

(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.

1012

(R)

Press

B.P. No.

Mis.

Dated

21-4-

1876

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
21st April 1876.*

Read the following papers :—

No. 309. From Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 4th April 1876, No. 167.

I HAVE the honor to lay before Government a Note by Captain Coaker, Deputy Consulting Engineer, upon the North-west Line of the Madras Railway, which was inspected by him during last week.

2. A copy of the note has been sent to the Agent of the Madras Railway, whose attention has been specially drawn to paragraph 3, in which the absence of notice-boards from certain bridges over which speed is limited, is noticed; also to paragraph 9, in which the importance of securing traffic at cheap rates to fill the empty wagons in the up-trains is pointed out.

3. With reference to paragraph 7, the present condition of the Pennair bridge and the measures which are in progress to secure it from injury until a decision is arrived at regarding its restoration or reconstruction, are shown in the accompanying drawing.*

* To be returned.

Note on an Inspection of the North-west Line, Madras Railway, 20th to 24th March 1876.

I HAVE the honor to report that I last week accompanied the Deputy Chief Engineer on his quarterly inspection of the North-west Line.

2. The condition of the permanent-way is generally excellent. On the 1st Division the road appears somewhat rough between Ballapully and Reddipully. The condition of the 2nd Division, excepting the damaged bridges, leaves nothing to be desired. The 3rd Division is also in excellent order, though the black cotton banks on this part of the line render it difficult to keep up a good road. Great attention has evidently been bestowed upon it.

3. Speed is slackened over the Kistnapooram bridge of nine 54 feet skew openings at 165—15 miles, owing to the want of rigidity in the girders; and over the Yerrajoopad bridge of twenty-eight 16 feet openings at 179—15, from some of the stones being cracked. No notice-boards, however, are put up for the guidance of drivers. They are all supposed to have notice of the restriction of speed at these points, but I think that in all such cases the erection of boards would be satisfactory. Provision has been made in the new permanent-way estimates for strengthening the girders of the Kistnapooram bridge by extra bracings.

4. The fencing appears to be generally efficient; owing to the short monsoon of last year, the aloes have in some places made but little progress; still it has been found possible to remove some of the wire fencing where the aloes have done well.

5. The stations and compounds were clean, and the urinals in good order. The latter appeared to be newly tarred in view to the Deputy Chief Engineer's inspection.

6. *Cheygar Bridge.*—The approaches to the new bridge have been completed up to the present level, and the permanent-way joined in with the main line. Eight out of thirteen of the masonry piers have been raised 3 feet (up to the new level). For the four extra openings on the south side two piers are raised to half their height above bed, and the foundations for the

*Proceedings of the Madras Government, Public Works Department,
21st April 1876.*

abutment and remaining pier had been got ready, and were passed by the Deputy Chief Engineer at the time of our visit. The abutment first built for the new bridge was being taken down and rebuilt as a pier.

7. *Pennair Bridge.*—The girder over openings 21 and 22 having suffered somewhat from the abnormal strain to which it is subjected by being supported at a point 23 feet from its centre, it has been determined to withdraw the piles forming the present support and rescrow them under the centre of the girder. For this purpose it is necessary to clear away the debris of the old masonry pier. This has been accomplished on the down-stream side, but at the up-stream end of the pier the remains of the old coffer dam have added greatly to the difficulty of the work. The edge of the coffer dam now sunk for the required excavation has struck upon some of the piles and sides of the old one, and it will be necessary to sink a larger coffer dam in order to clear these obstructions. The bed of the river having been thus cleared, the girder will be supported by sleeper piers, while the screw piles are being removed. If time suffice, it is also proposed to restore pier 22 with screw piles, but this must depend on the progress made and the anticipation of the approach of the monsoon. The screw pile piers supporting the joint of the girder at pier 18 are being withdrawn and rescrowed to a greater depth. Rough stone is being packed round the up-stream cut waters of piers 17 and 19; in the event of scour this will subside and take up a natural slope. The borings now being made are completed, with the exception of those opposite three of the piers, and we shall soon be in possession of an accurate section of the bed of the river on which to frame proposals for the future treatment of this bridge.

8. *Huggry Bridge.*—Of the 24 piers which were originally intended to be of cast iron cylinders, 17½ have been bedded in the rock by the diving and pneumatic apparatus. The remainder are all in progress and will probably be completed within two months. Some of the finished cylinders have been partially filled with concrete consisting of one part of mortar to four of broken stone. The component parts of the former are one measure of chunam, one of sand, and one of burnt clay, which produce after grinding about 2½ measures of hydraulic mortar. Piers 25 and 26 have also been commenced, but the remaining piers 27 to 33 must await the arrival of material from England. Natives have now been induced to work in both the pneumatic and diving apparatus, so that the Engineer in charge is no longer dependent on European labor. The progress made since my last visit is very marked.

