1. Number of repairs: 46
2. Date of repair: 17-8-87
Initials of repairer: [illegible]

M.R.O. 1—50,000—16-10-85.

MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

Con: 3-11-87

G.O. No. 2048 Press Mis.

24.25

Dated 3—11— 19 85

Not to be folded or roughly handled

No. 21. Read the following.

No. 318.

On letters from the Agent and Manager of the Madras Railway Company Nos. 537, 50, 490, 538, 614, 644, 670, and 698, dated severally the 15th August 1856, 20th January, 17th June, 4th July, 3rd, 11th and 21st August and 2nd September 1857.

Observations by the Consulting Engineer.

By order of Government, No. 1479, in the Public Works Department, dated 30th July last, a letter from the Chief Engineer Department Public Works, with estimates for a proposed branch line of Railway to the Salt Cotaurs, was forwarded to the Agent and Manager of the Madras Railway on the 1st of August; and he was requested to favor the Government with an early Report of his views, and those of the Heads of Departments concerned, upon the whole matter, with especial reference to the weight of rail recommended, and the use of Locomotive Engines on the proposed branch. The Agent was reminded also, that no reply had been received to a letter from this office on the same subject, dated the 15th June.

Letter No. 692.

No. 566.

2. To this letter the Agent replied on the 11th of August, but as he suggested that the mode of working the branch should be left to the judgment of the Officers of the Company, I considered it necessary to point out to him that to enable the Government to determine upon the propriety of expending a large sum, with a view of bringing the Salt upon his line, it was desirable that they should have all possible information, as to the cost and manner of working the branch, and the probable effect thereof on the consumption of Salt. My letter to the Agent will be found appended.

No. 644.

No. 725, dated 13th August 1857.

3. The Agent's reply to this, dated the 2nd instant, was received on the 3rd, and is now submitted.

4. In the order of Government, (No. 1479) I was instructed to advise Government on the whole matter at an early date, reporting at the same time with reference to a former order, on the share of the cost of constructing the branch line that should be borne by the Railway Company.

5. It may save the Government some trouble if I briefly refer to former correspondence, and to the several opinions that have been given on this subject.

6. The traffic of Salt has been, from the very first, looked upon as a very important element in the business of a Railway, running from the Coast to the interior.

7. The present correspondence, however, arose out of an order of Government in the Revenue Department, No. 655, dated 26th June 1856, on a letter from Messrs. Cammiade and Co. and a report from the Board of Revenue.

8. Under the orders then passed, the Agent and Manager of the Railway was requested, by letter from this office, to favor the Government with his sentiments as to the manner in which a branch could be most conveniently laid down, so as to serve the purposes of the trade from the interior and for exportation, what would be the probable cost of such work, and whether the Railway Company would undertake the construction of it.

No. 341 dated 3rd July 1856.

9. In an order in the Revenue Department, No. 849 of the 11th August 1856, Government, in reference to the above, observed that no report had been received from this office, and my attention was called to the circumstance.

10. On the 15th August the Agent, with reference to this subject, asked certain questions, re-
No. 537. garding the state of the Salt on being brought down the Canal, and was informed, in reply, that it would be more convenient if he made such enquiries among parties engaged in the Salt trade, or of the Manager of the Salt Department. He was also informed that some time had elapsed since I met his Chief Engineer and Captain Collyer on the Canal bridge, when the former gentleman concurred with us in the practicability of at once, whatever might be the plan ultimately adopted, fixing a crane and establishing on the Canal, as a temporary expedient, the means of raising the Salt out of boats on to waggons placed on a siding; and enquiry was made as to whether it was proposed now to do any thing of the kind.

Report to Government 8th September 1856, No. 172.

11. On the 2nd September the Agent wrote, that he was collecting information on various points relative to the Salt trade, and when he received the Chief Engineer's Report would lose no time in submitting it.

12. On the 31st of October 1856, the Agent made his report, forwarding an estimate for
No. 755. a branch line amounting to Rupees 39,700, also one amounting to Rupees 16,000 for the construction of an incline "leading along the north side to the Canal," the latter having been recommended for adoption by Mr. Bruce. The Agent added that the traffic that would be derived from the working of either of these branch lines separately would not, it is supposed, be sufficiently remunerative to justify the outlay by the Company for the construction of either; and, considering private enterprize to have failed, he made certain suggestions regarding the mode of carrying on the trade of Salt, which the Government did not, as subsequently appeared, approve.

13. My report upon the above was dated the 18th November 1856, I therein observed that
No. 212. in the discussion that took place between Mr. Bruce, Captain Collyer, and myself "I was under the impression that we agreed in thinking "that a basin with wharf wall retaining the Railway bank widened, might be constructed with "advantage close on the North side of the bridge, and that commodities, whether Salt or others, "brought by the boats for transport by rail might be lifted at once on to the Railway bank and "placed in the waggons standing there in a siding." It "appeared to me" I added "that this "would be the simplest, most economical, and most effectual mode of accomplishing the object "in view, provided the Salt could be brought direct from the Ennore or other pans on the "Canal to this basin."

14. I added however, "to make this arrangement complete, the Cotaurs should be moved "from their present position to the immediate vicinity of the proposed basin, north of the Rail-"way. The cost of these works has been I believe considerable and such an arrangement might "be therefore considered objectionable;" and I suggested that this point would probably be referred to the Public Works Department.

15. I then considered the Agent's opinion about private enterprize having failed &c., and recommended that no decision should be pronounced until a report was received from the Public Works Department on the subject, with especial reference to the propriety of moving the Salt Cotaurs.

16. Order was passed thereon by an extract from Minutes of Consultation, No. 441, dated 2nd December 1856, and Government resolved to defer the consideration of the Agent's estimate, and to refer the subject to the Public Works Department and the Collector of Madras for early report, with especial reference to the expediency of moving the Salt Cotaurs, and to the expense approximately of such removal.

17. On the 18th December 1856, the attention of the Agent was again called to the proposal to erect, as a temporary expedient, a crane on the Canal bridge for the purpose of lifting Salt out of the boats direct on to the Railway, letter No. 746 appended.

From the Agent No. 50.

18. The Agent replied on the 20th January 1857 and a correspondence, appended, took place on the subject, but as the Agent and Traffic Manager disapproved of the plan, it was not further pressed.

Extract Minutes Consultation Financial (Railway) Department No. 279 dated 25th May.

19. In an extract from Minutes of Consultation (No. 953) in the Public Works Department dated the 18th May 1857, the Government after reviewing the several opinions given on the subject entirely agreed on the preference given by the Chief Engineer Department Public Works, and the Board of Revenue, to the Branch Railway, to the Depôt, and I was instructed to report as to what share of the expenses of the branch, if any, should be borne by the Railway Company, and it was observed that Colonel Faber's estimate* of the probable cost, and the Agent's estimate,† differed by about Rupees 4,100.

* Rupees 35,638.
† Rupees 39,700.

