

Very Urgent
Public Works (1899) Department.

RAILWAY BRANCH.

Print over
G.O., No. 459-60 Rev

DATED 23^d April 1899.

*120
10
20
36
1*

[Despatch Abstract.]

Calicut - Cannanore Railway

Ordered that the report by the Consulting Engineer for Railways, Madras, on the inspection of the — be communicated to the Agent, Madras Railway, for information & guidance, & a copy of the Pres. forwarded to the Govt of India.

Forwarding copy of Pres. embodying the report by the Com. Engr. for Ry. Madras, the inspection of the —.

Forwarding copy of Proceedings embodying the report by the Consulting Engineer for Railways, Madras, on the inspection of the —.

GOVERNMENT OF MADRAS.
PUBLIC WORKS DEPARTMENT.

Railway.

Read again the following papers:—

G.O., Nos. 695-96 Ry., dated 21st September 1897.
" " 984-85 Ry. " 15th November " 1898.
" No. 8 Ry. " 5th " "
" Nos. 1061-62 Ry. " 17th August "
" " 1451-52 Ry. " 24th November "
" No. 228 Ry. " 23rd February 1899.

Read also the following paper:—

Report by the Consulting Engineer for Railways, Madras, dated the 7th of April 1899.

Between March 26th and 29th I inspected the Calicut-Cannanore extension of the Madras Railway in company with Mr. G. A. F. French, the Engineer-in-Chief. I did not go beyond Tellicherry on this occasion for there was nothing beyond to be seen with advantage at the present stage. Up to the 26th mile work is in full progress, about 80 per cent. of the earthwork being complete and some 35 per cent. of culvert masonry. The section adopted for the banks is 16' 6" on top. This while not too wide for a good metre-gauge railway hereafter is yet wide enough for the standard gauge with a certain amount of attention to maintenance.

2. Work has been started on the Korapaya bridge at mile 8, which has been designed for 14 spans of 60 ft. girders. Thirteen wells have been begun, but no sinking gear has yet come on the ground. There is any quantity of plant to be had just now from the Bengal-Nagpore Railway Company and an Engineer has recently been sent up to select some of it; but it might have been expected that some plant of the sort would have been got together months ago. The Korapaya bridge as designed is two spans too long. I found them trying to sink wells near the north end of the bridge through laterite which is really harder than the masonry of the wells, and through this laterite it was proposed to sink these wells 33 feet. The idea was that the hard ringing laterite encountered on top would be replaced by softer stuff down below, and that the upper layer ought therefore to be penetrated at whatever cost. Though with what object I do not know for the two north spans apparently pass no water. I ordered the northern two spans to be cut out, one of the pier wells which was being sunk through the rock being made an abutment well, and the wings at the back of it being founded on the laterite in open foundation. Engineers on the spot might fairly be expected to exercise reasonable discretion in such matters, and not to build a bridge straight away off the paper; the man who makes the paper design has presumably less knowledge of what sorts of strata are likely to be encountered than the man who afterwards exposes those strata. It is always easy to refer such a matter for orders, and this is all the more necessary when 20 or 30 thousand rupees are involved.

3. I saw another instance of going straight ahead with the paper section without the exercise of reasonable discretion. The line had been deliberately carried for 8 or 10 chains through a 10 to 40-ft. cutting in an isolated hillock, while by using curves the hillock might have been passed on one side in low bank without, apparently, any undue increase of length. Considering all that has already been said on the subject of the manner in which, regardless of economy, the original surveyors of the Cannanore extension carried their long tangents across country, one would suppose that the construction Engineers might at least be trusted to be always watching for opportunities to correct the surveyor's errors. I shall expect that matters of this sort will be sedulously attended to in full detail from the 26th mile onwards. The late Chief Engineer Mr. West had a theory that it would be right to go into cutting on every opportunity for the sake of the better soil available for banks. But, as I told him,

in practice such soil does not in India get led to bank, and as a matter of fact it is not being so led.

