of Work — — — — — Raising the General Hospital

Bridges

Amount Supers 151407

To be carried out by Contract

Contents	Particulars	Rate	In Amount	Total
9122	Cft concrete made of stone lime	5 2	6ft 2945 10 4	
	work and broken bricks			
43594	Cft Bricks in mortar	2 11	" 7946 13 2	
840	Cft Common concrete	2 3	" 118 2 "	
6830	Cft Bricks arch work in chimneys	4 2	" 1778 10 4	
	Centering for the central arch	" "	" 2500 "	
892	Cft Salts in arch work in chimneys	13 "	" 724 12 "	
	Centering for the small arches	" "	" 348 "	
17 3/4	Sqrs Bricks on edge flooring laid over	8 12	" 142 "	
	3 inches of concrete			
314	Cyds Rough flooring with old stone	4 "	6yds 78 8 "	
	and broken bricks			
109-10-1 5m	Rough Stone (Salts for flooring)	12 4 1/2	10m 1935 11 7	
30	Cyds Rough granite stone pavement	3 12	6yds 112 8 "	
32	Cyds Rebuilding pavement with old stone	4 "	" 8 "	
31	Cyds Removing old pavement of rough	" 4 "	" 7 12 "	
	stone			
	Approved order			18646 7 5

Content	Particulars	Rate	Per	Amount	Total	Content	Particulars	Rate	Per	Amount	Total
	Brought Over				18646 7 5		Brought Over				23202 7 5
56 No	Granite covering stones 2 faces dressed $4\frac{1}{2} \times 1\frac{1}{2} \times 1$ including fixing	12	"	6	672	44 No	Iron bolts $1\frac{1}{2}$ ft long 1 inch			23202	7 5
32 No	do do $4\frac{1}{2} \times 1\frac{1}{2} \times \frac{3}{4}$ do	9	"	6	288		do for fixing the granite brackets including all charges	2	8	6	110
144 No	Granite slabs to be put under granite brackets $3 \times 1\frac{1}{2} \times \frac{1}{2}$	3	"	6	132	1529 lb	Swedish iron wrought into cradles for supporting the Red Hills Water main and supports for rails				
20 $\frac{3}{4}$	sq ft Granite paving stones 6" thick 2 line dressed	60	"	sq ft	1245	403	Cyts Boulders removed from slush at a level below the foundations of the existing bridge	1	8	6	604
11	sq ft Removing and recovering the old pavement	5	"		55	141 No	Gauges 16 ft long and 1 foot broad made of Portland Cement	6	"	6	24
12 No	Granite stones for brackets 2 line dressed including fixing	20	"	6	240	126	Cyts Filling in old lime to under the foundations of piers	"	4	6	31
145 No	Removing and repairing the existing granite brackets	1	8	"	67 8	14691	lft Demolishing old lime to work	"	1	6	918
272	sq ft Removing, repairing & refixing the existing iron rails	1	14	sq ft	510	6671	Cyts Removing slush and earth from the site of foundations	"	4	6	1667
5	sq ft Plastering with Portland Cement	5	11	sq ft	287	14557	Cyts Earth Work	"	1	6	427
167	sq ft Plastering the old and new work with 2 coats of chunam	12	7	"	407	2429	Cyts do do	"	2	"	303
14 $\frac{3}{4}$	sq ft Painting the laterite face of arch	1	"	"	14 12	197 $\frac{3}{4}$	sq ft Metalling the roadway with gashes of limestone stones and 1 inch of gravel and levelling course with old lime to 6" thick	6	8	sq ft	1285
363	lft Cornice for face of bridge	"	4	lft	90 12	87 $\frac{3}{4}$	sq ft Gravelling part of the approach	2	1	"	180
164	sq ft Ornamental parapet walls complete	1	12	sq ft	287	1320	lft Mangrove sheet piling	"	6	6	536
136	sq ft Ornamental wooden rails on lime to foundations at south west wing	2	8	"	340		Brought Over				29674
119	sq ft do do small rails at do	1	8	"	178 8						1 8
	Brought Over				23202 7 5						

