

12-8-99 ✓
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Revenue (1899) Department.

MISCELLANEOUS SERIES.

G.O., No. 57

DATED 5th January 99

[Despatch Abstract.]

Recording G. O. Public Works Department permitting the Madras Railway Company to encroach on Government land, whether waste or reserved as forest, whenever it is necessary to do so for the purpose of repairing the damage caused to the Nilgiri Railway by extensive land slips.

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

Revenue Department

RAILWAY.

Government {1898} of Madras. PUBLIC WORKS.

Current No. 8710

Recd. 21.12

Regd. 22.12

1898.

Enclosures

Spare copies

G.O., No. 1521 Ry., 10th December 1898.

DECEMBER.

G.O. (Curn) 10575 Jan 16/99
Recorded.

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As per order
has been forwarded to
the Board of Revenue dated

3/1/99

Damage caused to the Nilgiri Railway by extensive
land-slips

Permitting the Madras Railway Company to encroach on Government land,
whether waste or reserved as forest, wherever it is necessary to do so for the purpose
of repairing the —.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Railway.

Read the following papers:—

Note by the Consulting Engineer for Railways, dated 20th November 1898, on the slips which occurred on the Nilgiri Railway during the north-west monsoon of 1898.

The Nilgiri Railway having constantly been reported as damaged during the heavy north-east monsoon of the past few weeks, I walked over the whole of the slips on November 19th in company with Mr. H. J. Thompson, Resident Engineer of the Madras Railway, in whose charge the Nilgiri Railway lies. The slips, which are from 180 to 200 in number and from 5 cubic yards to 2,000 cubic yards in volume, are all contained within a length of some 9 miles beginning about $1\frac{1}{2}$ miles below Coonoor. The greatest number and the worst of them are between Adderley and Hillgrove.

2. In almost every instance the fall of rock and clay has been accompanied by a greater or less wreck of rails, rack bars and sleepers. It is possible that quite half a mile of rack, rails, and sleepers may have to be renewed.

3. In no case has there been any subsidence of road bed, the falls are all from the slopes and from the hillside above the line.

4. Some semi-indurated rock has fallen from the roof of the tunnel at chain 484, owing to percolation of water, and about 70 lineal feet of lining will be necessary at the upper end of this tunnel. The north end of the tunnel at chain 220 also requires some lining, a half arch in the roof will probably suffice.

5. The troublesome place referred to in several previous reports as the great Glenmore slip, chain 100, is on the whole behaving very well, but a good deal of the earth slope above the retaining wall has come down, and will require proper sloping back and pitching. My recommendation to acquire a further strip of land at the back of it and to cut the trees and coffee bushes has not been attended to.

6. The great Burliar boulder slip, chain 410, has been doing fairly well. But it seems now to be quite essential that the retaining wall should be raised some 8 or 10 feet more or as high as its section will allow of, and that the earth slope above it should be well pitched, up to the great boulders, and the joints well pointed to keep water out. If ever one of these three great boulders falls, it will block traffic for a month. The retaining wall here wants lengthening 50 feet at the upper end.

7. At the great land-slide at chain 264, the new diversion has had a bad slip of rock and clay, half filling it, and a pipe culvert at its north end has been wrecked. I think that the diversion here will be permanent enough when its slopes have been attended to. The old original cutting is almost quite filled up by rock and earthfalls.

8. The 30 feet girder bridge at chain 400 has been utterly wrecked by 150 tons of a boulder falling on it from 1,000 feet up the mountain. The ravine down which this boulder rolled has got any number of other boulders lying in it. It will have to be attended to in much detail for a long way up.

9. The worst slip of all, perhaps 2,000 cubic yards, is in the cutting at chain 271. It consists of disintegrated gneiss which has weathered to sand and kaolin, mixed with great loose rocks.

