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MADRAS RECORD OFFICE

Government of Madras

Public Works

DEPARTMENT

G.O. No.	3459	Press
B.P. No.		Mis.
Dated	7-12	1874
		195

Not to be folded or roughly handled

No. 176. 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, 4th November 1874, No. 677:—

ADVERTING to letter, No. 656, dated the 28th ultimo, I have the honor to forward, for the information of Government, a report upon the condition of the line between Arconum and Conjeveram which shared in the damage inflicted by the heavy floods during the second half of October. The line in question was inspected by the Deputy Consulting Engineer upon the 30th ultimo.

2. With reference to the concluding paragraph of the enclosed report, authority to re open the line has been communicated to-day to the Agent, and traffic will be resumed in the manner sketched by Lieutenant Coaker.

Note on an inspection of the Arconum-Conjeveram Branch of the South Indian Railway on the 30th October 1874.

I HAVE the honor to report having inspected the line between Arconum and Conjeveram on the 30th ultimo, for the purpose of ascertaining the extent of damage caused by the recent heavy rains. Though the floods were probably as high as in 1872, the line has not suffered so severely, and this I conclude is due partly to the greater number of the tanks having on this occasion being cut in the higher parts of their beds, instead of being allowed to breach themselves at the deepest points, and partly to the protection afforded to the bridges by the floorings and curtain walls which have been provided within the last year. The slight increase of waterway allowed in restoring the works which were destroyed in 1872 has also doubtless had a good effect, and it will, I think, be advisable, as explained hereafter, to still further supplement the waterway at certain points. The damages are detailed in the following paragraphs:—

2. Mileage $\frac{1}{2}$.—New bridge of two 14 feet girder openings; lower wing walls undermined and fallen in. This bridge was provided with a flooring between the abutments, but it was not carried out to the newels of the wing walls. The water on the upper side met the wing wall obliquely, and produced a scour underneath the flooring which was not provided with an up-stream curtain wall, and the flooring of one arch has cracked longitudinally. This has been filled in under and a temporary wall built of sods and brushwood, which will, it is hoped, save the bridge in the event of more rain falling. On the lower side the water worked round the wing walls and overthrew them; the bank has now been supported with piles and brushwood, and the bridge is again fit for the passage of trains at a low rate of speed. Mr. Lea-Hain proposes after the rains to carry the flooring out to the newels of the wing walls, and to add substantial curtain walls on both sides, which would appear to be a very desirable measure.

3. Mileage $\frac{1}{2}$.—The embankment washed away round the lower wing walls of a 10-feet opening; no damage to bridge.

4. *Cortilial bridge*.—Embankment adjoining south wing wall on upper side eroded; damage very slight. The water is reported to have risen to the bottom of girders, but the set was this year on the north abutment, whereas in 1872 the river set on the south abutment and produced considerable scour which would now appear to be silting up. The crack in the south abutment has not increased.

5. Mileage $\frac{1}{2}$.—Eighty yards of ballast washed away.

Mileage $\frac{1}{4}$.—A hundred yards of ballast washed away.

Mileage $\frac{1}{4}$.—Bank carried away for 15 feet on either side of a 3 feet culvert. The road culvert was destroyed, but railway open culvert stood. More waterway is, I think, required here.

6. Mileage $\frac{1}{11}$.—Road culvert fell in and blocked up passage of water through railway bridge. The cut in the Attapaukum tank, referred to in my last report, has been much enlarged, and the bund was also cut at the north end, and by this means the tank has been saved.

7. Mileage $\frac{1}{8}$ to $\frac{1}{7}$.—Several small breaches; on either side of a 3-foot culvert the embankment was breached, and, as the ground is low here and waterway insufficient, I think it will be advisable to lift the line and to add a 20-foot opening.

At mileage $\frac{1}{7}$ the ballast was washed away for a length of 220 yards.

8. Mileage $\frac{1}{7}$.—Deep breach for 45 yards. The line was much damaged at this point in 1872, and it would appear that the waterway is still insufficient. Probably a bridge of two 20 feet openings will be required. Mr. Lea-Hair informed me that the bunds of eight overlying tanks were cut at the same time by the villagers, and that the water from these found its way here. The bridge of one 14 feet opening at mileage $\frac{1}{5}$ was scoured to a great depth on the lower side.