9. Traffic is said to be dull at most stations; the cotton season has not yet commenced, but the crop is reported to be a good one. At Raichore a train load of goods is received daily from the Great Indian Peninsula Railway, but very little is sent in exchange. Cheap rates from the south are required to fill the empty wagons. A proposal is under consideration to carry firewood from Codoor to Bellary at a low rate; anything seems better than hauling the wagons empty.

(Signed) W. H. COAKER, Captain, R.E.,
Deputy Consulting Engineer for Railways.

No. 309-A. Endorsement of the Consulting Engineer for Railways, dated Madras, 7th April 1876, No. 176.

From R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, to Lieutenant-Colonel J. H. M. SHAW-STEWART, R.E., Consulting Engineer for Railways, dated Madras, 21st February 1876, No. 182.

With reference to your letter of the 2nd December last, No. 1,278, I have the honor to forward herewith a revised estimate of the cost of repairing, temporarily, the breach in the Pennair bridge, caused by the floods of October 1874, and I request that

*Proceedings of the Madras Government, Public Works Department,
21st April 1876.*

you will be so good as to communicate to me the sanction of Government for the required expenditure, viz., Rupees 81,260.

2. I also enclose copy of a letter from the Acting Chief Engineer, No. 127, of the 10th instant, in which he furnishes particulars of the repairs he considers still necessary to the bridge.

3. The usual information as to provision in the Budget and the date on which the sanction will lapse is given on the estimate.

From W. R. ROBINSON, Esq., Acting Chief Engineer, to R. B. ELWIN, Esq., Agent and Manager of the Madras Railway Company, dated Madras, 10th February 1876, No. 127. CONSULTING ENGINEER'S letter No. 1,278 of 2nd December 1875.

I forward herewith an estimate for the repairs of the Pennair bridge, including those which I consider still necessary, and they are as follow:—

Pier 21.—The girders are continuous over this opening, but were never designed to be unsupported, and already show signs of the unfair strain that has been put upon them. I therefore propose at once removing the old foundations and putting in a screw pile pier in the place of the original masonry one, the present pile pier immediately to the south can then be removed. I also propose screwing the piles at piers 18 and 22 somewhat deeper.

2. With reference to the temporary sleeper pier alluded to in paragraph 3 of the Consulting Engineer's letter, this pier rests on a solid bed of hard kunker and has a dry revetment round it; except in case of an extraordinary flood, I do not think its stability would be endangered; however, I have had the interstices between the timbers filled in with stone, and now propose, as a further protection, to replace the dry revetment with one in stone and chunam. This will make it as safe as any portion of the bridge.

3. Nothing further I think need be done at present. When the borings now being taken are completed, I shall be better able to judge whether the present bridge should be abandoned or not.

SUBMITTED for the information of Government in continuation of this office letter, No. 167, dated 4th April 1876.

(Signed) J. H. M. SHAW-STEWART, Lt.-Col., R.E.,
Consulting Engineer for Railways.

No. 310. ORDER THEREON, 21st April 1876, No. 1,012.

RAILWAY, No. 33.

ORDERED to be recorded.

2. The Consulting Engineer will report when notice-boards shall have been supplied at the bridges mentioned by the Deputy Consulting Engineer in paragraph 3 of his note. The detailed arrangements suggested for encouraging traffic by the up-trains on the North-west Line should also be reported in due course. His Grace the Governor in Council is glad to find that the difficulty experienced in inducing natives of the country to work the diving and pneumatic apparatus at the Huggry bridge is being surmounted and better progress being made with the work.

3. The result of the borings being made at the Pennair bridge will be awaited. The estimate of Rupees 81,260 referred to by the Agent in his letter, No. 182, dated

Proceedings of the Madras Government, Public Works Department,
21st April 1876.

21st February, has not been submitted. The Consulting Engineer will report how much of the 81,260 is for works now in hand or completed, in order that the proper amount may be sanctioned.

(True Extract.)

(Signed) G. W. WALKER, Major-General, R.E.,

To the Consulting Engineer for Railways.