20. On the 15th June this order was communicated to the Agent, he was informed that the Government did not contemplate any change in the present arrangement, connected with the sale of Salt, and was requested to state whether, in the event of the Government constructing the branch to the formation level, he was prepared, on the part of the Railway Company, to lay down the permanent way with materials and ballast similar to those now in use on his line.

21. On the 17th June 1857, the Agent replied to a letter from this office of the 24th January, and stated that the Acting Chief Engineer disapproved of the construction of a crane to lift the salt at the Canal bridge, the cost of which would be about Rupees 2,000. He also forwarded a letter from the Traffic Manager (No. 16 dated 27th February 1857,) in which that Gentleman proposed that a siding should be constructed between the Canal bridge and the Powder Mills, leading down "parallel to the line nearly to a level with the foot of the embankment," and from this standing a branch line carried to the Salt Cotaurs.

22. As the Government had already determined on a branch line, and the Traffic Manager's plan was merely a repetition of Mr. Bruce's proposed incline and appeared objectionable, this letter was reserved until the Agent's reply to the last Government order should be received.

23. Being requested to reply to the order of Government, No. 279, of the 25th May last,
No. 538. communicated on the 15th June, the Agent reported on the 4th July, that the Acting Chief Engineer would, as soon as possible after his return to the Presidency, "go into the subject of the branch line."

24. On the 30th July last, Government considered a report from the Chief Engineer
Dated 30th July 1857. D. P. W. and passed the order No. 1479, upon which the present report is submitted.

25. The Chief Engineer D. P. W. submitted three estimates for the branch line.

1st. For a branch with heavy rails throughout, Rupees 54,400
2nd. do. light do. „ 43,760
3rd. do. with heavy rails to the commencement of the Cotaurs and thence after with light rails Rupees 49,300, and recommended the adoption of the heavier rail. This question, however, the Government thought would depend upon the view taken by the Railway Company, regarding the use of the Locomotive Engines.

26. Having thus stated what has passed, it remains for me to submit, for the consideration
Nos. 490, 644 and 698. of Government, the following observations upon the project, and upon the opinions of the Railway Company's Officers, as shown in the accompanying letters.

27. It is proposed, and generally agreed, that there should be a branch line from the main line of Railway to the Salt Cotaurs, and that the expense of its construction should be thus apportioned. That part of the work that lies within the limits of the ground made over to the Railway Company to be executed at their cost, the rest by Government.

28. In his letter, No. 614 of the 3rd August, being a reply to a letter conveying the Government orders No. 279 of the 25th May, the Agent observes that the Chief Engineer and Traffic Manager object to the plan therein proposed, and prefer one recommended in his letter, No. 490, dated the 17th Instant, and "which is apparently identical with that recommended by the Chief Engineer D. P. W." in all of which the Agent shows a singular misapprehension of the whole business, inasmuch as the plan proposed by the Chief Engineer D. P. W. was that made known to the Agent, and to which he said his Officers objected and it differed most materially from the siding "leading down parallel to the line," proposed in his letter, No. 490 of the 17th June.

Financial Railway Department.

29. The points upon which the Government desired information before passing final orders on the subject were—

1st. The description of permanent way depending on the mode of working proposed.

2ndly. The share which the Railway Company were prepared to bear of the expense of construction.

30. In reference to the first of these points the Railway Agent first proposed that the mode of working should be left to be determined after the line is laid down, but subsequently forwarded a letter from the Traffic Manager (concurring it must be presumed in the opinions expressed therein) from which I learn that that Gentleman thinks "the most desirable point to and from which we should haul our waggons would be to and from our own siding proper" &c., "leaving the Merchants to haul over the branch line."

From the Agent, Letter No. 644.
With letter No. 698.
Letter No. 59, dated 22nd August para. 5.

31. There is some apparent inconsistency in this letter but not such as to induce me to delay any longer submitting the question to Government.

32. Mr. Fletcher in para. 10, alluding to a very reasonable enquiry of mine as to the employment of Railway waggons down as far as the Cotaurs themselves says he does not understand the meaning of this para. because if these waggons were not employed on the branch line it would not be necessary to construct it at all, and in para. 9 he says he thinks Government should have nothing to do with the movement of the salt when once loaded in salt waggons.

33. From this it would seem that the Railway waggons are of course to be used on the branch down to the very Cotaurs (para. 10) that the Railway Company will not haul them over the branch line but only to and from their own siding (para. 5) and that the Government must have nothing to do with moving these waggons when once loaded with salt.

34. If the Railway Company do not work the branch with Locomotive engines nobody will or can; therefore the permanent way should not be constructed with a view to that mode of working and to the use of the large heavy waggons whose employment can only be economical or advantageous when associated with steam power and comparatively high speed.

35. With regard to the share in the cost of the branch line, the Railway Company undertake only that portion which lies within their ground little more in fact than the siding, the whole of the branch proper falls, together with the line of rails &c., to be laid about the Cotaurs and among the Heaps, on the Government.

	Yards.
Length of branch from main line to and thro' the salt Cotaurs.....	2,486
Length within the Railway limits.....	176
Remaining to be executed by Government.....	2,310

36. The question now becomes very simple. It is resolved into two parts. The Salt station and siding will be wholly prepared by the Railway Company, the way to it from the salt Cotaurs whether common road, tram road, or railroad by the Government; and it is for the Government to decide how the interests and convenience of the people can be best consulted in the construction of this road.

37. There can be no question but that the system by which the Railway would be most largely benefitted and the salt could be most cheaply carried at the same time would be one, such as the establishment of Salt Depôts along the line on the part of Government, under which none but large loads would be despatched from the Cotaurs. Full trains of 150 or 200 tons would be despatched from time to time and the importance to the Railway of thus providing a large and regular traffic westward can hardly be over estimated. In such a case the branch should of course be a first class Rail. Of the effect of such a system on the people or upon the Revenue it is not within my province to speak and indeed I believe the Government have determined against the establishment of Salt Depôts.

38. It being determined then that the operations of the Government monopoly shall not be extended along the line, the next and most important point is to prevent the establishment of a private monopoly to which a Railway seems as it were naturally favorable; and which would certainly prove highly injurious both to the people and to the Government Revenue.

39. Now it seems from Mr. Fletcher's letter that even if circumstances did induce them to place their Engines on the branch, he thinks 45 tons the minimum load they would send an Engine for. What becomes then of all the petty traders in salt by whom competition is now maintained, and who buy at the Cotaurs in quantities as low as 5 mercals?

40. Under any circumstances, if a heavy broad guage line were laid on the branch and Railway waggons used, such men would be worse off than they are now.

41. At present if a Capitalist buys his 45 tons he must have his 90 bullock carts to carry it to the station, while the man who buys his ½ ton takes his one cart for the same purpose, and if a man chooses to take his 100lbs. of Salt in a bag, he can take it, and carry it on the Railway, at the same rate as the others.

42. On the other hand if this branch were laid with heavy rails, broad guage, and if Railway waggons weighing at the least 5½ tons each, without load, were used thereon, it would be mockery to the small trader to say, "you have purchased 500lbs. of Salt you wish to send it by rail there is your waggon, put your 500lbs. of Salt into it and get some men to run it up the incline. It is true the waggon weighs 5½ tons empty, and your Salt only 500lbs. but there is no help for it."