4. As on the Mayavaram-Mutpet Railway and at many of the northern stations of the East Coast Railway, platforms should all be made not with a wall but with laterite blocks set on the top of the bank, without foundations. The permanent-way gangs keep these quite straight and level, good laterite is everywhere obtainable, and when the time arrives for conversion to metre gauge, the conversion will be cheap as far as platforms are concerned.

5. I personally have had no experience of the use of bricks in sea-water. So I can express no opinion on the subject of the disintegration of the lower layers of certain stacks of bricks which had been bought for and were being used in the wells of the Korapaya bridge. The Engineers told me that they had satisfied themselves that no bricks had failed except under-burnt ones. If so, it was a coincidence that the under-burnt bricks should have composed the lower layers of the stacks. The matter should be carefully enquired into by the Company's Chief Engineer, and if bricks will not stand exposure to alternate air and sea-water, stone will have to be obtained somehow or other. For house building the bricks seem excellent, but where washed by sea-water a number of them had utterly disintegrated. The Korapaya wells were being built of brick in Madras cement with three parts sand, and they were being cement-plastered.

6. I quite fail to see the logic of the Land Acquisition officers paying five to seven rupees per cocoanut tree on land acquired for the railway, and then in the presumed interests of Government selling the trees for destruction and removal at nine pies or an anna per tree. One would think it would be far more in the interests of Government to let the trees stand with a view to their being rented out, or their fruit sold, by the Railway Company, whose interests and those of Government are in such a matter identical. The Civil officers would appear to have a sort of Medes and Persians code of rules for acquiring land, and do not feel equal to altering them to suit the case of land to be acquired for an administration which, like that of a railway, has it in its power to obtain for Government annual profits by the sale of the produce of the trees. There seems to be some sort of an idea that in presenting such trees to the Railway Company Government is gratuitously presenting the shareholders with a few pies per tree. I entirely fail to see why the Civil Department should take so much trouble, or why they cannot acquire the land, pay for the trees, and leave the latter standing except where the railway people wish them cut down. I have succeeded in obtaining orders of Government that this shall be done in the case of the land required for railway stations; but the same might be done everywhere, because, as I have explained, the Railway Company, in obtaining money hereafter for the produce of the trees, credits that money to Government account and nobody else profits except in so far as shareholders get something out of it in surplus half-years, when there are any.

7. Where the line passes through the densely-peopled parts of the suburbs of Tellicherry and other towns, greater care will have to be taken as regards the details of the land plans. Good laterite retaining walls are built for Rs. 10 per 100 cubic feet. It will therefore frequently pay to take up only a 20-foot strip, through a town or past a house, rather than to pay for a wide piece of land and what stands on it. It will also often pay in such a situation to search for special areas of land on which to deposit spoil, using 2-ft. gauge trucks for the purpose, rather than to casually fling it down alongside, on very expensive land. My impression was that this matter had not been sufficiently carefully gone into, and that consequently land was likely to be needlessly costly and much needless hardship seemed likely to be inflicted on house-owners. The Engineers should look to it; I have personally explained matters fully to them, and they understand.

8. I went into several proposed improvements of grading and settled them with the Engineers. I also looked at, or enquired into, some of the suggestions of the Director of Railway Construction and recognised how he had been unfortunately misled by the draughtsman's fancy hill sketching. Such sketching ought either be altogether omitted or else done correctly, or sufficiently correctly, for the purpose by the Engineer's own hand. Thus a long solid ridge running for miles across country should not be shown as a hillock.

No. 459 Ry., 23rd April 1899.

9. There are a quantity of 12' 6" and even larger diameter well curbs on the East Coast Railway. They lie at Cocanada, or used to, and can perfectly easily be shipped or railed to Calicut and Tellicherry. They are quite good enough for 60-ft. piers, though Mr. West, the late Chief Engineer, was very averse to anything like corbelling out, even for the purpose of supporting mere cutwaters. This should be looked into. It is quite wrong to buy new things when things that will serve, and that have already been paid for, are lying around, even though the owners of the things are Government, and the proposed users of them are a Guaranteed Company. The shareholders' interest is quite infinitesimal in the present case, though I imagine there is an idea that he is in danger of being scored off to the extent of a few annas.

