M.R.O. 1—77,006—8-6-37.

(1) Number of pages 20

(2) Date of repair 10.2.44

(3) Initials of the Referencer

MADRAS RECORD OFFICE.

Government of Madras.

Public works **DEPARTMENT.**

G.O. No. 537-38 Press
~~Misc.~~

315-17

Dated 16 2 1872.

Not to be folded or roughly handled

No. 315. Read the following letter from the Consulting Engineer for Railways, to the Secretary to Government, Public Works Department, dated Madras, 20th January 1870, No. 23 :—

REFERRING to the Order of Government, dated the 16th December 1869, No. 3,936, I have the honour, at the instance of the Agent of the Madras Railway Company, to request that you will be so good as to lay before His Excellency in Council the accompanying letter,* giving cover to certain observations made by the Acting Chief Engineer of the Madras Railway upon the opinions expressed in the letter from the Officiating Secretary to the Mysore Government as to the cause of the injury sustained in July 1869 by two bridges on the Bangalore Branch.

* No. 19, dated 13th January 1870, with enclosure.

2. It will be seen that the Acting Chief Engineer is still of opinion that the injury to the bridges was occasioned by the bursting of the tanks consequent upon their insecure condition rather than by the limited amount of waterway or the absence of proper flooring from the bridges. While I agree with Mr. Going that the damage is directly traceable to the bursting of the tanks, I am bound to express my opinion that the waterway originally allowed in the bridge at 170 miles 20 chains was clearly insufficient, and that the absence of flooring from the eastern opening endangered the safety of the bridge. Whether, had the bridge been then of its present dimensions and properly floored throughout, it would have withstood the floods of July last, is a question from the consideration of which little good will result. It is to be hoped that the measures now to be taken for the security of the tanks will make the recurrence of such a flood a most improbable event.

3. I quite agree with the opinion expressed in the concluding paragraph of Mr. Going's letter that there will be no practical limit to a Railway Company's liability if waterway is to be provided to an extent sufficient to meet the possible contingency that every reservoir situated above the line of railway will burst.

From the Agent and Manager of the Madras Railway Company, to the Consulting Engineer for Railways, dated Madras, 13th January 1870, No. 19.

IN acknowledging the receipt of your letter of the 20th ultimo, No. 645, which gave cover to Order of Government, No. 3,936, dated the 16th December 1869, passed upon a communication* from the Officiating Secretary to the Chief Commissioner for the Government of the Territories of His Highness the Maharajah of Mysore to the Secretary to Government, Public Works Department, on the subject of the damage done to two Railway bridges on the Bangalore Branch in July last year, I have the honour to solicit your special attention to the observations of the Acting Chief Engineer as set forth in his report of the 12th instant, No. 17, copy enclosed.

* No. 6,861, 2nd November 1869.

2. Mr. Going, you will observe, adheres to the opinion expressed by the officers of the Railway that the injury to our bridges was occasioned by the bursting of tanks rather than to the alleged limited amount of waterway given for so large a catchment basin, or to the insecure state of the bridges.

3. As the question is one of great importance to the Railway, I shall feel obliged by your favouring me with the views of the Government after His Excellency in Council has had an opportunity of considering the arguments adduced by Mr. Going.

Proceedings of the Madras Government, Public Works Department, 16th February 1870.

From T. H. GOING, Esq, Acting Chief Engineer, to the Agent and Manager of the Madras Railway Company, dated Madras, 12th January 1870, No. 17.

In reference to the Consulting Engineer's letter, No. 645, of the 20th ultimo, forwarding copy of G. O., No. 3,936, dated 16th December, I have the pleasure to make the following observations, viz.

2. In paragraph 3 of the letter from the Officiating Secretary to the Chief Commissioner of Mysore it is stated "that the present damage to the Railway bridge can hardly be attributed to the bursting of tanks, etc."

3. The bridge here referred to is that at 175 miles 20 chains. This bridge had already stood during five seasons without injury so long as the natural rainfall of the valley, whose drainage it gives passage to, had alone to be accommodated. On the 31st of July last year, however, nine tanks burst in the valley, including the two large ones of Maramootooloo and Karchully.

4. The cause of the bursting of these tanks is proved to have been insufficient bunds. Under these circumstances I do not think there is room for a doubt as to the damage to the bridge having been directly due to the bursting of the tanks.

5. In the case of the bridge at 173 miles 31 chains there is a still stronger ground for arriving at a similar conclusion. It is shown by Mr. Stoney's report of 8th September that the area of the catchment whose water is passed through this bridge is seven-and-a-half square miles. The sectional area of the waterway of the bridge is not much under 600 square feet, which is more than sufficient even to comply with the very ample requirements of Colonel Dickens' formula quoted in the letter under reply, and which is double the area arrived at by Colonel Anderson's rule, (twenty-five square feet to the mile of drainage area,) which has, I believe, been found sufficient in this Presidency. This bridge, too, had been carefully floored. I do not see how its failure can be attributed to any other cause than the bursting of the tanks above it.