43. Neither, at least if full competition is desired, is it just or reasonable to say that such petty traders should unite to get complete loads; they are not obliged to do so when they bring their commodities to a regular Railway station; and the very necessity of doing so is a discouragement to traders of that class.

44. It must be remembered that a Railway on broad guage, with heavy waggons, which may be, with sufficient traffic, the best and cheapest for Locomotive power, is the very worst where annual and mere manual labor is to be used, in consequence of the great, and then unnecessary, amount of dead, or unprofitable, weight of the stock.

45. Upon the above considerations, I would propose to Governmet to furnish the Cotaurs with lines of light rails at 4 feet guage, running (with necessary turn table, or travelling platforms &c.,) among the heaps; and to construct a double line of the same up the branch to the Railway siding, where the transfer (which must he made somewhere) from the light trucks or waggons, to the Railway waggons would be made.

46. I think it highly probable that if the same branch line was made available to connect the Coast Canal with the Railway, there would be an interchange of miscellaneous traffic, in addition to the Salt, and this object might be kept in view by sidings of the same light narrow guage rails being laid down along the Canal and placed in connection with the branch. This

would be no small convenience to traffic, whether in passengers or goods between Pulicat and its neighbourhood on the north, and (when the Canal is completed) Towns similarly situated on the south, and Vellore, Bangalore, &c.

47. I would suggest that this system of light rails with waggons, establishment, &c. be placed under the management of the Salt, or other Government Department.

48. The Government have power to direct the Railway Company, and it is to the interests of that Company, that they should be directed, not merely to establish a siding, but a regular Goods station at the point of junction of the branch and the main line.

49. The effect of such an arrangement would be that any trader, rich or poor, might go into the Cotaurs buy his 100 tons of Salt, or his 100 lbs. might ask for trucks or waggons, have them brought up to the heaps, run the Salt up to the Railway station, book, pay, and despatch; while goods brought by Canal, shells, lime, salt-fish, miscellaneous traffic, &c. might be placed on the rail with similar facility.

50. The only objection I can see to this plan is that which might be urged by a Capitalist. He might say "I want to take my 100 tons at a time, and a Railway with Railway waggons and Locomotive power would answer my purpose much better, than these smaller vehicles."

51. "True," I would answer, "but in the present state of society here there are few like you, so few, that, if you did not stand alone, you would readily combine. The branch line which the Government laid down for their own and the people's benefit at a considerable cost, would become in fact your private property; and the use you would make of it, would be to establish a monopoly to turn it to your own advantage, and to keep up the price of Salt to the prejudice, both of the people and the revenue."

52. I would recommend that the branch line up to the formation level be proceeded with, as proposed by the Chief Engineer, D. P. W. at once, only suggesting that it be carried to a point somewhat farther west on the main line, thus reducing the height of bank at the station, flattening the curve, and improving the gradient at the same time; but if the Government approve of the light rail and narrow guage, while Salt traffic is carried on as at present, I do not see any good reason for asking the Railway Officers to carry out that portion of the work which belongs to Government, I think it had better be done by the Public Works Department.

53. While the banks, drains, &c., are under construction, arrangements might be made for obtaining light rails, say 40 lbs. to the yard from England, sufficient for the branch to the Cotaurs and the Canal wharves, while timber might be collected for sleepers which, for a line to be worked by animal power, it might be better to have longitudinal.

54. The estimate prepared by the Chief Engineer, D. P. W. for a branch line to the point B, to, and through the Cotaurs, with a light rail weighing 36 lbs. to the yard single line, is Rupees 43,760. To make the line double with a narrow guage, the same width of bank would probably suffice, and the additional cost would be merely on the double line of rails, about 25,000 Rupees more; but if at first it were only thought necessary to carry the rails down to the Cotaurs, the total cost, with the double line of light rails now recommended, would according to the Chief Engineers's estimate, be about Rupees 40,000, including the additional material and ballast for the second line of rails.

55. The original plans and estimates forwarded by the Chief Engineer D. P. W., are returned herewith.

Madras,
14th September 1857.

(Signed) T. T. PEARS,
Consulting Engineer for Railways.

Letter from Major T. A. JENKINS, Agent and Manager; to Lieutenant Colonel T. T. PEARS, C. E., Consulting Engineer for Railways, dated 15th August 1856, No. 537.

SIR,

With reference to your letter No. 341 dated the 3rd July, in which you request my opinion as to the manner in which the transport of Salt can be facilitated by the construction of a branch line of Railway from some point or points on the line to the Madras Salt Cotaurs, I have the honor to state that in communication with the Chief Engineer it has been noticed that the Salt Cotaurs are at a considerable distance from the line of Railway, and to connect them might probably require a branch line of a mile or more in length. The Salt I believe is brought down by Canal from Ennore and passes *under* the Railroad. The question has therefore arisen whether the Salt when brought down, is in a fit state to be taken at once out of the boats, and put into the Railway waggons, and if so whether there is any objection to this being done, and should there be no necessity for the Salt being taken passed the Railroad to the present Salt Cotaurs, it is probable that convenient arrangement can be made for sidings and platforms at a moderate expense near to the Canal bridge. May I request that you will have the goodness to favor me with your opinion upon these points.

Submitted (with observations) for the orders of Government.

Madras,
14th September 1857.

(Signed) T. T. PEARS,
Consulting Engineer for Railways.

Letter from Lieutenant Colonel T. T. PEARS, Consulting Engineer for Railways; to Major T. A. JENKINS, Agent and Manager of the Madras Railway Company, dated 18th December 1856, No. 746.

SIR,

I have the honor to request I may be favored with an early reply to the last para. of my letter, No. 421, of the 25th August, referring to a proposition to erect a Crane as a temporary expedient at the Canal bridge, for the purpose of lifting Salt or other commodities from boats on to waggons placed on the siding at that place.

2. In a late letter you have expressed an opinion that the carriage of Salt by Rail has hitherto been a failure, and indeed there can be no doubt that up to the present time large quantities of Salt continue to be carried into the interior by the high western road.

3. The various plans which have been proposed with a view to making permanent arrangements for facilitating the export of Salt by Rail would necessarily, even when fully discussed and determined, occupy some time in execution, and I have been directed, therefore, to request your opinion as to the practicability and expediency of adopting some plan at once, similar to that above referred to, for the attainment of this desirable object.

4. It seems highly probable that if it were notified to the public, that Salt would be loaded from boats at the bridge, that if above a certain quantity, say a waggon load 160 maunds or whatever that may be, it would be lifted and carried in bulk that the facility thus offered for loading, taken with the present moderate rate of charge for transit by Rail, would infallibly lead the whole of the trade in that direction on to your line.

Letter from Major T. A. JENKINS, Agent and Manager; to Lieutenant Colonel T. T. PEARS, C. E., Consulting Engineer for Railways, dated 20th January 1857, No. 50.