10. The main cart road of the country crosses the line several times near the 12th mile. It is worth while comparing the advantages resulting from absence of gates and gatekeepers if the road is diverted, with the cost of these latter in perpetuity. *Ceteris paribus* it will be better to divert the road and get rid of gates.

11. At Tellicherry, I personally explained to the Engineer-in-Chief how the railway land at the north end of the station should be taken right up to the navigable backwater, instead of the land boundaries being treated in a purely routine manner by the average draughtsman. There are doubtless many other places where the same ideas might be applied with advantage.

12. Good progress has been made with the estimates, and the detailed working estimates can be quickly completed as soon as the difficult question of sleepers and rails to be used has been threshed out. At present it would appear that old rails are simply not obtainable, except at a loss of revenue on the main line which the Company's Agent does not care to face. Though why he should care in a non-surplus half-year I really cannot see. The Company's officers also prefer to use pot sleepers to wooden ones, but that is not in the spirit of the Government of India's orders, for the pot road is a far more expensive road.

13. I may sum up my impressions of the Calicut-Cannanore Railway by saying that I hope now to see more forethought and energy about the supply of stores and plant, and more attention to details of design and of alignment, not only of works but of land, which in the country traversed demands much personal attention. There is apparently any quantity of the best sort of labour, largely Mappillas who more nearly approach Punjab labour than anything I have seen in South India. Work ought now to go ahead fast.

ORDER—No. 459 Ry., dated 23rd April 1899.

The report of the Consulting Engineer will be sent to the Agent, Madras Railway, for information and guidance. Orders in regard to paragraph 6 will issue in the Revenue Department. A copy of these proceedings will be forwarded to the Government of India.

[Here enter No. 460 Ry., dated 23rd April 1899.]

(True Extract.)

FRANCIS J. E. SPRING,
Joint Secretary.

To the Consulting Engineer for Railways.
" Revenue Department.
" Agent, Madras Railway.
" Examiner, Guaranteed Railway Accounts.

ENDORSEMENT—No. 460 Ry., dated 23rd April 1899.

Forwarded.

(By order.)

FRANCIS J. E. SPRING,
Joint Secretary.

Exd. S. A. S. Raghaviengar.

RAILWAY.

Government {1899} of Madras. PUBLIC WORKS.

- (1) H.E. the Governor
- (2) Hon. Mr. Arundel, C.S.
- (3) Hon. Mr. Wintobotham

Recd.

Regd.

1899.

Enclosures

Spare copies

G.O., Nos. 459, 460 Ry., 23rd April 1899.

APRIL.

Calicut - Cannanore Railway

Ordered that the report by the Consulting Engineer for Railways, Madras, on the inspection of the ——— be communicated to the Agent, Madras Railway, for information & guidance, and a copy of the Proceedings forwarded to the Government of India.

Forwarding copy of Pro. embodying the report by the Con. Engr. for Ry. Madras, on the inspection of the ———.

4-17/4/99
R. 2/4/99

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Railway.

Read again the following papers:—

G.O., Nos. 695-96 Ry. dated 21st September 1897.
 " " 984-85 Ry. " 15th November " "
 " No. 8 Ry. " 5th " 1898.
 " Nos. 1061-62 Ry. " 17th August "
 " " 1451-52 Ry. " 24th November "
 " No. 228 Ry. " 23rd February 1899.

Read also the following paper:—

Report by the Consulting Engineer for Railways, Madras, dated the 7th of April 1899.

Between March 26th and 29th I inspected the Calicut-Cannanore extension of the Madras Railway in company with Mr. G. A. F. French, the Engineer-in-Chief. I did not go beyond Tellicherry on this occasion for there was nothing beyond to be seen with advantage at the present stage. Up to the 26th mile work is in full progress, about 80 per cent. of the earthwork being complete and some 35 per cent. of culvert masonry. The section adopted for the banks is 16' 6" on top. This while not too wide for a good metre-gauge railway hereafter is yet wide enough for the standard gauge with a certain amount of attention to maintenance.

