Archives I—10,000—6-10-70.

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(3) Initials of the Referencer ✓

TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

PUBLIC WORKS DEPARTMENT

G.O. No. 1.W. Press.

~~B.P. No.~~ ~~Mis.~~

Dated 2.1.1878 ~~197~~ .

25

Not to be folded or roughly handled

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

2nd January 1878, No. 1 W.

Buildings and Roads.

Civil Works.

Read the following papers :—

No. 1.

MEMORANDUM.

No. 1,944.

THE Superintending Engineer, Chingleput, is requested to report whether the Cortilliar bridge is now completed with the exception of the roadway, also whether the buckled-plates have been tarred or painted by the Contractor, Mr. Maylor.

2. According to the specification all the iron-work is to have two coats of paint, but it does not appear that the Contractor is bound to do anything more towards preparing the plates for the reception of gravel.

3. The Chief Engineer is of opinion that merely tarring or painting the buckled-plates will not fit them for receiving the layer of gravel of which the road is to consist, but that it will be necessary to place a mixture of asphalte and sand, or asphalte, sand and pebbles, between the plates and the gravel. It is to be regretted that this was not fully considered while the bridge was in progress so that there might be no delay in forming the roadway and opening the bridge for traffic.

4. The matter having been referred to the Chief Engineer, he requests the Superintending Engineer, Chingleput, will send him a sketch with dimensions showing the form of the buckled-plates.

14th July 1877. (Signed) E. A. FOORD, Colonel, R.E.,
Chief Engineer, P.W.D.

To the Superintending Engineer, Chingleput.

No. 1-A.

MEMORANDUM.

No. 1,986.

G.O., No. 16 W, dated 6th June 1877, Public Works Department.

The Chief Engineer requests the Superintending Engineer of Chingleput will be so good as to report what action he has taken in reference to the Proceedings of Government in the Financial Department, communicated with the order above quoted.

18th July 1877.

(Signed) E. A. FOORD, Colonel, R.E.,
Chief Engineer, P.W.D.

To the Superintending Engineer, Chingleput.

---

o. 1-B. From Colonel F. J. MOBERLY, R.E., Superintending Engineer, Chingleput, to the Chief Engineer, Public Works Department, dated St. Thomas' Mount, 20th July 1877, No. 1,491.

IN reply to your No. 1,986, of 18th instant, I have the honor to report that I have arranged with the General Superintendent, [illegible] Works Workshops and Stores, that he should send a competent person to exam[illegible] the bolts and rivets of the

Cortilliar bridge as soon as the iron-work is completely laid, of which I expect to hear shortly from Mr. Maylor, when the whole work will be inspected and compared with plan and specification.

2. The spaces between centres of ordinary piers is 57′ 3″, the girders are 57′ $\frac{1}{2}$″ long and with rivet heads 57′ $1\frac{3}{4}$″, leaving $1\frac{1}{4}$ inch for expansion; theoretically $\frac{2}{5}$ths of an inch for a difference of temperature of 90° is enough, so that there appears ample room. The bridge has been carefully watched through the past hot weather when the heat of the sun was greatest, and I am informed the rivet heads have never touched; the centre of each girder is not very exactly in the centre of the span and consequently the spaces between rivet heads is not equal.

MEMORANDUM.

No. 1-C. No. 2,101.

THE Chief Engineer has to acknowledge the receipt of a buckled-plate forwarded by Mr. Wiffen, the Assistant Engineer of the Sirulur Range, but he has not received from the Superintending Engineer, Chingleput, any reply to his memorandum of the 14th July, No. 1,944.

31st July 1877. (Signed) E. A. FOORD, Colonel, R.E.,
Chief Engineer, P.W.D.

To the Superintending Engineer, Chingleput.

No. 1-D. From Colonel F. J. MOBERLY, R.E., Superintending Engineer, Chingleput, to the Chief Engineer, Public Works Department, dated St. Thomas' Mount, 4th August 1877, No. 1,705.

IN reply to your No. 2,101, of 31st ultimo, I have the honor to observe that the Range Officer's report that he had sent you a buckled-plate for inspection reached me only on the 30th ultimo.