10. The majority of the slips have occurred in cracked and loosened rock with clay in its cleavage planes. When the clay is wetted the rock slides. Many of the slips, indeed parts of most of them, consist of disintegrated gneiss which when dry looks like rock, but which falls to pieces when soaked with water. This very often fills great pockets in the rock and falls out when wetted. Often hundreds of tons of hidden rock and boulders fall out through the clay slope which concealed them, on the latter becoming rain-soaked. In most of the cuttings the overlying layer of softer stuff on the top wants sloping back. There is scarcely a cutting, except those in hard rock, which will not need careful treatment in the light of the information afforded by the effects of the north-east monsoon of 1898.

11. It is most difficult to make an estimate of what it will cost to make the line fit for traffic. Arriving at it in various rough ways, I produce figures varying around a lakh of rupees, and I do not think that there can be much hope of opening for less than this figure, or perhaps a lakh and a quarter. I understand that even before the effect of the monsoon was known, Mr. Weightman warned his Board that half a lakh would be needed to finish things off properly.

12. I do not think that the railway will be ready for opening much before March next. On the day of my inspection, I saw practically no labour though it was a fine working day. The labour problem will have to be tackled on rather a large scale if there is to be any chance of opening before March next.

From—The Agent and Manager, Madras Railway.

To—The Consulting Engineer for Railways.

Dated—Madras, 7th December 1898, No. 10971/B-1172.

With reference to the enclosed copy of a letter from the Company's Chief Engineer No. C./274, dated the 5th instant, I have the honour to request that you will kindly give the permission asked for in paragraph 7 of the Chief Engineer's letter as early as possible.

The estimate will be forwarded as soon as it is ready for submission.

ENCLOSURE.

From—The Chief Engineer, Madras Railway Company.

To—The Agent and Manager, Madras Railway.

Dated—Madras, 5th December 1898, No. 274 C.

Nilgiri Mountain Railway.

I left Madras by mail on the 28th November and spent Tuesday 29th, Wednesday 30th, Thursday 1st and Friday December 2nd walking over the Nilgiri Mountain Railway between Coonoor and Kullar accompanied by Mr. Thompson and Mr. Alexander. A minute inspection was made by me of the earthworks especially the cuttings, with a view to determine the works necessary to secure their safety. The weather during our inspection was wet, so that I was able to see the earthwork in its worst condition.

2. Speaking generally, the sides of these are much too steep, and notes of over 100 places were made which require cutting back to such slopes as experience shows necessary for stability, about 1 to 1, to $1\frac{1}{2}$ to 1: large trees and bamboos are growing close up to the top edge of the

cuttings, these when shaken by wind tend to loosen and bring down the top earth thus causing slips. The cuttings at 92 chains and 360 chains are the worst and are, I consider, at present very unsafe; water also comes over the faces of cuttings in several places, thus making them soft and more liable to slip.

3. The following works should, in my opinion, be at once carried out:—

(a) A strip of land 20 feet wide from the top edges of all cuttings should be cleared of trees and large bamboos, as these loosen the earth and cause slips, and many trees are now in dangerous proximity to the Railway, and would if they fell come on to the rails and obstruct the line. In valuable land it may suffice to clear a width of from 10 to 15 feet.

(b) Surface drainage and springs which now tend to get behind retaining walls, and flow over the face of cuttings causing slips should, wherever possible, be intercepted and discharged by pipes. This is specially required at 92 and 100 chains.

(c) The layer of earth on top of cuttings requires to be well sloped back, say, to about 1 to 1 or $1\frac{1}{4}$ to 1, and all loose and decayed soil on the face of slopes now slipping, or liable to slip, should be stripped down to the rock behind, or to such slope short of this as will stand.

(d) A length of 213 feet at 409 chains where there is now a wall on the upper side 163 feet long will need to be converted into covered way, by building a strong wall with counter-parts outside and arching over, after which this will need being covered by a deep cushion of earth and sloped well down, and the boulders above must then be secured as far as possible by underpinning, &c.

(e) The 28 feet girder bridge at 400 chains lately destroyed by a boulder avalanche will have to be rebuilt, after all loose boulders in the stream above have been thrown down below the bridge site.

(f) The culvert at 265 chains to be rebuilt.