2. Work has been started on the Korapaya bridge at mile 8, which has been designed at 14 spans of 60 ft. girders. Thirteen wells have been begun, but no sinking gear has yet come on the ground. There is any quantity of plant to be had just now from the Bengal-Nagpore Railway Company and an Engineer has recently been sent up to select some of it; but it might have been expected that some plant of the sort would have been got together months ago. The Korapaya bridge as designed is two spans too long. I found them trying to sink wells near the north end of the bridge through laterite which is really harder than the masonry of the wells, and this hard ringing laterite encountered on top would be replaced by softer stuff down below, and that the upper layer ought therefore to be penetrated at whatever cost. Though with what object I do not know for the two north spans apparently pass no water. I ordered the northern two spans to be cut out, one of the pier wells which was being sunk through the rock being made an abutment well, and the wings at the back of it being founded on the laterite in open foundation. Engineers on the spot might fairly be expected to exercise reasonable discretion in such matters, and not to build a bridge straight away off the paper; the man who makes the paper design has presumably less knowledge of what sorts of strata are likely to be encountered than the man who afterwards exposes those strata. It is always easy to refer such a matter for orders, and this is all the more necessary when 20 or 30 thousand rupees are involved.

3. I saw another instance of going straight ahead with the paper section without the exercise of reasonable discretion. The line had been deliberately carried for 8 or 10 chains through a 10 to 40 feet cutting in an isolated hillock, when by using curves the hillock might have been passed on one side in low bank without, apparently, any undue increase of length. Considering all that has already been said on the subject of the manner in which, regardless of economy, the original surveyors of the Cannanore extension carried their long tangents across country, one would suppose that the construction Engineer might at least be trusted to be always watching for opportunities to correct the surveyor's errors. I shall expect that matters of this sort will be sedulously attended to in full detail from the 26th mile onwards. The late Chief Engineer Mr. West had a theory that it would be right to go into cutting on every

opportunity for the sake of the better soil available for banks. But, as I told him, in practice such soil does not in India get led to bank, and as a matter of fact it is not being so led.

4. As on the Májavaram-Mutpet Railway and at many of the northern stations of the East Coast Railway, platforms should all be made not with a wall but with laterite blocks set on the top of the bank, without foundations. The permanent-way gangs keep these quite straight and level, good laterite is everywhere obtainable, and when the time arrives for conversion to metre gauge, the conversion will be cheap as far as platforms are concerned.

5. I personally have had no experience of the use of bricks in sea-water. So I can express no opinion on the subject of the disintegration of the lower layers of certain stacks of bricks which had been bought for and were being used in the wells of the Korapaya bridge. The Engineers told me that they had satisfied themselves that no bricks had failed except under-burnt ones. If so, it was a coincidence that the under-burnt bricks should have composed the lower layers of the stacks. The matter should be carefully enquired into by the Company's Chief Engineer, and if bricks will not stand exposure to alternate air and sea-water, stone will have to be obtained somehow or other. For house building the bricks seem excellent, but where washed by sea-water a number of them had utterly disintegrated. The Korapaya wells were being built of brick in Madras cement with three parts sand, and they were being cement-plastered.

6. I quite fail to see the logic of the Land Acquisition officers paying five to seven rupees per cocoanut tree on land acquired for the railway, and then in the presumed interests of Government selling the trees for destruction and removal at nine pies or an anna per tree. One would think it would be far more in the interests of Government to let the trees stand with a view to their being rented out, or their fruit sold, by the Railway Company, whose interests and those of Government are in such a matter identical. The Civil officers would appear to have a sort of Medes and Persians code of rules for acquiring land, and do not feel equal to altering these rules, which were framed for the case of civil buildings, roads, &c., to suit the different case of land to be acquired by an administration which has it in its power to obtain for Government annual profits by the sale of the produce of the trees. There seems to be some sort of an idea that in presenting such trees to the Railway Company Government is gratuitously presenting the shareholders with a few pies per tree. I entirely fail to see why the Civil Department should take so much trouble. Why cannot they acquire the land, pay for the trees, and leave the latter standing? I have succeeded in obtaining orders of Government that this shall be done in the case of the land required for railway stations. But the same might be done everywhere, because, as I have explained, the Railway Company, in obtaining money hereafter for the produce of the trees, obtain that money for Government and for nobody else except in so far as shareholders get something out of it in surplus half-years (when there are any).