2. The last girder is not yet raised to position so far as I am informed, as there was a difficulty in getting bricks to complete the abutment; no part of it has been painted, as all rivets and bolts are to be examined in detail by an expert from the Public Works Workshops.

3. In my own justification I beg to observe that the contract for the bridge was prepared by the Local Fund Board, and signed at an extraordinary meeting.

No. 1-E. From the same Officer, dated St. Thomas' Mount, 31st August 1877, No. 2,123.

I SHALL be greatly obliged by your informing me whether in G.O., No. 244 W, of 30th August, it is intended that I should advise the Local Fund Board to lay asphalte on the buckled-plates of the Cortilliar bridge, or not; in your memorandum No. 2,102, of 31st July, you have stated that it is necessary.

One Extract from Note by His Grace the Governor.

2. There is, I think, some mistake in copying the Note by His Grace the Governor, but I read it as generally supporting my idea that asphalte would not be used in England; the last sentence pointing to some exceptional case, but I cannot follow the sentence as sent to me.

MEMORANDUM.

No. 1-F. No. 2,609.

LETTER from the Superint g Engineer, Chingleput, No. 2,123, dated 31st August 1877.

1W/R

The Chief Engineer recommended that asphalte concrete should be placed over the iron-work of the Cortilliar bridge, and that the gravel road-way should be laid on the asphalte concrete.

2. The Superintending Engineer will now be guided by the Note of His Grace the Governor, which suggests the use of ordinary concrete over the buckled-plates. The words "arrived at," in the Superintending Engineer's copy of the Note, should apparently be "aimed at." The concrete should be mixed and applied carefully, and it will be advisable to make a trial of the concrete on a portion of the bridge before laying it over the whole bridge.

7th September 1 77. (Signed) E. A. FOORD, Colonel, R.E.,
Chief Engineer, P.W.D.

To the Superintending Engineer, Chingleput.

No. 1-G. From Colonel P. O'CONNELL, R.E., Superintending Engineer, Chingleput, to the Chief Engineer, Public Works Department, dated St. Thomas' Mount, 15th December 1877, No. 3,848.

LEARNING from the correspondence on the subject that the iron-work of the Cortilliar bridge was finished and had been examined both by Colonel Moberly and by an experienced foreman from the Madras Workshops, but had not been tested by weights being placed on it in order to prove that its strength was equal to that intended to be given to it when designed, I requested Lieutenant Wiffen, the Officer in charge of No. 1 Range, to ascertain from Mr. Maylor the Contractor if he were willing to test the bridge. Mr. Maylor, in a letter written from Beypoor to Mr. Wiffen, while remarking that the contract bond did not stipulate that he was to test the bridge, and that none of the bridges erected by him in this country had been tested in the manner proposed, expressed his readiness to test the bridge rather than give occasion for dissatisfaction. He also named the day on which he would leave Beypoor, but suggested that the material for the roadway should be filled in first, as in its existing condition the surface of the bridge was too uneven to admit of loaded carts being moved over it.

2. This was the general tenor of Mr. Maylor's note to Mr. Wiffen, which was returned to Mr. Wiffen at his request as it was not quite entirely official.

3. I requested Mr. Wiffen to telegraph to Mr. Maylor to postpone his visit to the bridge until the roadway had been laid, and visited the bridge in company with Mr. Wiffen on the 4th December. I found that, as described in Mr. Wiffen's letter, No. 1,343, dated 8th December, there had been laid over one span of the bridge about $3\frac{1}{16}$ inches of concrete and $4\frac{1}{2}$ inches in depth of gravel. Making a total maximum depth of $7\frac{9}{16}$ of material, but as the centre of each buckle-plate rises $2\frac{1}{16}$ inches above its edges, the average thickness of the material is probably not more than $6\frac{3}{4}$ inches, whereas the specification drawn up by Mr. Maylor himself merely asserts "that the superstructure is calculated to safely carry a distributed load of 112 lbs. to the superficial foot in addition to its own weight and a mean thickness of 4 inches of asphalte and road metal."