SIR,

In advertence to your letter No. 746 dated the 18th of December, and letter No. 38 dated the 10th of January, having reference to the proposal to erect a Crane as a temporary expedient at the Canal bridge for the purpose of lifting Salt or other commodities from boats on to waggons placed on the siding at that place; I have the honor to state that the Traffic Manager has gone at some length into the subject connected with the best arrangement to be made to facilitate the

conveyance of Salt by Railway, in his letter No. 3 dated the 14th Instant, (a copy of which is annexed); and I beg to state that I concur in the opinion therein set forth, that the best plan to be adopted is for a new platform to be constructed by the Canal side abutting on the Railway, and has also been recommended by the Collector of Madras in his letter dated the 4th September last, to my address which is also annexed, you will perceive that the system of manufacture of Salt now existing will not permit of its being brought at all times when required, into Madras, so that the Salt could be removed from the boats direct into the waggons; even were such the case, I find it will be more economical and much more expeditious to remove the Salt from the boat to the waggon on the siding, by cooly, in bags, than by Crane. I therefore beg to recommend that the Government may be pleased to take into consideration the plan herewith submitted.

Submitted (with observations) for the orders of Government.

Madras,
14th September 1857.

(Signed) T. T. PEARS,
Consulting Engineer for Railways.

Lettter from H. A. FLETCHER, Esq., Traffic Manager; to Major T. A. JENKINS, Agent and Manger, Madras Railway, dated 14th January 1857, No. 3.

SIR,

I have the honor to acknowledge the receipt of your letter No. 154 enclosing letter No. 745 from the Consulting Engineer dated 18th Ultimo, regarding the transmission of Salt by Railway.

2. I think it desirable to state what the practice is, (as I am informed) with reference to the Salt trade on the part of Government.

3. Salt is made or gathered at Ennore and other points to the north, and is delivered by the different Salt makers or contractors at the Central Depôt known as the Salt Cotaurs. Salt is not sold at any of the points where it is made, or on the line of the Canal, or any other place except the Salt Cotaurs, and I am informed that it is illegal for Salt to be sold from any other place in this District than the one named.

4. It would be understood that Salt is not taken into stock by Government until it has been landed, heaped and measured, at the Cotaurs, each heap is made to contain 10 Garce of Salt weighing about 45 Tons each; the heaps of Salt are, I am told, numbered and sold in date order, that is, the oldest Salt is sold first and there is generally about one year's stock on hand.

5. Under existing orders of Government, Salt cannot be landed from boats at the Canal bridge and transferred to the Railway waggons, and Salt can only be taken, whether to be transmitted by Railway or road, from the Salt Cotaurs.

6. Colonel Pears has suggested in his letter No. 421 dated 25th August para. 4, that, as a temporary expedient, a Crane could be erected for raising the Salt out of boats into waggons place on a siding at the Canal bridge.

7. Colonel Pears refers further to a Crane being erected in his letter No. 745 of the 18th Ultimo and considers it (para. 4) highly probable that if such plan were adopted and it were notified to the Public that Salt would be loaded from boats at the bridge in bulk, that it would infallibly lead the whole of the Salt trade on to the Railway.

8. I am of opinion that if any arrangements could be made for storing or heaping Salt at the Canal bridge in the same way as is pursued at the Salt Cotaurs, that Colonel Pears' views would be fully realized, and that the whole of the Salt now passing along the western road would be transferred to the Railway; it is therefore in my opinion of the greatest possible importance to this Company that Government should be solicited to allow Salt to be stored at that point for transmission by Railway.

9. With reference to the conveyance of Salt by boats from the present Cotaurs to the Canal bridge thence to be loaded from the boats into the Railway waggons whether by Crane

or other means, I am of opinion that it would not meet the requirements of the trade, and would in fact offer little, if any advantage over the best system that could be adopted in carting to Royapooram.

10. I have been over the ground, and I have considered the plan proposed by Colonel Pears, as well as a plan which suggested itself to me, of a siding being placed at the level crossing nearest to the Cotaurs, in the latter case conveying the Salt by bandies instead of by boats on the Canal but either plan is inadequate to the requirements of the trade.

11. If we consider that the distance is little more than 2½ miles from Royapooram to the Cotaurs, where we have every facility for loading and a regular Staff to conduct the business, and that it is a mile or more from the nearest point on the Railway to the Cotaurs, and that the same waiting for loads, loading and unloading whether by boat or bandy, must take place in one case as well as the other, and bearing in mind that it is the delay and cost of loading and unloading which constitutes the principal objection in the haulage, I think it must be evident that for such short distances there is no advantage in using the Canal bridge, or a level crossing, where the saving is simply a mile and a half of haulage by bandy to Royapooram.

12. If we consider that the point to be gained is reduced to a mile and a half of haulage by bandy on the one hand, and that it would involve the erection of a Crane and other arrangements for platform &c. the employment of a Staff, however small, together with the stoppage of the Goods Train leaving empty waggons and taking up full ones, that is twice a day, besides the increase risk which the Company must incur as carriers by loading such an article and leaving it all night although watched, I consider the advantages far outweighed by the disadvantages.

13. You will perceive that in my opinion nothing can be done to facilitate the Salt Trade, until we can induce the Government to allow Salt to be unloaded at the Canal bridge, and stored as is done at the present Cotaurs; I cannot therefore too urgently press upon you the necessity of bringing this matter to the notice of Government.

14. The Salt hitherto carried upon the Railway has been Carted to Royapooram in gunny bags. I believe the cost of haulage, including loading into bags, coolies and stitching, is about 30 Rupees per heap of 10 garce equivalent to about 45 tons or 10 annas 8 pice per ton, the cost of wear and tear upon gunny bags, it is stated, has cost the large sum of 30 Rupees, making a total for haulage and use of bags of Rupees 1-5-3 per ton, equivalent to one half of the Railway rate from Madras to Arcot.

15. I need scarcely observe that if we had been enabled to load Salt at the Canal bridge that the 60 Rupees per heap or Rupees 1-5-3 per ton would have been nearly saved, and I think that this, deducted from the price hitherto charged for Salt at the Railway Station at Arcot, would have had a material effect upon this branch of our traffic.

16. In my letter No. 99, dated 22nd May 1856, I referred para. 15, to 3 modes by which the Salt trade could be conducted from the Railway.

First, that the Railway Company could become dealers in the article as well as carriers.

Second, the Government could carry on the trade as had then been suggested they might do.

Third, that it could be conducted by private enterprize.

17. I need scarcely say that the only plan tried up to the present time has been the latter, but Messrs. Cammiade, Martin and Co. of this city have been the only people who have entered into the matter in any way.

18. The quantity they have conveyed upon the Railway has been very trifling in comparison with the large quantities which have been daily conveyed upon the road.

19. Although private enterprize has hitherto failed in forcing this important Traffic upon the Railway, it is but right to state that had the Government on the one hand, and the Railway Company on the other dealt in the article on the Railway under the same circumstances and with the disadvantages under which the Merchants have laboured and still labour, they could not have succeeded better; their want of success hitherto can be no test of the principle of leaving the development of the Salt Traffic to private enterprize.