7. Where the line passes through the densely-peopled parts of the suburbs of Tellicherry and other towns, greater care will have to be taken as regards the details of the land plans. Good laterite retaining walls are built for Rs. 10 per 100 cubic feet. It will therefore frequently pay to take up a 20-foot strip only, through a town or past a house, rather than to pay for the land and what stands on it. It will also often pay in such a situation to search for special areas of land on which to deposit spoil, using 2-ft. gauge trucks for the purpose, rather than to casually fling it down alongside, on most expensive land. My impression was that this matter had not been sufficiently carefully gone into, and that consequently land was likely to be needlessly expensive, and much needless hardship seemed likely to be inflicted on house-owners. The Engineers should look to it. I have personally explained matters fully to them, and they understand.

8. I went into several proposed improvements of grading and settled them with the Engineer. I also looked at, or enquired into, some of the suggestions of the D.R.C. and recognised how he had been unfortunately misled by the draughtsman's fancy hill sketching. Such sketching ought either be altogether omitted or else done

Director of Railway Construction

correctly, or sufficiently correctly, for the purpose by the Engineer's own hand. Thus a long solid ridge running for miles across country should not be shown as an isolated hillock.

9. There are a quantity of 12' 6" and even larger diameter well curbs on the East Coast Railway. They lie at Cocanada, or used to, and can perfectly easily be shipped to Calicut and Tellicherry. They are quite good enough for 60-ft. piers, though Mr. West, the late Chief Engineer, was very averse to anything like corbelling out, even for the purpose of supporting mere cutwaters. This should be looked into. It is quite wrong to buy new things when things that will serve, and that have already been paid for, are lying around, even though the owners of the things are Government, and the proposed users of them are a Guaranteed Company. The shareholders' interest is quite infinitesimal in the present case, though I imagine there is an idea that he is in some danger of being scored off to the extent perhaps of a few annas.

10. The main cart road of the country crosses the line several times near the 12th mile. It is worth while comparing the advantages resulting from absence of gates and gatekeepers if the road is diverted, with the cost of these latter in perpetuity.

11. At Tellicherry, I personally explained to the Engineer-in-Chief how the railway land at the north end of the station should be taken right up to the navigable backwater, instead of the land boundaries being treated in a purely routine manner by the average draughtsman. There are doubtless many other places where the same ideas might be applied with advantage.

12. Good progress has been made with the estimates, and the detailed working estimates can be quickly completed as soon as the difficult question of sleepers and rails to be used has been threshed out. At present it would appear that old rails are simply not obtainable, except at a loss of revenue on the main line which the Company's Agent does not care to face. Though why he should care in a non-surplus half-year I really cannot see.

13. I may sum up my impressions of the Calicut-Cannanore Railway by saying that I hope now to see more forethought and energy about the supply of stores and plant, and more attention to details of design and of alignment, not only of works but of land, which in the country traversed demands much personal attention. There is apparently any quantity of the best sort of labour, largely Mappillas who more nearly approach Punjab labour than anything I have seen in South India. Work ought now to go ahead very fast.

ORDER—No. 457 Ry., dated 23^d April 1899.

The report of the Consulting Engineer will be sent to the Agent, Madras Railway, for information and guidance. Orders in regard to paragraph 6 will issue in the Revenue Department if there considered necessary. A copy of these proceedings will be forwarded to the Government of India.

(True Extract.)

FRANCIS J. E. SPRING,
Joint Secretary.

To the Consulting Engineer for Railways.

" Revenue Department.

" Agent, Madras Railway.

" Examiner Guaranties Ry. Acc't.

ENDORSEMENT—No. 457 Ry., dated 23^d April 1899.

Forwarded.

(By order.)

Despatched on 27-4-99.

Exd. S. A. S. Raghavangar.

For Joint Secretary.

13-4-99

21-4-99