(g) A soft pocket in the roof of No. 2 tunnel will need to be secured by masonry lining.

(h) Damaged rails and rack bars to be replaced where necessary.

4. The sloping back necessary for cuttings and the natural slopes formed by recent slips extended probably in many cases considerably beyond the land originally acquired, so that the extra land needed will have to be applied for and taken up as soon as possible.

5. The boundaries of the Nilgiri Railway Company's lands have not been demarcated nor has (I was told) compensation been yet paid for them.

6. It will therefore be necessary to demarcate the Nilgiri Railway Company's lands, and then prepare land plans and apply to Government for such extra land as may be required. This will all take a considerable time to do, and in the ordinary course it would be several months before these extra lands would be in our possession.

7. Meantime, in order not to delay the execution of the requisite earthworks, will you kindly ask Government to issue the necessary orders to permit us to cut down all trees and bamboos through Government lands and forests for a width of 20 feet back from tops of finished cuttings, and also permit us to enter on such lands for the purposes of extending earthwork slopes where these fall without lands already acquired.

8. Where the new slopes fall on private land the owners will be asked to allow us to enter thereon pending the formal acquirement and transfer of this, and if they refuse this, work will of course be delayed till such land can be acquired and handed over, which will occupy months.

9. The necessary flattening of the cutting slopes will, while the work is in progress, render these impassable, and it is hoped that when the proposed work is completed they will be fairly safe, but there will always be the liability to the line being blocked by slips during the monsoon, so that for a couple of years at all events, passenger traffic cannot, I think, be conducted in safety during the monsoon, say, from 15th September to 15th December, and Mr. Thompson, the District Engineer, concurs with me in this opinion.

10. The District Engineer will have an approximate estimate of the quantities and cost of the works our inspection showed to be necessary as previously described, made as soon as possible, and these will be carried out as quickly as circumstances permit, on receipt of your authority for the outlay.

11. From the foregoing you will see that progress depends on some circumstances over which this department has no control, viz.—

(1) Permission to enter on and carry slopes into and cut trees upon land outside Nilgiri Railway premises.

(2) Sanction for the necessary expenditure.

12. My inspection has shown that there is an immense quantity of work to do; labour is also difficult to get, so that it is at present impossible to say when the Nilgiri Mountain Railway will be ready to re-open for even goods traffic as so much depends on obtaining the requisite land and funds without delay.

ORDER—No. 1521 Ry., dated 10th December 1898.

Inasmuch as it has come to the notice of Government that, owing to extensive land-slips, the Madras Railway Company, who are completing the construction of the Nilgiri Railway Company's railway from Metupallium to Connoor, will probably in many places be obliged to carry on work outside the boundaries of the land already formally handed over to the Nilgiri Railway Company; permission is hereby given to the Madras Railway Company to work beyond the boundaries of the land now in the possession of the Nilgiri Railway Company, wherever it is necessary to do so for the purpose of improving the slopes, depositing debris, or removing tress boulders, &c. Provided that it is clearly understood that the permission hereby accorded relates solely to Government land, whether waste or reserved as forest. Revised land plans showing the additional Government land thus required should be submitted to Government as soon as practicable.

Revised plans should also be submitted of any land, the property of private parties, which it is deemed necessary to acquire for the purpose of completing the work of construction of the Nilgiri Railway.

If any valuable timber is cut in reserved forests encroached on, under the authority of this order, the Madras Railway Company should give notice to the Forest Department, who will take such steps in regard to it as may be necessary.

(True Extract.)

Under Secretary.

To the Consulting Engineer for Railways.

„ Revenue Department.

„ Board of Revenue.

„ Agent and Manager, Madras Railway.

Editors' Table.

Exd. Shaik Karim.

When given for copying _____
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When examined _____
When signed _____

189 .

READ AGAIN G.O., No.

DATED

189 ,

CURRENT No.

ENCLOSURES TO C. No.

ORDER OF GOVERNMENT

A A A A A A A

LETTER OF GOVERNMENT.

STATEMENT WITH DITTO.

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