20. I beg to observe that the cost of Boatage or Cartage from the Cotaurs to the Canal bridge or Cartage to the Railway Terminus must constitute a serious disadvantages to the Railway in competing with the road for the Salt Trade, in the latter case when once loaded into the bandy no moving takes place, whilst under present circumstances it is inevitable when conveyed upon the Railway.

21. I have the honor to enclose a Sketch of the arrangement, I would suggest at Cochrane's Canal for heaping Salt specially intended for transmission by Railway, should you approve of it, you can doubtless obtain an estimate of the cost from the Chief Engineer; I have considered it with a view to economy.

Letter from B. CUNLIFFE, Esq., Collector of Madras; to Major T. A. JENKINS, Agent and Manager of the Railway Company, dated 4th September 1856.

SIR,

I have had the honor to receive this morning your letter of the 2nd Instant, requesting me to state if there is any objection to the plan proposed by the Chief Railway Engineer, and concurred in by the Consulting Engineer and Captain Collyer, of loading the Railway Trucks with Salt direct from boats on the Canal, rather than joining the Cotaurs to the Railway by a branch line.

The Salt when conveyed from the Pans (at and beyond Ennore) by means of the Canal, to the platform near the Elephant Gate at Madras, is in a perfectly fit state for transport into the interior, indeed the Salt is in better order at that period, as the crystals are larger, and have not been subjected to the processess of storage and subsequent retail or wholesale.

But the proposed plan will not answer for this reason, it implies as I read it, that the Salt is to be brought from the Pans by boat to the Railway Canal bridge *whenever required* for transit to the interior. Our system of manufacture will not permit of this. The Salt is made at and beyond Ennore during the months from February to September, and when ready to be conveyed from the Pans must be brought into *store*, there to await the requirements of the trade which may not carry it off for many months after it has been received into store. We cannot keep the Salt exposed at the Pans, a store being then unavoidable, we may consider whether the construction of a new platform by the Canal side, abutting on the Railway, would be more economical than the junction of the present Cotaurs with the Railway by a branch line. I imagine that the latter would be found infinitely the less expensive plan.

Letter from Lieutenant Colonel T. T. PEARS, C. B., Consulting Engineer for Railways; to Major T. A. JENKINS, Agent and Manager of the Madras Railway Company, dated 24th January 1857, No. 89.

SIR,

I have the honor to acknowledge the receipt of your letter, No. 50, dated the 20th Instant, forwarding copy of a report from your Traffic Manager on the subject of a suggestion referred to in my letter, No. 745, dated 18th December 1856, that as a temporary expedient, Salt might be loaded on the Railway from boats at the Canal bridge.

2. From your letter it appears that you concur in the opinion expressed by Mr. Fletcher against the proposal, and in favor of the construction on the part of Government, of a new platform for storing and Sale of Salt by the Canal side abutting on the Railway.

3. There are some points noticed in these letters, in connexion with which I request that Government may be favored with further explanation.

4. In your letter you state that the proposal, viz., to construct a new Salt Platform near the Canal bridge has been recommended by the Collector of Madras in a letter* copy of which you have forwarded, but on reference to that letter I find that Mr. Cunliffe distinctly states his opinion that "the junction of the present Cotaurs with the Railway by a branch line would be found infinitely the less expensive plan."

* September 4th.

5. You will observe that the permanent arrangements for the more convenient transport of Salt by Rail, now under the consideration of Government, whether they involve the construction of a branch line, or the moving of the Salt Cotaurs, will necessarily occupy some time, and in the mean time your waggons are running empty to Arcot, and the Salt going up the high road. The plan of at once receiving Salt at the Canal bridge, as I believe for your own works you now receive shells, was proposed as a temporary expedient, one which might be adopted in a few days.

6. In the 12th para. of Mr. Fletcher's letter, that gentleman says that the point to be gained is reduced to a mile and a half of haulage by bandy, but this is not quite a correct view of the matter. According to the statement given in the preceding para of the same letter, one point to be gained would be the difference between the cost of $2\frac{1}{2}$ miles carriage by cart, and that of one mile by boat.

7. The former is stated (para. 14) to be 10 annas 8 pice per ton, while the latter no one can doubt would be very much less.

8. Again it is said, that if we had been enabled to load Salt at the Canal bridge the 60 Rupees per heap (viz., 30 for haulage, &c., and 30 for wear and tear of gunny bags) would have been nearly saved. I shall be much obliged by your explaining the grounds upon which it is assumed that a similar saving, less the carriage for one mile by boat, would not be effected in loading at the Canal bridge, Salt brought by boat from the present Cotaurs.

9. You will observe in fact that if the Salt is, pending more complete arrangements, to be lifted on to the Rail by Crane or otherwise the mere removal of the Cotaurs to the neighbourhood of the Railway, a work, that would involve considerable expenditure of time and money would make little difference.

10. Every heap purchased would have to be loaded into some vehicle and from thence lifted on to the Rail. The loading and unloading would be the same distance to be conveyed to the Rail by cart, or otherwise, would vary with the distance of each particular heap, and in fact to the purchaser it seems there would be very little saving. Under present circumstances, if you loaded at the bridge, the purchaser would have to bring the Salt by boat, one mile, the cost of such transport being very small, and if, as I gather from Mr. Fletcher's letter, the expense of gunny bags would be saved in the case of Salt stored for sale near the Railway, it would be no less saved in the case of Salt brought by boat from the present Cotaurs.

11. The Merchant must under present arrangements buy his Salt from Government. The latter cannot without increase of expense, as well as of risk of loss from smuggling, have many places of disposal and sale. The present place is by Canal one mile, it is stated, from the Railway. If these Cotaurs were moved near to the Railway, so extensive are they that some of the heaps would be even then nearly as far as at present, and in every case loading and unloading between the heaps and the rail would be necessary.

12. It may be added that the movement of the Cotaurs is one of those measures that would excite discussion and difference of opinion, and if sanctioned, require some time to effect, and, therefore, does not properly come under consideration as an alternative to the proposed temporary arrangement.

13. The important point to be now considered is, if any thing, and what, can be done under present arrangements to facilitate the transfer of Salt from the Cotaurs to the Rail, assuming Mr. Fletcher's calculation to be correct, it appears perfectly clear that a very great saving to the dealer would be effected by permitting him to load into your waggons at the bridge.

14. Mr. Fletcher has, I think, overlooked the great saving in the haulage for one mile by boat, over that for $2\frac{1}{2}$ miles by cart, and it remains to be shown, why, if the cost of gunny bags would be saved by loading at the bridge from stores near the Rail, they might not also be saved in loading at the same bridge from heaps a mile off, the Salt being in both cases brought to the spot in boats.

Letter from Major T. A. JENKINS, Agent and Manager; to Lieutenant Colonel T. T. PEARS, C. B., Consulting Engineer for Railways, dated 17th June 1857, No. 490.

SIR,

With reference to your letter No. 89, dated the 24th of January, on the subject of the conveyance of Salt by Rail and the best mode of transporting it from the Cotaurs to the line, I have the honor to acquaint you that the Acting Chief Engineer has expressed his opinion that he would not recommend a Crane of the size that would be necessary, to be constructed upon the piers of the Canal bridge; he estimates that the cost of a Crane complete will be about Rupees 2,000.