58907
Note on an Inspection of
the North-west line, Madras
Railway, 20th to 24th March 1876.

I have the honour to
report that I last week accom-
panied the Deputy Chief Engineer
on his quarterly inspection of the
North-west line -

2. The condition of the
permanent way is generally ex-
cellent. On the 1st Division, the
road appears somewhat rough
between Ballapully and Reddipul-
ly. The condition of the 2nd Divⁿ
excepting the damaged bridges
leaves nothing to be desired.
The 3rd Divⁿ is also in excellent
order, though the black cotton
banks on this part of the line
render

render it difficult to keep up a good road. Great attention has evidently been bestowed upon it.

3. Speed is slackened over the Kistnapooram bridge of nine 54 feet skew openings at $\frac{16.5}{15}$ miles, owing to the want of rigidity in the girders; and over the Yerrajoopad bridge of twenty-eight 16 feet openings at $\frac{17.2}{15}$, from some of the sill-stones being cracked. No notice boards, however, are put up for the guidance of drivers. They are all supposed to have notice of the restriction of speed at these points, but I think that in all such cases the erection of Boards would be satisfactory. Provision has been made

90
made in the new permanent way estimates for strengthening the girders of the Kistnapooram bridge by extra bracing.

4. The fencing appears to be generally efficient; owing to the short monsoon of last year, the alocs have in some places made but little progress; still it has been found possible to remove some of the wire fencing where the alocs have done well.

5. The stations and compounds were clean, and the animals in good order. The latter appeared to be newly tarred in view to the Deputy Chief Engineer's inspection.

6. Cheyair bridge. The approaches to

to the new bridge have been completed up to the present level, and the permanent way joined in with the main line. Eight out of thirteen of the masonry piers have been raised 3 feet up to the new level. For the four extra openings on the south side two piers are raised to half their original height above bed, and the foundations for the abutments and remaining pier had been put ready; and were passed by the Deputy Chief Engineer at the time of our visit. The abutment first of built for the new bridge was being taken down, and rebuilt as a pier over the Pennock bridge. The girder over openings 21 and 22, having

119
having suffered somewhat from the abnormal strain to which it is subjected by being supported at a point 23 feet from its centre, it has been determined to withdraw the piles forming the present support and rescrew them under the centre of the girder. For this purpose it is necessary to clear away the debris of the old masonry pier. This has been accomplished on the down stream side, but at the up stream end of the pier the remains of the old coffer dam have added greatly to the difficulty of the work. The edge of the coffer dam now sunk for the required excavation has struck upon some of the piles and sides of the old one, and it will be

be necessary to sink a larger
coffer-dam in order to clear
these obstructions. The bed of
the river having been thus cleared,
the girder will be supported by
sleeper piers while the screw piles
are being removed. If time suf-
fice it is also proposed to restore
pier 22 with screw piles, but
this must depend on the progress
made, and the anticipation of
the approach of the monsoon.

The screw pile piers supporting
the joint of the girder at pier 18
are being withdrawn and rescrewed
to a greater depth. Rough stone
is being packed round the up-
stream cutwaters of piers 17 and
19; in the event of scour this will
subside and take up a natural
slope.

130
slope. The borings now being
made are completed with the
exception of those opposite
three of the piers, and we shall
soon be in possession of an
accurate section of the bed of
the river on which to frame
proposals for the future treat-
ment of this bridge.

8. Huggeri bridge. Of the
24 piers which were originally
intended to be of cast iron
cylinders, 17 $\frac{1}{2}$ have been bid-
ded in the rock by the diving
and pneumatic apparatus.
The remainder are all in pro-
gress, and will probably be
completed within two months.
Some of the finished cylinders have

have been partially filled with concrete consisting of 1 part of mortar to 4 of broken stone. The component parts of the former are 1 measure of chumam, 1 of sand, and 1 of burnt clay, which produce after grinding about $2\frac{3}{4}$ measures of hydraulic mortar. Piers 25 and 26 have also been commenced, but the remaining piers 27 to 33, must await the arrival of material from England. Natives have now been induced to work in both the pneumatic and diving apparatus, so that the Engineer in charge is no longer dependent on European labour.

15011
The progress made since my last visit is very marked.
9. Traffic is said to be dull at most stations; the cotton season has not yet commenced, but the crop is reported to be a good one. At Raichore a train load of goods is received daily from the Great Indian Peninsula Railway, but very little is sent in exchange. Cheap rates from the South are required to fill the empty wagons. A proposal is under consideration to carry firewood from Codoor to Bellary at a low rate; any thing seems better than hauling the

the wagons empty.

Mr 2489/76.

Unconcluded

R. E. Captain

Dy. Cons. Engineer for Railways

Department.