4. As a protection to the iron portion of the roadway of the bridge the concrete used is a failure, as water finds its way through it and drips slowly between the joints of the iron into the river below. This concrete, though as well made as the materials used, viz, lime, soorkee, sand and clean laterite, admit, is doubtless inferior to one containing Portland cement. I am by no means sure that even that would not be inferior to a roadway of asphalte and gravel, the elasticity of the former material rendering it better fitted than concrete to fill in a space bounded by iron-plates, and subjected to a constant change of form as the bridge bends and recovers itself on the passage of loaded carts, cattle or elephants. I should prefer having the bridge laid with the 4 inches of material mentioned in the specification, and then having it tested either by Mr. Maylor or at the expense of Government in the presence of any of the Engineers of the Madras or Great Southern of India Railways whose attention has lately been given to testing iron bridges.

5. I shall be glad to receive the orders of Government on this question as early as possible.

From Lieutenant G. E. WIFFEN, Assistant Engineer, Sirulur Division, Chingleput District, to the Superintending Engineer, Chingleput, dated Sirulur, 8th December 1877, No. 1,343.

IN obedience to your orders in your No. 2,733, dated 11th October 1877, and with reference to Chief Engineer's Memorandum, No. 2,609, dated 7th September 1877, which accompanied your letter above quoted, I have the honor to inform you that I have put down the concrete as therein required to a depth of $3\frac{1}{16}$ inches as ordered, the camber of the buckle-plates is $2\frac{1}{16}$ inches and allowing 1 inch of concrete over the buckle-plates gives the $3\frac{1}{16}$ inches. Over this I have placed $4\frac{1}{2}$ inches of metal and gravel, making a total depth of $7\frac{9}{16}$ inches. The specification states "that the superstructure is calculated to safely carry a distributed load of 112 lbs. to the superficial foot in addition to its own weight and a mean thickness of 4 inches of *asphalte and road metal*," therefore I beg to bring to your notice that if we put a mean thickness of $7\frac{9}{16}$ inches, we are not carrying out the rules of the specification, as we are laying $3\frac{9}{16}$ inches more on the bridge than contracted for. I have also to bring to your notice that the concrete was put down now nearly one month since, and covered with road metal. On testing the same on the 4th instant I found that the water was percolating very freely through both metal and concrete, and dripping from the under portion of the buckle-plates, showing clearly that although the concrete was of the best to be made, the late rains had so percolated into the mass, as to show plainly that it is not impervious to the water which will always stand on the bridge after rain; on testing with three bandies, each loaded with 250 bricks and drawn by eight men to each bandy, from 8-30 A.M. until 3 P.M., I found that the concrete had cracked considerably from the bending of the plates on the load gaining over, and the return of the plates to their proper form after the load was removed. The deflection in the centre on the above load being put in the centre was $\frac{5}{16}$ths of an inch. Immediately the load was removed, the bay recovered itself to its former position. The load would be about 9,866 pounds in the whole, that is 44 cubic feet of bricks 124 lbs. per cubic foot = 5,456, weight of three bandies at 350 lbs. each = 1,050, 24 men average weight at 140 lbs. each = 3,360, making the total as above.

I beg to request you will inform me as soon as possible if I am to go on with the concrete work and road metal, or am I to put down asphalte and road metal as per specification.

No. 2.

ORDER THEREON, 2nd January 1878, No. 1 W.

THE Government are of opinion that the asphalte concrete recommended in the 3rd paragraph of the Chief Engineer's Memorandum of the 14th July 1877, No. 1,944, should now be employed, the gravel roadway being laid upon it; and that the bridge should be tested with its full intended safe working load of 112 lbs. per foot.

2. The Superintending Engineer will put himself into communication with the Consulting Engineer for Railways, and request him to arrange for a Railway Engineer being present at the testing of the bridge, the date of which Colonel O'Connell will fix after reference to Mr. Maylor and the President of the Local Fund Board.

(True Extract.)

Colonel, R.E.,
Secretary to Government, P.W.D.

To the Superintending Engineer, Chingleput.
" Consulting Engineer for Railways.
" Financial Department.