2. The traffic Manager, in further explanation of his views in regard to the subject matter of your letter, furnished me in the latter end of February with a report,* but to make it complete it was necessary that it should be accompanied by a plan in illustration of his proposals for connecting the Salt Cotaurs with the line. This was called for early in March, and has this day been received: I therefore take the earliest opportunity of transmitting the report in question to you, together with the Plan† and estimates.

* No. 16, 27th February.

† No 19.

3. Mr. Fletcher proposes that a siding should be constructed between the Canal bridge and the Powder Mills, leading down parallel to the line nearly to a level with the foot of the embankment; where there should be a level standing for full and empty waggons; that from that standing a branch line be carried down to the Salt Cotaurs. I would beg to propose with the concurrence of the Directors of this Company and the Government, that the expense of constructing the siding and line to the boundary of the Railway property, be at the expense of the Railway Company, and that the Government bear the expense of constructing the line thence to the Salt Cotaurs. The first portion it is estimated will cost for earthwork &c. Rupees 2,016, or including permanent way Rupees 8,403-8-1; the estimate for the portion proposed to be constructed by the Government is for earthwork &c., Rupees 22,410, or including permanent way Rupees 45,791-6.

Submitted (with observations) for the orders of Government.

Madras,
14th September 1857.

(Signed) T. T. PEARS,
Consulting Engineer for Railways.

Letter from H. A. FLETCHER, Esq., Traffic Manager; to Major T. A. JENKINS, Agent and Manager, Madras Railway, dated 27th February 1857, No. 16.

SIR,

With reference to your letter No. 13 dated the 26th Ultimo and despatched on the 4th "Instant" enclosing letter No. 89 from the Consulting Engineer upon the subject of loading Salt by means of a Crane at the Canal bridge, I have the honor to refer you to my letter No. 3, dated 14th January on the same subject, and to submit the following observations upon the letter of the Consulting Engineer.

2. Referring to para 4, and the letter adverted to, from the Collector of Madras to your address dated the 4th September, I would beg to observe that Mr. Cunliffe's letter corroborates the statements I made in reference to the system pursued in the manufacture, storing and sale, of Salt as stated in my letter No. 3, of the 14th January. The Consulting Engineer observes "in your letter you state, that the proposal viz., to construct a new Salt platform near the "Canal bridge has been recommended by the Collector of Madras in a letter, copy of which "you have forwarded, but on reference to that letter I find that Mr. Cunliffe distinctly states "his opinion, that the junction of the present Cotaurs with the Railway by a branch line would "be found infinitely the less expensive plan."

3. I would beg to refer you to the plan I have already pointed out to you by which I would propose to connect the Salt Cotaurs with a siding at the Canal bridge from the main line

of the Railway you will perceive that this would embrace the new platform by the Canal side abutting on the Railway and the junction of the present Cotaurs with the Railway by a branch line, as adverted to by Mr. Cunliffe, and I think that any thing short of effecting both objects will fall short of what is required.

4. It appears to me, upon looking over the ground between the Railway and the present Cotaurs and considering the position of the Cotaurs as they are laid out, coupled with the extention of the Salt trade which is now increasing, and the large increase which we may naturally expect from the Railway being brought in connection with the Cotaurs and the Salt trade being extended by the facilities and impetus which the Railway will bring to bear on the consumption of Salt, I feel no hesitation in saying that the Salt Cotaurs will require to be extended and that eventually they will occupy all the ground between the Railway and their present position.

5. I would propose that the extention of the Salt Cotaurs should commence at the Railway bridge on the south side, where Salt could in the first instance be stored for transmission by Railway.

I would also propose to lay down a line of Rails from the Railway siding to the present Cotaurs so that a heap of Salt could be loaded at once into the Railway waggons.

6. I think that the Salt platform at the Railway bridge should be constructed and the Rails off the Railway Company's land should be laid down at the expence of Government, whilst the Railway Company should lay in the siding from the main line of the Railway upon a workable gradient on to a level with the Salt platform precisely the same kind of arrangement has been made at Southampton connecting the South Western Railway with various Wharves on the river Itchen, the Railway Company laid in the siding on their own land and put down turntables &c. leaving the Merchants, the owners of the several Wharves, to lay down the Rails connecting them with the Railway.

7. This was found to succeed well for the Railway Company and the Merchants, and as the Government are largely interested in the article of Salt, probably they would not think it an unnecessary amount of money to expend in the developement and encouragement of the Salt trade.

8. It may be as well to state that I would propose that the Railway Company should simply place the empty waggons in their own siding, and when loaded take them from the siding to their destination leaving the Merchant to haul the waggons to the heaps of Salt, allotted to him by the Superintendent of the Salt Cotaurs, load the Salt, and bring the waggon back loaded, and leave it upon the siding.

9. A weigh bridge could be placed upon the Railway siding to weigh the waggons in gross, as a check for our own carriage, and as a check upon the quantity for the protection of the Merchants from theft, &c. &c.

10. The Consulting Engineer in para. 5 observes, that the permanent arrangements will necessarily occupy some time, and in the mean time our waggons are running empty to Arcot, and the Salt going up by the high road.

11. I am fully sensible of these facts and should be glad to see any plan devised by which this state of things could be changed, but I am clearly and decidedly of opinion that the plan advocated by Colonel Pears would have no effect whatever in transferring the Salt trade from the high road to the Railway.

12. In my letter No. 3 of the 24th Ultimo, I considered the feasibility of adopting Colonel Pears' plan, of conveying Salt in boats from the Cotaurs to the Canal Bridge, thence to be loaded from the boat into the Railway waggons; and I was of opinion that whether a Crane, or other means were used, it would offer very little, if any, advantage over the best system that could be adopted in carting to our Terminus at Royapooram.

13. The Consulting Engineer however still considers that his proposal, of erecting a Crane at the Canal bridge, would have the effect of transferring the Salt trade from the road to the Railway, and requires further information.

14. I stated in para 10 of my letter No. 3, "I have been over the ground, and I have considered the plan proposed by Colonel Pears, as well as a plan which suggested itself to me of a siding being placed at the level crossing nearest to the Cotaurs; in the latter case conveying the Salt by bandies, instead of by boats on the Canal, but either plan is inadequate to the requirements of the trade."

15. The plan which suggested itself to me to convey the Salt by bandies to the Canal bridge was to meet the objections (which I think are serious) of conveying the Salt by boat. In the first place a boat must remain on the Canal stationary to a certain extent, the heaps of Salt are scattered over a large space of ground, and most of them at some distance from the boat; a bandy is moveable, and can be placed immediately alongside the heaps of Salt wherever situated and would save cooly hire to some extent, besides the damage done to the chrystals of Salt, by being knocked about in loading. I think that conveying the Salt by bandy would be preferable to conveying it by boat, but as I observed either plan is inadequate to the requirements of the trade, as it would not, effect the transfer of the salt from the high road to the Railway in my opinion.