Contents	Particulars	Rate	Per	Amount	Total
	Brought Over			29674	1 8
	Constructing a bund on each side of the Bridge	"	"	1300	"
	Barling water	"	"	7229	12
	Neighboring 2 piers	"	"	75	"
	Removing the bund on each side of the Bridge	"	"	500	"
1000	Yft Removing the tramways and making sidings	"	1 8	104	2 8
	Shifting Municipal Hydrants to one side	"	"	50	"
255 1/2	Yft Planting grass on the Banks	"	4	63	14
1217	6 yd Earth work for raising and widening the approaches to the well watered & rammed	"	2	152	2
180	Yft Removing old latrine metalling and relaying the same	"	4	45	"
412	Yft Surfing the bank including watering	"	8	21	"
104 1/4	Yft Metalling with granite and gravel 6" thickness	"	10	1869	10 6
8	No Bull dredgers	117	13 9/4	742	14 6
40	No Wooden curbs for bottom of wells	26	"	1040	"
40	No Iron rings for wells	6	"	240	"
200	No Large Iron bolts of 7 ft long	1	"	337	5
306	No Iron bolts for frames	"	5 1/4	95	10
	Brought Over			43740	11 4

Contents	Particulars	Rate	Per	Amount	Total
	Brought Over			43740	11 4
121	No Iron bolts for frames and complete	"	3	22	11
640	Yft Mangro planks 2" thick	"	4	160	"
898	Round and square Iron	36	"	64	10 6
	Sundry charges &c			2191	15 2
	Total Rupees			46180	"
	Amount recovered by the sale of 37 well clerks			740	"
	Total Amount of Calcutta			45440	"

For St George
 21st October 1876
 17th November

J. Miller - Supervisor SPM
 In charge of Northern Range

Dear Sir Robert
 Major &c.
 Offg. District Engineer
 Presidency

Comd
 23-10-76

Fort Sill
24 Oct 1876

To,

The Offg District Engineer
Presidency

Sir,

I send you the whole of the plans, estimates &c in connection with the General Hospital Bridge.

2. I do not know on what authority Major Rep Thompson's, ordered the bridge to be widened on one side instead of both, nor am I sure of his reasons for doing so; but I believe them to be as set forth below.

I. According to the sanctioned plan, and estimate for widening the General Hospital Bridge, 16 feet was to have been added to each side. This was found to be impracticable - so the 32 feet was added to the South side for the following reasons -

II. The banks and bed are alluvial - made up of sand, and decayed organic matter. Some parts of them when saturated is a quagmire. When the excavation nearly reached the bottom of the foundations it became

P.W.D.
18 NOV 76
No. 8378

Recd 17th Nov 1876

No 330 of 1876-77

Estimate for widening the General Hospital Bridge

Amounting to Rs. 45440-00

1876-77

became evident that to remove the earth from both sides of the old bridge at once would endanger it. The percolation under the North Wing wall, and bend was so much greater than that on the South, as to show that the addition should be on the South side, indeed, the abutments on line with the inside of the North Wings, cracked, and this crack ran along the shore arches parallel to the face for about 6 feet. The crack was light, yet, sufficient to show the advisability of not adding on to this side.

III. When the whole of the foundations were exposed it was found that the foundations of the abutments of the new part were to be lower than the old by 19 feet, and that of the piers 7 feet below which walls 15 feet were to be sunk. With much difficulty it was found possible to build the foundation of the abutments $8\frac{1}{2}$ ' lower than the old ones; but the foundations of the two piers could not be got lower than the old ones without running the risk of undermining the old work.

IV

IV. No wells were sunk. First, because the sinking of them to a level lower than the old foundations, and close to them, would be sure to undermine the bridge. Secondly, boulders were found at a considerable depth just where the wells were to be sunk, the removal of which might endanger the bridge. General Walker Rb, inspected the bridge with Major Thompson Rb, but I do not know what transpired.

I beg to

/Sd/ A. Nichol, Engineer,
in ch Northern Range

(True copy)

Per Robert Major Rb
Offy District Engineer
Resdinary

~~Accd.~~
M.

P.W.D.

13 NOV 76

8376

(a) Heads of Service—

Provincial

Fund

Military

Class.

Muzumdar

Main head

(2) Muzumdar

Sub-head

1. Marine Roads.

Section.

Name of Work.

Widening the General Hospital Bridge—

Amount

Rs 45,440.