Exd. S. T. Austin.
Spare Copies

1/3

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of (1878) Madras.

PUBLIC WORKS.

To

The SUPERINTENDING ENGINEER,
CHINGLEPUT,
&c., &c., &c.

Dated January 2nd.

Issued

Read. Encl.

G. O., 2nd January 1878, No. 1 W.

JANUARY.

Nos. 1-2.

Cortilliar Bridge, Chingleput District.—Issues instructions for testing the —.

---

1 W / X

PUBLIC WORKS DEPARTMENT.

Letter from the Supdg Engr, Chingleput, No 3826 dated 15th Decr 1877

FOR ORDERS.

Yes
It can be tried if worth
the expense – but will
it not be well to test
the bridge with the full
intended safe working load
of 112 per foot.
22/12

In submitting the accompanying papers for the orders of His Grace the Governor the Chief Engineer begs to note that he adheres to his former recommendation that asphalte concrete of the requisite thickness should be used.

20th Decr 77

E A Ord Col R.E.
Chief Engr & Secy to Govt PWD

K Alls

P

1W/1

No. 1944 of 14th July/77

Memorandum.

The Superintending Engineer, Chingleput, is requested to report whether the Cortelliar Bridge is now completed with the exception of the roadway, also whether the buckled plates have been tarred or painted by the Contractor Mr. Maylor.

2. According to the specification all the iron work is to have two coats of paint, but it does not appear that the Contractor is bound to do anything more towards preparing the plates for the reception of gravel.

3. The Chief Engineer is of opinion that merely tarring or painting the buckled plates will not fit them for receiving the layer of gravel of which the road is to consist but that it will be necessary to place a mixture of asphalte and sand or asphalte sand and pebbles between the

plates

plates and the gravel - It is to be regretted that this was not fully considered while the bridge was in progress so that there might be no delay in forming the roadway and opening the bridge for traffic.

4. The matter having been referred to the Chief Engineer, he requests the Supg: Engineer Chingleput will send him a sketch with dimensions showing the form of the buckled plates -

Sd/ E. A Foord Colonel R.E
Chief Engr: P.W.D

To
The Supg: Engineer Chingleput -

No. 1986 of 18th July 1877

Memorandum

G.O. No. 16 W dated 6th June 1877 P.W.D

The Chief Engineer requests the Superintending Engineer of Chingleput will be so good as to report what action he has taken in reference to the Proceedings of Government in the Financial Department communicated with the order above quoted.

Sd/ E. A Foord Colonel R.E
Chief Engineer P.W.D.

To
The Superintending Engineer Chingleput.

Memo No 1986

No. 1491 P 3

Chingleput Superintending Engineer's Office,
Saint Thomas' Mount, 20 July 1877

From

THE SUPERINTENDING ENGINEER,
Chingleput

To

The Chief Engineer,
Public Works Department

SIR,

In reply to your No 1986 of 18th instt I have the honor to report that I have arranged with the General Superintendent P. W. W. and Stores that he should send a competent person to examine all the bolts and rivets of the Cortelia bridge as soon as the iron work is completely laid; of which I expect to hear shortly from Mr Maylor; when the whole work will be inspected and compared with plan and specification.

2. The spaces between centres of ordinary piers is 57'·3". the girders are 57'·0½" long and with rivet heads 57'·1¾" leaving 1¼ inch for expansion. theoretically $\frac{2}{5}$ inch for a difference of temperature of 90° is enough. so that there

appears ample room. The bridge has been carefully watched through the past hot weather when the heat of the sun was greatest and I am informed the rivet heads have never touched. the centre of ~~the~~ each girder is not very exactly in the centre of the span and consequently the spaces between rivet heads is not equal.

I have the honor to be
Sir
Your most obedient servant

H. Moberly
Colonel R.E.

Supg Engineer Chingleput

From the Supg. Engineer
Chingleput Dt.

No. 1491

Dated 20th } July 1877
Recd. }

Cortaliar bridge —
Reports that he has arranged with General Supdt. P. W. Workshops and Stores relative to examining the Iron work of the — as soon as Completed.