CONSULTING ENGINEER'S OFFICE.

No.

167 Madras, 4 April 1876.

From

LIEUT. 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,

Fort Saint George.

SIR,

I have the honour to lay before Government a note by Captain Coaker, Deputy Consulting Engineer, upon the North-west line of the Madras Railway, which was inspected by him during last week.

2. A copy of the note has been sent to the Agent of the Madras Railway, whose attention has been specially drawn to paragraph 3, in which the absence of notice boards from certain bridges over which speed is limited, is noticed;

also

also to paragraph 9, in which the importance of securing traf-
fic at cheap rates to fill the
empty wagons in the up trains,
is pointed out.

3. With reference to paragraph 7, the present condition of the Pennair bridge, and the measures which are in progress to secure it from injury until a decision is arrived at regarding its restoration or reconstruction, are shown in the accompanying drawing.

I have the honour to be,

Yours most Obedt Servant,

Manitowish Lake

Consolidated Railway

N^o 127.

Madras Railway Company
Chief Engineer's Office
Madras 10th February 1876

The Agent and Managers
 Dear Sir

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ever I have had the interstices between the timbers filled in with stone, and now propose as a further protection to replace the dry rivetment with one in stone and
Chumam.

N. 2551/90

Chunam. This will make it as safe as any portion of the bridge.

3. Nothing further I think need be done at present. When the borings now being taken are completed I shall be better able to judge whether the present bridge should be abandoned or not.

Yours faithfully,
J. M. R. Robinson
Acting Chief Engineer

(True copy)

[Signature]
Agent and Manager

No. 182

MADRAS RAILWAY.

AGENT AND MANAGERS' OFFICE

Madras, 21st February 1876.

From
Colt. B. Elwin Esq.
Agent and Manager of the M.R.
To
Lieut Colonel S. H. M. Shaw Stewart Esq.
Consulting Engineer for Railways.

Sir,
With reference to your letter of the 2nd December last, No. 1278, I have the honour to forward herewith a revised estimate of the cost of repairing, temporarily, the breach in the Pennair Bridge caused by the floods of October 1875, and request that you will be so good as to communicate to me the sanction of Government for the required expenditure of Rs 81,200 -

5
I also enclose copy of a letter from the Acting Chief Engineer, No. 127 of the 10th instant - in which

Mr 2551/96.
2

*Transacting for the
donation of Government
a piece of up-lying
the cost of the bridge
in the Government bridge
caused by the floods of
October 1874.*

Recd 27. 11. 1876
No. 182

From
To
The Consulting Engineer
The Agent and Manager.
for Railways.
MADRAS RAILWAY.

Public Works Dept.
Proceedings of the Madras Government
Under date the
Recd the following

No. 170

SUBMITTED FOR THE information OF GOVERNMENT.
in continuation of this office letter No.
167 dated 4 April 1876.

W. M. M. M.

ASSISTING ENGINEER'S OFFICE,
7 April 1876.

Lt. Col. R. E.
Consq. Engineer for Railways.
The Secretary to Government,
Public Works Department,
Fort Saint George.

to be recorded
nothing injured
has been
the bridge
the Deputy
engineer is para
to. The
its suggested
and measures
ing
rappe by the up trains
on the North West line
should also be reported
in due course. His Grace
the Governor in Council

12
he furnishes particulars of the repairs
he considers still necessary to the
Bridges. 250

3. The usual information as to
provision in the Budget, and the date
on which the sanction will lapse is
given on the Estimate.

I have the honor to be
In most obedient
service,
Wm. A. Lawrence,
Agent and Manager.

No 2551/96
2/96

P.W. 1876 Dept.
RAILWAY DEPARTMENT.

From *1876*
No: 2551
The Consulting Engineer
for Railways,

To
The Secretary to Government,
P. W. Department,
Fort St. George.

Dated *7th April 1876*
Received

No. *176*

ENCLOSURES *21*

Submitted for
the information of Govt
letter with enclosure
from the Agent - Mr. W.
having reference to
the Premier bridge

No 307
Cin. No. 16. P.W. 21-4
sent to Govt 12-4-76

in the Bombay bridge
caused by the floods of
October 1874.