9. In the Pulloor bridge at the 9th mile a slight scour has taken place round the lower wing walls. Very little has been done to the protective works since my last inspection.

At mileage $\frac{1}{11}$ the walls of a 3-foot culvert have gone. The arch had before failed, and the weight of trains is carried by beams laid in the formation level. It will probably be necessary to build an open culvert here.

10. The most important damage occurred at mileage $\frac{1}{11}$, where a bridge of three 14 feet openings has been totally destroyed with the exception of the north abutment. The spill waters of the Palar come down at this point, and it will be advisable, I think, to increase the waterway in the new work. As in the bridge at mileage $\frac{2}{6}$ the flooring only extended to the ends of the piers and abutments, and the bridge appears to have failed through the water working round behind the south abutment and undermining the wing walls which fell outward. The abutment itself went after this, and the piers followed in succession as the flooring became detached from them. A temporary bridge to be built here will not be completed for some time, but Mr. Lea-Hair considers that all the other damages can be made good by Wednesday, the 4th instant, when traffic can be resumed, trains being run over the injured bridges at a low rate of speed. Passengers will walk across this break to another train which will be in waiting on the opposite side, and Mr. Lea-Hair proposes to alter the train service until the temporary bridge is ready, so as to enable passengers to walk across by day-light. At present a train runs from Conjeveram in the morning and from Arconum in the evening, and as the Madras train in connection with which the latter works is generally late on account of the transfer of passengers at Goriattum, I consider the proposal to reverse this service a good one, and would recommend its adoption. The approval of the Agent will, however, be necessary, and Mr. Lea-Hair has, I understand, written to him on this subject.

MADRAS,
3rd November 1874. *

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

No. 177. ORDER THEREON, 9th December 1874, No. 3,459.

RAILWAY, No. 28.

* Letter No. 656.

On the 28th* of October the Consulting Engineer reported that the line of railway between Arconum and Conjeveram had been damaged by the recent heavy floods, and with this letter Lieutenant Colonel Shaw-Stewart submits a note by the Deputy Consulting Engineer, descriptive of the nature and extent of the injury which the works, after personal inspection, are found to have sustained. A perusal of this report induces the belief that the railway has not been laid out with waterway sufficient for the drainage of the country it traverses; and seems to indicate the necessity for careful revision, so as to provide against similar damage in the future.

2. His Excellency the Governor in Council accordingly desires that the Consulting Engineer will give the subject his attention, when reviewing the details of the estimates for converting the line to the standard metre gauge and extending it to Cuddalore.

(True Extract.)

Colonel, R.E.,
Secretary to Government.

To the Consulting Engineer for Railways.

Exd. E. C. Shunker.

Spare Copies

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Note on an inspection of the
Arcanum - Kongeveram branch
of the South Indian Railway
on the 30th October 1874. I have
the honor to

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report having inspected the line
between Arcanum and Konge-
veram on the 30th ult. for
the purpose of ascertaining the
extent of damage caused by the
recent heavy rains. Though the
floods were probably as high
as in 1872, the line has not
suffered so severely, and this
I conclude is due partly to
the greater number of the tanks
having on this occasion being

cut

cut in the higher parts of their
beds, instead of being allowed
to reach themselves at their
deepest points, and partly to
the protection afforded to the
bridges by the floorings and
curtain walls which have been
provided within the last year.
The slight increase of waterway
allowed in restoring the works
which were destroyed in 1872
has also doubtless had a good
effect, and it will I think
be advisable, as explained
hereafter, to still further
supplement the waterway at
certain points. The damages
are detailed in the following
paragraphs.