P 1/a 4

No. 2101 d/ 31st July 1877

Memo:

The Chief Engineer has to acknowledge the receipt of a buckled plate forwarded by Mr. Wiffen the Assistant Engineer of the Siraber Range, but he has not received from the Superintending Engineer Chingleput any reply to his Memo: of the 14th July No. 1944

Sd/ E. A Foord Colll. R.E.
Chief Engr: P.W.D

To
The Supg: Engineer Chingleput

No. 1705

Chingleput Superintending Engineer's Office,
Saint Thomas' Mount, 4th Augt. 1877

From

THE SUPERINTENDING ENGINEER,
Chingleput

To

The Chief Engineer
Public Works Department

Sir,

In reply to your No 2101 of 31st ultimo I have the honor to observe that the Range Officer's report that he had sent you a buckled plate for inspection reached me only on the 30th ultimo.

2. The last girder is not yet raised to position so far as I am informed, as there was a difficulty in getting bricks to complete the abutment. No part of it has been painted as all rivets and bolts are to be examined in detail by an expert from the P.W. Workshops.

3. In my own justification I beg to observe that the contract for the bridge was prepared by the Local Fund Board, and signed at an extraordinary meeting.

I

I have the honor to be
Sir
Your most obedient servant

Colonel R.E.
Supg Engineer Chingleput

From the Supg Engineer
Chinglepud Dt.

No. 1705

Dated 4th
Recd " } Augt 1877

Cortiliar Bridge
— Reports regarding
the.

Note by His Grace the Governor.

× × × ×

The tarred gravel spoken of in the quotation from Engineer is an ordinary mixture of gas, tar and gravel, or cinders found useful to keep the gravel from being worn into holes and kicked over, but is not intended in any way to keep water out. When that object is arrived at as in crossing the railways over thoroughfares a coat of asphalte carefully laid over asphalted felt or other material with proper slopes and channels is laid under the road concrete or metal.

(True copy)

(Signed) H. B. Grigg
Ag Under Secretary
in charge.

(True Extract)

Col R.E.
Supg Engineer Chingt.

No. 2123.

Chingleput Superintending Engineer's Office,
Saint Thomas' Mount, 31 Augst 1877.

From

THE SUPERINTENDING ENGINEER,
Chingleput.

To

The Chief Engineer
Public Works Department

Sir,

Enclosure, 1
1 Extract
from Note
by His Grace
the Governor.

I shall be greatly obliged by your informing me whether in G.O. No 244 W. of 30th August it is intended that I should advise the Local Fund Board to lay asphalte on the buckled plates of the Cortelliar bridge or not. in your Memo No 2102 of 31st July you have stated that it is necessary.

2. There is I think some mistake in copying the note by His Grace the Governor; but I read it as generally supporting my idea that asphalte would not be used in England. the last sentence pointing to some exceptional case, but I cannot follow the sentence as sent to me.

I

I have the honor to be

Sir

Your most obedient servant

J. Nesbitt Colonel R.E.

Supg Engineer Chingleput
60

Mis No 2444 W of 30 Augt/77
C.E. No 1944 " 14 July/ — "
" — " 2102 — " 31st — " — "

Public Works Deptt.

From

The Supg Engineer
Chingleput.

No 2123.

Dated 31st August 1877

No of enclosures – One.

Asphalte on the buckled plates of the Cortelliar bridge – Informs that he should advise the Local Fund Board to lay — or not.

2.10.77

P 37

No 2609 of 7 Septr 1877

Letter from the Superintending Engineer Chingleput No 2123 dated 31st Augt 1877

The Chief Engineer recommended that asphalte concrete should be placed over the iron work of the Cortelliar Bridge and that the gravel road way should be laid on the asphalte concrete –

2 The Superintending Engineer will now be guided by the Note of His Grace the Governor which suggests the use of ordinary concrete over the buckled plates. The words "arrived at" in the Superintending Engineers copy of the Note should apparently be "aimed at" – The concrete should be mixed and applied carefully and it will

will be advisable to make a trial of the concrete on a portion of the bridge before laying it over the whole bridge. –

Sd/ E. A. Froord Colt. R.E.
Chief Engineer P.W.D.