6. In paragraph 9 of his letter the Secretary to the Chief Commissioner remarks, "When a "railway is made through a country, such as that between Jollarpett and the Shervaroy Hill station, "in crossing the rivers due allowance is made for excess floods caused, may be, by bursting of tanks "above, and, *a fortiori*, in a tank-country ample allowance should be given, though not to the "extent of providing for the probability that every reservoir will burst."

7. The influence of tanks bursting in the case of extensive drainage areas such as those alluded to above is felt to a very small extent in the drainage channel as compared with the effects produced in a limited area by the same cause where the drainage channel may be suddenly called on to discharge a volume of water more than double that due to the maximum rainfall of the district.

8. The analogy, therefore, is inapplicable, and does not, I would respectfully submit, prove that in a tank-country allowance should be made for the contingency of their bursting.

9. There is no practical limit to the liability which such a rule would attach to a Railway Company, for, unless it were to go to the extent of providing against the possible contingency of every reservoir in a catchment bursting, I cannot see at what point a limit could be fixed.

No. 316. ORDER THEREON, 16th February 1870, No. 537.

RAILWAY, No. 34.

ORDERED that these papers be forwarded to the Chief Commissioner for Mysore.

(True Extract.)

(Signed) CHARLES A. ORR, Colonel, R. E.,
Secretary to Government.

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Proceedings of the Madras Government, Public Works Department, 16th February 1870.

No. 317. (DOCKET No. 538, dated 16th February 1870.)

FORWARDED to the Chief Commissioner for Mysore with reference to Colonel Wilkieson's letter, No. 6,861, of the 2nd November 1869.

(True Extract.)

Colonel, R. E.,
Secretary to Government.

Exd. A. S. Rodgers.

No. 19.

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MADRAS RAILWAY. 5a

AGENT AND MANAGER'S OFFICE.

Madras, 13th January 1870.

From

Robert B. Clarke Esqre.

Agent and Manager. M. R. Co.

To

Major J. Wells. Shaw Stewart, R.E.,

Consulting Engineer for Railways.

SIR,

In acknowledging the receipt of your letter of the 20th ultimo, No. 645, which gave cover to Order of Government No. 3936 dated the 16th of December 1869 passed upon a communication from the Officiating Secretary to the Chief Commissioner for the Government of the Territories of His Highness the Nizam on the subject of the damage done to two Railway Bridges on the Bangalore Branch in July last year, I have the honor to solicit your special attention to the observations of the acting Chief Engineer as set forth in his report of the 12th instant, No. 17, a copy enclosed.

2. Mr. Going you will observe adheres to the opinion expressed by the Officers of the railway that the injury to the Bridges was occasioned by the lowering of Tanks, rather than to the

x No. 6861 Secretary

alleged limited amount of waterway
given for so large a Catchment basin,
or to the insecure state of the bridges.

3. As the question is one of great importance to the Railway, I shall feel obliged by your favoring me with the views of the Government after His Excellency in Council has had an opportunity of considering the arguments adduced by Mr. Goings.

I have the honor to be,
Sir,
Your most obedient Servt.

Walter J. Shanly
Agent & Manager.

Madras Railway Company
Chief Engineer's Office
Madras 12th January 1870.

No. 17.

Dear Sir,

In reference to the Consulting Engineer's letter No. 6425 of 20th ultimo forwarding copy of G.O. No. 3936 dated 16th December, I have the honor to request the following observations may be submitted to the Government of India.

2. In forwarding to the Chief Commissioner of Oudh copy of the letter from the Secretary to the Government of India dated "that the present Railway to the Alumbagh Bridge can hardly be considered to be the Railway of Lucknow" the Bridge has referred to is the Old Dilkoosha Bridge and not the new Bridge which will be 2 miles further on.

3. That only 1½ miles of Railway will be completed by the 31st March next, the remaining 9 miles will be long and the Railway will not be opened for traffic to the Alumbagh before the end of July next, including 2 months for examination by the Railway Inspector.

4. The cause of the shortening of the Railway is stated to be due to the Bridges. Under these circumstances I am to request that I may be informed whether the Bridges are to be built to the full length or only to the extent required for the existing Railway.

5. In the case of the Bridges not being built to the full extent, I am to request that the Railway may be opened for traffic to the Alumbagh on the 31st March next.

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MADRAS RAILWAY.

From

The Agent and Manager.

To

The Consulting Engineer

for Railways.

P/W 259/70

Dated 13th January 1870

Recd. 14-1

No. 19.

Directing attention to the accompanying copy of a report from the Acting Chief Engineer on the subject of the old Dilkoosha Bridge, and requesting to be informed whether the Railway bridges on the Alumbagh Branch are to be built of the full length required for the ultimate line, or only of the length required for the existing Railway.

report of 8th September limits the area of the catchment whose water is passed through this Bridge to 7½ Sq: miles. The sectional area of the waterway of the Bridge is not much under 600 sq. feet, which is more than sufficient even to comply with the very ample requirements of Colonel Dicken's formula, quoted in the letter under reply, and which is double the area derived at by Colonel Anderson's rule (25 sq: feet to the mile of drainage area) which has, I believe, been found sufficient in this Presidency. This Bridge has had been carefully floored. I do not see how its failure can be attributed to any other cause than the bursting of the Tanks above it.