Public Works Dept.
Proceedings of the Madras Government
Under date the

Read the following

(No 167 of 4 April 76)
C-176-7

List of papers put up
with *C-2551 & 2479*

28 31st May 75 No 1508
18: Octr " 2972
22nd Janr 76 " 1611

Ordered to be recorded
The Consulting Engineer
all report when noticed.
boards shall have been
submitted by the Deputy
Consulting Engineer in form
of his note. The ~~amount~~ ^{details}
~~of the proposed measures~~ ^{of the proposed measures}
for the encouragement
of traffic by the up trains
on the North West line
should also be reported
in due course. His Grace
the Governor in Council

N. 2551
2/7

P. W. 1876 Dep
RAILWAY DEPT

in the Bombay bridge
caused by the floods of
October 1874.

For 3-4-10-11-12-13-14-15-16-17-18-19-20-21-22-23-24-25-26-27-28-29-30-31-32-33-34-35-36-37-38-39-40-41-42-43-44-45-46-47-48-49-50-51-52-53-54-55-56-57-58-59-60-61-62-63-64-65-66-67-68-69-70-71-72-73-74-75-76-77-78-79-80-81-82-83-84-85-86-87-88-89-90-91-92-93-94-95-96-97-98-99-100

N^o 3072
Cir-16-4-76. P. W. 21-
Sent to Ac 4-12-4-76

Public Works Dept
Proceeding of the Board of Revenue
Under date the 11th 1876

Read the following
The Consulting Engineer
for Railways } No 167 of 4 April 1876
No 176 of 7 April 1876

Ordered to be recorded
The Consulting Engineer
will report when notice
boards shall have been
submitted at the bridge
mentioned by the Deputy
Consulting Engineer in para
3 of his note. The ~~amount~~
aggregating ~~supplies~~
of the ~~proposed~~ ~~structures~~
for the encouragement
traffic by the up trains
on the North West line
should also be reported
in due course. His Grace
the Governor in Council

is glad to find that
the difficulty experienced
in inducing natives of the
Country to work diving
and pneumatic apparatus
at the Hussain Bridge
is being surmounted
& better progress being made in the
work.

3. The result of the
work being made at the
Karnai bridge will be
awaited. The estimate
of Rs 81,260 referred to by
the Agent in his letter
No 182 dated 21 February
has not been submitted.

[Faint, mostly illegible handwritten notes]

x^d CA. Sent to Cstg 12-4-76.

To be Ref. with P.W.D.
21 April 76 No 1012-

[Faint, mostly illegible handwritten notes]
Cm. Eng. for Ry.

UNDER date the 21 April 76
Read the following:—

From
The Cons^g Eng^r for } (H.E. No 167 of 4th April 76)
Railways }
— 9^o — 9^o — (" " 176-7th " " ")

Ordered to be
recorded.

2. The Consulting
Engineer will report when
notice boards shall have been
supplied at the bridges men-
tioned by the Deputy Consulting
Engineer in para 3 of his note.
The detailed arrangements suggested for
encouraging traffic by the
up trains on the North West
Line should also be reported
in due course. His Grace
the Governor in Council is
glad to find that the diffi-
culty experienced in inducing
natives of the Country to work

[Faint handwritten signature]

diving and pneumatic
apparatus at the Huggi
Bridge is being dismantled
and better progress being
made with the work.

3. The result of the
borings being made at the
Punwar bridge will be awaited.
The estimate of Rs 81,200
referred to by the Agent
in his letter N^o 182 dated
21st February has not
been submitted. The
Consulting Eng^r will report
how much of the 81,200 is
for work now in hand
or completed, in order that
the proper amount may
be sanctioned.

G.M.M.

N^o 309-310

38

100 copies to Mr. Dep. Secy for Engrs
Chief Engineer for Railways - 5-7-76

2000

C.E. for Rys. 5-7-76

(1) Number of pages

diving and pneumatic apparatus at the Rugg Bridge is being enormous and better progress being made with the work.

3. The result of the borings being made at the Pennair bridge will be known. The estimate of Rs 81,260 referred to by the Agent in his letter No 182 dated 21st February has not been submitted. The Consulting Engineer will report how much of the 81,260 for works now in hand or completed, in order that the proper amount may be sanctioned.

G.M.W.

No. 309-310

1 Plan given to Mr. Depal for Chief Engineer for Railways on 5.7.78

[Signature]

2277
2551
★
Govt. of Madras.
PUBLIC WORKS.

the Chief Eng for Rail.

1 Plan given to Mr. Depal for Chief Engineer for Railways on 5.7.78

21st April 1878 No. 1012

Nos.

*Let - Mr. Depal
5-5-78*

At West Line - M. B.

Passing orders on letter from the Genl for Mr. Depal submitting a note by Chief Engineer for Railways on 5.7.78 for the _____ which was inspected by him on 3rd/78.