To
The Supg: Engr: Chingleput.

No. 1343.

Sirulur Division
8th December 1877.

From
The Asstt. Engineer
Sirulur Division Chingleput Dt.

To
The Superintending Engineer
Chingleput

Sir,

In obedience to your orders in your No. 2733 dated 11th October 1877 and with reference to Chief Engineer's Memo No. 2609 dated 7th September 1877 which accompanied your letter above quoted, I have the honor to inform you that I have put down the concrete as therein required to a depth of 3 1/16" as ordered, the camber of the buckleplates is 2 1/16" and allowing 1" of concrete over the buckle plates gives the 3 1/16" inches, over this I have placed 4½" of metal and gravel making a total depth of 7 9/16", the specification states, "that the superstructure is calculated "to safely carry a distributed load "of 112 lbs to the superficial foot in "addition to its own weight and

a

"a mean thickness of 4" of asphalte and "road metal", therefore I beg to bring to your notice that if we put a mean thickness of $7\frac{9}{16}$" inches, we are not carrying out the rules of the specification, as we are laying $3\frac{9}{16}$" more on the bridge than contracted for, I have also to bring to your notice that the concrete was put down now nearly one month since, and covered with road metal. On testing the same on the 4th instant I found that the water was periolating very freely through both metal and concrete, and dripping from the under portion of the buckle plates, showing clearly that although the concrete was of the best to be made, the late rains had so percolated into the mass, as to show plainly that it is not impervious to the water which will always stand on the bridge after rain; on testing with three bandies each loaded with 250 bricks and drawn by 8 men to each bandy from 8·30 A.M. until 3 P.M. I found that the concrete had cracked considerably from the bending of the plates on the load gaining over, and the return of the plates to their proper form, after the load was removed. The deflection in the centre on the above load being put in the centre was $\frac{5}{16}$ of an inch. Imme-diately the load was removed, the bdg recovered itself to its former position, the load would be about 9866 Pounds in the whole that is 44 cubic feet of bricks 124 lbs per cubic foot = 5456, weight of 3 bandies at 350 lbs each = 1050, 24 men average weight at 140 lbs each = 3360. making the total as above-

I beg to request you will inform me as soon as possible if I am to go on with the concrete work and road metal, or am I to put down asphalte and road metal as per specification.

I have &c

(Signed) G. E. Tiffen Lt.
Asstt Engineer

(True copy)

P. Hennell Colonel R.E.
Supg Engineer Chingleput

No. 3848

Chingleput Superintending Engineer's Office,
Saint Thomas' Mount, 15 Decr 1877

From

THE SUPERINTENDING ENGINEER,
Chingleput

To

Colonel E. A. Foord R.E.
Chief Engineer
Public Works Department.

Sir,

Learning from the correspondence on the subject that the iron work of the Corteliar Bridge was finished and had been examined both by Colonel Moberly and by an experienced foreman from the Madras Workshops, but had not been tested by weights being placed on it in order to prove that its strength was equal to that intended to be given to it when designed, I requested Lt. Wiffen, the Officer in charge of No 1 Range to ascertain from Mr. Maylor the contractor if he were willing to test the bridge. Mr. Maylor in a letter written from Beypoor to Mr. Wiffen while remarking that the contract bond did not stipulate that he was to test the bridge, and that none of the

Enc 1

bridges erected by him in this country had been tested in the manner proposed, expressed his readiness to test the bridge rather than give occasion for dissatisfaction. He also named the day on which he would leave Beypoor but suggested that the material for the roadway should be filled in first, as, in its existing condition the surface of the bridge was too uneven to admit of loaded carts being moved over it.

2. This was the general tenor of Mr Maylor's note to Mr Wiffen, which was returned to Mr Wiffen at his request as it was not quite entirely official.