6. In Para 9 of his letter the Secretary to the Chief Commissioner remarks "when a Railway is made through a country, such "as that between Jallarpett and the Shevaroy "Hill Station in crossing the Rivers due "allowance is made for excess floods caused, "may be, by bursting of Tanks above, and a "fortiori, in a Tank Country, ample allowance should be given though not to the "extent of providing for the probability that "every reservoir will burst."

7. The influence of Tanks bursting in the case of extensive drainage areas such as those alluded to above is felt to a very small extent in the drainage channel, as compared with the effects produced in a limited area by the same cause where the drainage channel may be suddenly called on to discharge a volume of water

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more than double that due to the maximum rainfall of the District.

8. The analogy therefore is inapplicable and does not, I would respectfully submit, prove that in a Tank country allowance should be made for the contingency of their bursting.

9. There is no practical limit to the liability which such a rule would attach to a Railway Company, for unless it were to go to the extent of providing against the possible contingency of every reservoir in a catchment bursting, I cannot see at what point a limit could be fixed.

Yours faithfully,
Sd/ J. H. Going,
Ag. Chief Engineer.

The Agent and Manager,

True Copy

Agent & Manager.

Comptoir

No 25/70.

CONSULTING ENGINEER'S OFFICE,

Railway Department.

No 23

From Major J. W. Meadows Stewart R.E.
Consulting Engineer for Railways,

To Colonel C. A. Orr R.E.
Secretary to Government,
Public Works Department,
Fort Saint George.

SIR,

Referring to the order of Government dated the 16th December 1869, No 3936, I have the honour, at the instance of the Agent of the Madras Railway Company, to request that you will be so good as to lay before His Excellency in Council the accompanying letter, giving certain observations made by the Acting Chief Engineer of the Madras Railway upon the opinions

No 19-18 January/70. with enclosures.

opinion expressed in the letter from the officiating Secretary to the Mysore Government, as to the cause of the injury sustained in July 1869 by two bridges on the Bangalore Branch.

2 It will be seen that the Acting Chief Engineer is still of opinion that the injury to the bridges was occasioned by the bursting of the tanks, consequent upon their insecure condition, rather than by the limited amount of waterway, or the absence of proper flooding from the bridges. While I agree with Mr. Young that the damage is directly traceable to the bursting of the

tanks, I am bound to express my opinion that the waterway originally allowed in the bridge at 170 miles 20 chains was clearly insufficient, and that the absence of flooring from the eastern opening endangered the safety of the bridge. Whether had the bridge been taken of its present dimensions, and properly flooded throughout; it would have withstood the floods of July last, is a question from the consideration of which little good will result. It is to be hoped that the measures now to be taken for the security of the tanks will make the recurrence of such a flood a most improbable event.

3

3

I quite agree with the opinion expressed in the concluding paragraph of Mr Young's letter, that there will be no practical limit to a Railway Company's liability, if waterway is to be provided to an extent sufficient to meet the possible contingency, that every reservoir situated above the line of Railway will burst.

I have the honor to be Sir, Your most obed. Servt.

Madras 2nd January 1870.

Lieutenant Colonel
Consg Engr for Railways

No. 23 Dated 19th January 1870
Received 21st January 1870

From The Consulting Engineer for Railways,

To The Secretary to Government, Public Works Department, Fort Saint George.

Forwarding letter received from the Engineer of the Madras Railway Company & regarding the damage done to Railway Bridges on the Bangalore Trunk in July last.

Railway Department.

Read Engr to Govt Public Works Dept No 23 dated 19th January 1870

Ans 25th

Public Works Department.

No 537 10

Proceedings of the Madras Government.

Under date the 16th July 1870

Read the following

From The Consulting Engineer for Railways. } No. 23 of 19th January 1870

Ordered that these papers be forwarded to the Chief Commissioner for Mysore.

To Sherring Esqr for Railways.

Dept 19/2/70.

Docket No. 538 dated 16th July 1870

Forwarded to the Chief Commissioner for Mysore with reference to Colonel Wilkinson's letter No. 6861 of the 2nd November 1869.

Dept 19/2/70.

Dec 25

Govt. of India Genl.

PUBLIC WORKS.

To The Consulting Engineer for Railways

Dated

Read

G. O. 16 July 1870, Nos 537 & 538

Nos. 315-316 & 317

Bridges (Bg) Bykulla orders on the letter from the Cons Engr regarding the cause of the injury sustained in July 1869 by two bridges on the Bargalna Branch of the Madras Ry.

Bridges (Bg) A copy of the Govt. containing information regarding the cause of the damage sustained in July 1869 by two bridges on the Bargalna Branch of the Madras Ry, forwarded by Govt of India.