16. In para. 6, the Consulting Engineer observes referring to para. 12 of my letter No. 3 that "according to the statement given in the preceding para. (11) of the same letter one point to be gained would be the difference between the cost of 2½ miles carriage by cart and that of one mile by boat." In para. 7 it is observed that, "the former is stated (para 14) to be 10 annas 8 pice per ton, while the latter no one could doubt would be very much less."

17. I think that para. (11) of my letter No. 3 meets para. 6 as above, but the matter may probably be considered one of opinion rather than calculation. The difference however is something more than between the cost of 2½ miles carriage by cart, and that of one mile by boat. To the one mile by boat must be added the cooly hire to the boat, and the carriage or loading into the Railway waggon from the boat, and in practice, I feel persuaded there would be found no advantage gained by the one mile of boat, as compared with the 2½ by bandy to Royapooram whilst, as stated in my letter No. 3, we should be required to stop our Goods Trains at the Canal bridge, employ a staff there, and erect a Crane to save, in my opinion, nothing whatever or a sum so small as to be insignificant.

18. With reference to para. 8 I submit to you that it is very obvious that if there had been a Salt platform at the Canal bridge, and the article had been heaped there for transmission by Railway and a siding had been laid down, so that Salt could have been loaded from the heaps direct into the Railway waggon, that the only expence would have been for cooly hire in loading so that the cost of haulage would have been nearly saved, whilst the gunny bags could have been dispensed with, by using covered goods waggons, loading the Salt in bulk and locking the waggon. It is my opinion and I may add the opinion of Messrs. Commiade Martin and Co., at present engaged in the trade, that gunny bags could not be dispensed with if the Salt were loaded into boats, and I may say, as I am acquainted with boating that it would be if possible more necessary to use gunny bags in boats, than if bandies were used, and the Merchants think they cannot dispense with them in the latter case.

19. With reference to para. 9, I beg to say that I cannot think that any plan, which will effect less than allowing the Salt to be loaded direct from the heap into the waggon, will suit the requirements of the trade if the Cotaurs were simply removed to the Canal bridge, and no provision made by a siding to bring the Railway waggons on the same level or nearly so, as the Salt I think it would act prejudicially and fall short of what is wanted.

20. With reference to para. 10, I can merely observe that, gunny bags could only be saved by placing the Railway waggons on a level, and near to the heaps of Salt as observed in para. 8.

21. With reference to para. 11, I have proposed to have a line of Rails laid down through the centre of the heaps of Salt, on the plan adopted of having a bandy track through them, so that any heaps of Salt could be loaded into a Railway waggon.

22. With reference to para. 12 and 13, I have already stated that, in my opinion any plan proposed or any that has suggested itself to me as a temporary measure, would not meet what is required, and I think any thing short of what has been contemplated as a permanent arrangement, will not meet the case. I cannot discover that any important saving to the dealer would be effected by permitting him to load into the Railway waggon at the Canal bridge, and after carefully considering the subject and conferring with the present dealers in Salt viâ Railway, and comparing notes with them, I can arrive at no other conclusion.

23. With reference to para. 14, I have answered this para. in the foregoing remarks.

24. I beg to observe that it is a matter of considerable importance to the quality of Salt that it should be subject to as little knocking about, by loading and unloading as possible, as it breaks the chrystals, and small grained salt is peculiarly liable to adulteration. As an instance of this I ascertained during my recent visit to Salem that 10 measures of Cuddalore Salt were sold there for a Rupee, whilst 12 measures of Madras Salt were sold for a Rupee. The only reason I could obtain for the preference being given and the increased price being paid, for Salt made at Cuddalore, was that it was larger in grain, and consequently could not be adulterated; the loading direct in the Railway waggon on this account alone should be considered of some importance to all parties interested.

MADRAS RAILWAY.

Estimate of the work in the siding and portion of Branch Line to Salt Cotaurs, to be executed at the expense of the Railway Company.

			Rs.	A.	P.	Rs.	A.	P.
Earthwork...	...Cubic yards...	7,371	0	1	0	460	11	0
Turfing...	Squares...	198	0	8	0	99	0	0
Brickwork...	...Cubic yards...	13	5	0	0	65	0	0
Ballasting...	„ ...	630	1	8	0	945	0	0
Laying Permanent way...	Yards...	378	0	8	0	189	0	0
Carriage of materials...	Tons...	73·58	1	0	0	73	9	0
Contingencies...	...	.....				183	12	0
			Rupees...			2,016	0	0

Company's Rupees two thousand and sixteen.

Chief Engineer's office
16th June 1857.

(Signed) ROBERT PATON,
For Acting Chief Engineer.

(Signed) T. A. JENKINS,
Agent and Manager.

MADRAS RAILWAY.

Estimate of the work in that portion of the branch Line to Salt Cotaurs, to be executed at the expense of Government.

			Rs.	A.	P.	Rs.	A.	P.
Earthwork...	Cubic Yards ...	9,251	0	1	0	578	3	0
Turfing...	Square feet ...	832	0	8	0	416	0	0
Brickwork in Bridges,&c.,...	Cubic Yards ...	356	5	0	0	1,780	0	0
Teakwood in Bridges,&c.,... ...	Cubic feet ...	3,775	2	0	0	7,550	0	0
Planking...	Square feet ...	1,638	0	3	8	375	6	0
Bolts, Washers and Nuts... ...	... ...	24	1	4	0ea.	30	0	0
Ballasting...	Cubic Yards ...	3,560	1	8	0	5,340	0	0
Laying permanent way... ...	Lin. Yards ...	1,492	0	8	0	746	0	0
Gates...	Pairs. ...	4	66	0	0	264	0	0
Guard Rails, at level crossing... ...	... ...	2	42	0	0ea.	84	0	0
Approach Fencing...	Yards ...	80	3	8	0	280	0	0
Fencing...	do. ...	2,640	1	0	0	2,640	0	0
Carriage of materials...	Tons ...	290·42	1	0	0	290	7	0
Contingencies...	... ...					2,036	0	0
					Rupees...	22,410	0	0

Company's Rupees twenty-two thousand, four hundred and ten.

Chief Engineer's office
16th June 1857.

(Signed) ROBERT PATON,
For Acting Chief Engineer.

(Signed) T. A. JENKINS,
Agent and Manager.

Letter from Major T. A. JENKINS, Agent and Manager; to Lieutenant Colonel T. T. PEARS, C. B. Consulting Engineer for Railways, dated 4th July 1857, No. 538.

SIR,

I have the honor to acknowledge the receipt of your letter No. 612 dated the 3rd Instant, and to acquaint you that the Acting Chief Engineer has intimated to me that he will, as soon as possible after his return to the Presidency (expected in a few days) go into the subject of the branch line to the Salt Cotaurs as proposed by the Government, and I shall without delay communicate with you on the subject.

Submitted (with observations) for the orders of Government.

Madras,
14th September 1857.

(Signed) T. T. PEARS,
Consulting Engineer for Railways.