3. I requested Mr Wiffen to telegraph to Mr Maylor to postpone his visit to the bridge until the roadway had been laid. and visited the bridge in company with Mr Wiffen on the 4th December. I found that, as described in Mr Wiffen's letter No 1343 dated 8th December, there had been laid over one span of the bridge about $3\frac{1}{16}$ inches of concrete, and $4\frac{1}{2}$ inches in depth of gravel. Making a total maximum depth of $7\frac{9}{16}$ of material, but as the centre of each buckle plate rises $2\frac{1}{16}$ inches above its edges, the average thickness of the material is probably not more than $6\frac{3}{4}$ inches whereas the specification drawn up by Mr Maylor himself, merely asserts "that the superstructure is calculated to safely carry a distributed load of 112 lbs to the superficial foot in addition to its own weight and a mean thickness of 4 inches of asphalte and road metal."

4. As a protection to the iron portion of the roadway of the bridge the concrete used is a failure, as water finds its way through it and drips slowly between the joints of the iron into the river below. This concrete though as well made as the materials used, viz. lime, soorkee sand and clean laterite admit, is doubtless inferior to one containing Portland Cement. I am by no means sure that even that would not be inferior to a roadway of asphalte and gravel, the elasticity of the former material rendering it better fitted than concrete to fill in a space bounded by iron plates, and subjected to a constant change of form as the bridge bends and recovers itself on the passage of loaded carts, cattle or

elephants. I should prefer having the bridge laid with the 4 inches of material mentioned in the specification and then having it tested either by Mr Maylor or t the expense of Government in the presence of any of the Engineers of the Madras r Great Southern of India Railways whose ttention has lately been given to testing iron bridges.

5. I shall be glad to receive the orders of Government on this question as early as possible.

I have the honor to be
Sir
Your most obedient servant

P. Hannell Colonel R.E.
Supg Engineer Chingleput

Mis 30 Aug 1877 No 244 W.
" 6 June " " 16 W.
" 31 May " " 285 W.
" 19 Decr 1876 " 151.
" 25 Sepr " " 134.
" 21 " " " 123.
" 15 Feb " " 132
" 3 July 1875 " 298.

From

The Supdg Engr

Chingt

dated 15"
Recd } Decr/77

No. 3848.

Enc 1.

Cortilliar Bridge -

Requesting order of Govt for testing - by weights

No 1 W

Works

Public Works Department.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the 2nd Jany 1878

Read the following :—

Chief Engineer's Memo. No. 1944. Dt 14" July '77.
Do " 1986, Dt 18" "
Supdg Engr Chingleput " 1491. Dt 20" "
Chief Engineer's Memo. " 2101 Dt 31 "
Supdg Engr Chingleput " 1705. Dt 4 Aug. "
Do " 2123. Dt 31" "
Chief Engineer's Memo. " 2609, Dt 7' Sep. "
Supdg Engr Chingleput " 3848. Dt 15" Dec. "

The Government are of opinion that the asphalte concrete recommended in the 3rd para of the Chief Engineer's memorandum of the 14th July 1877, No. 1944, should now be employed, the gravel roadway being laid upon it, and that the bridge should be tested with its full intended safe working load

load of 112 lbs. per foot.

The Supg. Engr. will put himself into Communication with the Consulting Engineer for Railways ~~Chief Engr. of the Mo-rar Railway~~ and request him to arrange for ~~or his Deputy~~ Railway Engineer being present ~~to be present~~ at the testing of the Bridge; the date of which Colonel O'Connell will fix after reference to Mr. Naylor and the President of the Local Fund Board.

GMT. Wly 29.12.77

S. E. Chingleput 5
Con. Engr. for Ry 30
Ful. Dept. 7
17

S. E. D.
S. Despd

2/22

SC - Despd - 9-1-78
Copy Despd 2-1-78
9-1-78

Ref. to S.E. Ching [illegible] & C.E. for Rep
& Submit at once. R.S. 29/12

58-11

1108

Govt. of 1878 Madras

PUBLIC WORKS.

To the C. E. Chingleput

5-1-78

Dated

Issued

Recd. Encl.

G. O., 2 Jany 1878 No. 16

Nos.

Cortelliar Bridge

Chingleput Dt Issues

instructions for testing

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