2. Mileage $\frac{2}{21}$ - New
bridge

bridges of 24 feet girder openings;
lower wing walls undermined and
fallen in. This bridge was pro-
vided with a flooring between
the abutments, but it was not
carried out to the heels of the
wing walls. The water on the
upper side met the wing wall
obliquely, and produced a scour
underneath the flooring which
was not provided with an
upstream curtain wall and the
flooring of one arch has cracked
longitudinally. This had been
filled in under, and a temporary
wall built of sods and brush-
wood, which will it is hoped
save the bridge in the event of
more rain falling. On the
lower

lower side the water worked round
the wing walls and over them.
The bank has now been supported
with piles (and larva hussak) and
the bridge is again fit for the
passage of trains at a low rate
of speed. Mr. Lea. I have pro-
posed after the rains to carry the
flooding out to the newels of the
wing walls and to add sub-
stantial curtain walls on both
sides which would appear to be
a very desirable measure.

3. Mileage $\frac{3}{19}$. The embankment
washed away round the lower
wing walls of a 10 ft opening.
no damage to bridge.

4. Cortilian bridge. Embankment
adjoining south wing wall

on

92 5
in upper side washed: damaged
very slight. The water is reported
to have risen to the bottom of girder,
but the set was this year on the
north abutment, whereas in 1872
the river set on the south abutment
and produced considerable scour,
which would now appear to be
settling up. The crack in the
south abutment has not increased.
5. Mileage $\frac{3}{19}$ - 80 yards of ballast
washed away.
" " $\frac{4}{19}$ - 100 yards of ballast
washed away.
" " $\frac{4}{19}$ - Bank carried away
for 15 feet on either side of a
3 ft culvert. The road culvert
was destroyed, but railway open
culvert stood. More water is,
I think, required here.

6. Mileage $\frac{6}{11}$

6. Mileage $\frac{6}{11}$. Road culvert fallen
and blocked up. Passage of water
through railway bridge. The cut
in the Ataparkum tank referred
to in my last report has been
much enlarged, and the bund
was also cut at the north end and
by this means the tank has
been saved.

7. Mileage $\frac{6}{18}$ to $\frac{7}{0}$. Several small
breaches. On either side of a 3 feet
culvert the embankment was
breached, and as the ground is
low here and waterway insuffi-
-cient I think it will be ad-
-visable to lift the line and to
add a 20 feet opening.

At Mileage $\frac{7}{8}$ the ballast
was washed away for a length
of 22 yards.

8. Mileage $\frac{7}{10}$

8. Mileage $\frac{7}{12}$. Deep breach for
45 yards. The line was much
damaged at this point in 1872,
and it would appear that the
waterway is still insufficient.
Probably a bridge of 2-20 feet
openings will be required. Mr.
Lea Hair informed me that the
bunds of eight overlying tanks
were cut at the same time by
the villagers, and that the water
from these found its way here.
The bridge of 1-10 feet openings at
Mileage $\frac{7}{10}$ was secured to great
depth on the lower side.

9. On the Puller Bridge at
the 9th mile a slight secure had
taken place round the lower wing
walls. Very little has been done
to the protective wall to secure my
last inspection.

10. Mileage $\frac{7}{11}$

At

at mileage $\frac{10}{21}$ the walls of a
3 feet culvert have gone. The arch
had before failed, and the
weight of trains is carried by
bram-bird in the formation
level. It will probably be
necessary to build an open culvert
here.

at The most important
damages occurred at mileage from
 $\frac{13}{21}$ where a bridge of 3-14
feet openings has been ^{totally} destroyed.
with the exception of the north
abutment. The spill waters of the
Polar came down at this point,
and it will be advisable to
think to increase the waterway in
the new work. In the bridge
at mileage $\frac{20}{21}$ the flooring only
extended to the ends of the piers
and abutments, and the bridge
appears

appears to have failed though the
water working round behind the
south abutment and undermining
the wing walls which fell outward.
The abutment itself went after this,
and the piers followed in succession
as the flooring became detached
from them. A temporary bridge
to be built here, will not be com-
pleted for some time, but W.
Lea Hair considers that all the
other damages can be made good
by Wednesday the 4th instant,
when traffic can be resumed,
trains being run over the injured
bridges at a low rate of speed.
Passengers will walk across the
breaks to another train which
will be in waiting on the oppo-
site side and W. Lea Hair
proposes to alter the train service
until the temporary bridge is
ready

ready to do to enable passengers to
walk across by daylight. It
present a train runs from Con-
jeeveram in the morning and
from Arcorum in the evening
and as the Madras train in
connection with which the
latter works is generally late and
accounts of the transfer of
passengers at Gariathum. I
consider the proposal to reverse
this service a good one, and
would recommend its adoption.
The approval of the Agent will,
however, be necessary, and Mr.
Lee has had Sanolerat and
written to him on this subject.