To be carried out by the

P. W. D.

Department

Print in the margin of G.O. No 3230 of 1-12-76—

No 14454

From,

The Offg District Engineer,
Presidency.

To,

The Chief Engineer, and
Secretary to Government.
P.W.D.

Sir,

I have the honor to submit for the sanction of Government a revised plan, and estimate, amounting to Rs 45,440 together with, Comparative Statement for widening the General Hospital Bridge on one side only, instead of two — as originally sanctioned.

The original estimate, amounting to Rs 53,200 which was sanctioned in G.O. No. 832, dated 31. March 1876 was for widening the Bridge on two sides; but for reasons stated in the Supervisor's Report which accompanies the estimate, it will be seen that it was impracticable to widen the Bridge on both sides. Hence

Yours faithfully

Enclo 11

1 Plan
1 Est. Estimate
1 Report
1 Comparative Statement

827 01 05-01 01 01 01
 827 01 05-01 01 01 01
 827 01 05-01 01 01 01

Consequently the Bridge was widened on one side only on the verbal orders of Major Thos Thompson R.E. after the Bridge was inspected by Major-General Walker R.E.

3. A paving of Rs 7760 has been effected, which I beg to surrender from the current year's allotment of Rs 28,200 provided for in the Provincial Budget Item No. 6 under Communication & Engrg.

4. Explanations of differences are given in the column of remarks of Comparative Statement.

I have the honor to be

Sir,
 Your most obedient servant

Henry Vivian

Offg. District Engineer Major R.E.

Port St. George
 14th Nov. 1876

Geo. L.
 W.

Amount of original statement
 Amount of statement 11553.200
 Amount of statement 11553.200
 Amount of statement 11553.200

208-7-73 to 1756.
 " 10-7-74 " 1855 A.
 " 31-3-75 " 852 orig

P.W.D.
 18 NOV 76
 No 8376

Arch. No 44454
 Plans with the
 submission for sanction
 a revised estimate
 amtg. to Rs 45,440-
 for widening the
 Hospital Bridge
 Bristol

sent 19th 3/20076.

The Chief Engineer
 to
 Mr.

The District Engineer
 Madras

No 3

in 27-11-76.

Am. H. H.
 No 3230 S.H.B.
 Proceedings of the Madras Road

Under date the 1st Dec 76
 Read again Feb 28 82
 dated 21st March 1875

Read also the following

From
 Secy District Engineer (H.E. No 1454 of 11th Dec 76)
 Presidency

In 1875 an estimate
 amounting to Rs 58,200
 was sanctioned for
 widening the Hospital
 Bridge in the vicinity
 of the Central Railway
 Station Madras.
 In this estimate it
 was contemplated
 to widen the bridge
 on

on the sides which design
had been abandoned owing
to the difficulties met
with in securing good
foundations on the
northern side of the Bridge.
And under authority
of the Chief Engineer
it was determined
that no fewer obstacles
offered themselves on the
southern side the whole
additional width
required should be made
entirely on that side.
The work has now been
successfully carried out
and the District Engineer
submits a Revised esti-
-mate of Rs 45,440
for

Am 22-11-76

for it with a comparative
statement showing a
saving of Rs 7760 over
the original estimate;
due chiefly to a con-
siderable reduction
in brick work, earth
work, removal of old
brick work, and the
preparation of foundations.

His Grace the Governor
the Council sanction
the substitution of the
revised estimate of
Rs 45,440 for that of
Rs 53,200 sanctioned
in No. 852 of the
31st March 1876.
The saving of Rs 7760
announced

surrendered by the Dis-
 trict Engineer will be
 credited to the Provincial
 Reserve of 1876-77.

This sanction has
 been registered as Pro-
 vincial No 190 of 1876-77

W.H.
 25.11.76

12
 No 70
 Govt. of 1876 Madras.
 PUBLIC WORKS.

To Mr. H. B. Pres. Secy
 Dated
 Issued
 Per L.
 Lact / ✓
 G. O. F. No. 323

Nos. 3-4

Annual Work Est.
 for the year ending
 31st March 1877
 for the year ending
 31st March 1877

For 1876-77

Nos 3-4

in 27-11-76
 in 27-11-76