Madras 3rd November 1874
J. H. M. Shaw Stewart
Lieut. Col. Dy. Cons. Eng. for R. G.

Railway Department.

CONSULTING ENGINEER'S OFFICE.

No. 677

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,

Adverting to letter
No. 656, dated the 28 ultimo,
I have the honour to forward
for the information of Govern-
ment a report upon the condi-
tion of the line between Arcorum
and Conjeeveram, which shared
in the damage inflicted by the
heavy floods during the second
half of October. The line in
question was inspected by the Dy.
Consulting Engineer upon the 30th
ultimo.

Dated 3rd Nov 1874.

2

With reference to the
concluding paragraph of the enclosed
report, authority to reopen the line
has been communicated today to
the Agent, and traffic will be
resumed in the manner sketched
by Lieutenant Coaker.

I have the honour to be,

Sr,

Your most Obedt Servant,

Maiden

4th Nov 72
1872

Lieutenant Rutledge

Sd.
Capt. Long Esq for Railway

Ma

P.W. 1874 Departt.
Out for Accr

RAILWAY DEPARTMENT.

From *No 6940.*
The Consulting Engineer
for Railways,

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

Dated *4th* Novr. 1874.
Recd. *13th*

Env. 1.
No. 677.

Forwarding
with remarks report
by the Dy. Engr. Supr.
upon the damage
done to the Arcorum
Comprehension section
during the late
heavy rains.

Ele. No: 3459, 9-12-74.

Recd 21.11.74
Recd to Comrory Nov 74

T.M.B.
Proceedings of the Madras Government
Read the following

From the Consulting Engineer for Railways (P.W. No. 677 of 4th Novr 1874)

3459

* Letter No. 656.

On the 20th of October the Consulting Engineer reported that the line of Railway between Arcorum and Conjeveram had been damaged by the recent heavy floods; and with this letter sent Col. Shaw Stewart submits a note by the Consulting Engineer descriptive of the nature and extent of the injury which the works, after personal inspection, are found to

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usal of this report in-
duces the belief that the
Railway has not been laid
out with waterway suffi-
cient for the drainage
of the country it traverses;
and seems to indicate
the necessity for careful
revision, so as to provide
against similar ^{damage} disaster
in the future.

His Excellency the
Governor in Council ac-
cordingly desires that
the Consulting Engineer
will give the subject his
early attention, and

10
~~report the result for the~~
~~information of Government~~
when reviewing
the details of the
Estimates for con-
verting the line
to the Standard
Gauge, and ex-
tending it to
Cuddalore -

J. H. [unclear]
[unclear]

Lyons

The [unclear] gauge is the Standard
[unclear] [unclear] [unclear] -
The [unclear] [unclear] [unclear] [unclear]
[unclear] [unclear] [unclear] [unclear]
[unclear] [unclear] [unclear] [unclear]

[unclear] [unclear] [unclear] [unclear]
[unclear] [unclear] [unclear] [unclear]
[unclear] [unclear] [unclear] [unclear]

35
C. A. for Pym
Sept 10/12/74

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Gobl. G. 1187-3 Madras.

PUBLIC WORKS.

To

The Engineer-in-Chief

2 Hon. to the Hon. Secy.
1 Hon. to the Hon. Secy.
3 Hon. to the Hon. Secy.

Dated

Recd.

Encl. /

G. O. 9 Dec No. 1187-3

No. 176-177.

Railway between Arcotam
and Conjeram -

Passing orders on a
letter from the Conjeram
for the submission of the
by Conjeram's report on the
damage done to the
Arcotam, Conjeram
section during the late
heavy rains -