Letter from Major T. A. JENKINS, Agent and Manager; to Lieutenant Colonel T. T. PEARS, C. B. Consulting Engineer for Railways, dated 3rd August 1857, No. 614.

SIR,

With reference to your letter No. 566, dated the 16th of June, in which you request that I will state whether in the event of the Government constructing a branch line from the main line to the Salt Cotaurs, to the formation level, this Company will be prepared to lay down the permanent way with materials and ballast, with turn-tables and other appliances as may be required to the Salt Cotaurs, I have the honor to state that some delay has occurred in replying to your letter consequent upon information having to be obtained from different Departments, I now however beg to annex a copy of a letter from the Chief Engineer No. 136 dated the 17th of July, and one from the Traffic Manager No. 56 dated the 1st Instant, by which you will observe that these Officers shew reasons to object to the plan you proposed; they being strongly in favor of that as recommended to the Government in my letter No. 490 dated 17th Ultimo, and which is apparently identical with that recommended by the Chief Engineer D. P. W. received with your letter No. 692 dated the 1st Instant, a reply to which communication I hope to be able to send you in a few days.

Letter from J. M. HEPPEL, Esq., Chief Engineer; to Major T. A. JENKINS, Agent and Manager, dated 17th July 1857, No. 136.

SIR,

With reference to your letter No. 531 of June 17th, on the subject of the branch to the Salt Cotaurs, I beg to observe that the proposition of the Government taken in most favorable acceptation that is to say that they should construct all works of every description with the exception of the ballasting and permanent way, amounts to fixing on the Railway Company an expenditure on construction of about 30,000 Rupees.

Supposing for the present that the arrangements for the subsequent working and maintaining the branch line, which are not adverted to in the letter of the Consulting Engineer, should be made in the manner most favorable to the Company's interests. I am still of opinion that the amount of their expenditure on construction ought not to exceed 10,000 Rupees, and therefore I must express my opinion against the acceptance of the proposal in question.

Letter from H. A. FLETCHER, Esq., Traffic Manager; to Major T. A. JENKINS, Agent and Manager, dated 1st August 1857, No. 56.

SIR,

I have the honor to acknowledge the receipt of your letter No. 108 dated the 20th Ultimo, enclosing letters No. 566 from the Consulting Engineer and No. 136 from the Chief Engineer

on the subject of a siding or branch line being laid down connecting the Salt Cotaurs with the Railway at Madras.

2. The plan of connecting the Salt Cotaurs with the Railway by a branch line adverted to by the Consulting Engineer would not I think prove so convenient as the plan of laying down a siding at the Canal bridge as explained in my letter No. 16, dated 27th February for the following reasons.

First. A branch line upon the plan suggested would of necessity have to be run out at some distance from the Canal bridge and the ground between the point of junction and the Canal would thus become if not altogether useless for the storing of Salt at any rate not nearly so valuable for the purpose as it would be if a line run parallel and close to the Canal from the Railway at the Canal bridge.

Second. A branch line if constructed upon the proposed plan could not be worked conveniently by a locomotive as the time occupied in haulage would be too long to keep the Goods Trains standing upon the main line, whilst empty waggons were taken to the Salt Cotaurs and the loaded waggons brought back. I am of opinion that such a branch line could best be worked by bullocks or coolies and all that the Railway company should be called upon to do would be to leave the empties upon or take up the loaded waggons from a siding at the point of junction, the dealers in Salt having taken the empty waggons loaded and brought them back to be attached to the Goods Train at their leisure in the course of the day, such is the practice upon many small branch lines.

Third. I think it should be taken into consideration that the ground on the side of the Canal between the Canal bridge and the present Salt Cotaurs will in all probability be required for the Salt trade, as that trade increases by the increased sale which will be the result of the operations of the Railway under judicious management. The branch line would run too far from the side of the Canal to bring the whole of the ground I allude to into convenient working, as Wharves or places for stocking Salt whilst the plan of running a line as I have proposed close to the Canal would enable the Government to keep the Salt close to the Canal and economise in the stocking or unloading from boats and again economy would be practised in the loading into the Railway waggons.

3. The ground should be seen and the comparative merits of the different plans discussed upon the spot, as it is difficult to describe plans of this kind by letter. I may say that after careful consideration I think the plan of connecting the Salt Cotaurs with the Railway by a siding at the Canal bridge as already described by me would prove much more convenient and economical in every respect than the branch line adverted to.

4. I am of opinion that the Railway Company should be called upon to construct all works and to lay down such sidings as might be required upon their own land, and that the Government should construct all works and lay down the Rails required upon the land outside of the Railway fence as being largely interested in the sale of Salt and that the maintenance of the line outside the Railway fence should be borne by Government.

Submitted (with observations) for the orders of Government.

Madras,
14th September 1857.

(Signed) T. T. PEARS,
Consulting Engineer for Railways.

Letter from Major T. A. JENKINS, Agent and Manager; to Lieutenant Colonel T. T. PEARS, C. B. Consulting Engineer for Railways, dated 11th August 1857, No. 644.

SIR,

With reference to your letter No. 692, dated the 1st of August, and letter from the Chief Engineer Department Public Works to the Acting Secretary to the Government, I have the

honor to annex copies of letters from the Chief Engineer of this Company No. 159 dated the 5th of August 1857, from the Traffic Manager No. 57 dated the 7th of August, and from the Locomotive Superintendent No. 120 of the same date, in which each Officer expresses his respective opinion upon the subject matter adverted to in your communication.

2. The plan proposed for connecting the Salt Cotaurs with the main line, the Chief Engineer observes, is nearly identical with that submitted with my letter No. 490 dated 17th June 1857, and the arrangements proposed appear to be fair and acceptable.

3. With reference to the weight of rail, opinions are in favor of the use of that of 64 lbs.

4. In regard to the mode of working the line, much, as the Traffic Manager states, will depend upon the amount of traffic; I beg to suggest that that point be left to the judgment of the Officers of the Company, but that the construction should be sufficiently substantial to admit of the working of a locomotive upon the line at any time if considered necessary.

5. In respect to the suggession conveyed in the 11th paragraph of Colonel Faber's letter, that the work be executed by this Company, I beg to state that there does not appear to be any objection thereto; and that permanent way materials and other appliances can be provided by this Company and charged to the Government for their portion of the branch line.

6. The plans sent with your letter are herewith returned.

Submitted (with observations) for the orders of Government.

Madras,
14th September 1857.

(Signed) T. T. PEARS,
Consulting Engineer for Railways.

Letter from J. M. HEPPEL, Esq., Chief Engineer; to Major T. A. JENKINS, Agent and Manager, Madras Railway, dated 5th August 1857, No. 159.

SIR,

Yours No. 688 August 3rd forwarding letter of Consulting Engineer No. 692 August 1st with enclosure letter of Chief Engineer D. P. W. to Acting Secretary of Government No. 1863, July 8th.

2. The plan proposed is as you observe nearly identical with that proposed some time ago by the Railway Company's Officers, and looking at it in its general features and without regarding details which may require modifications I may say that in my opinion it is desirable that it should be carried into effect and that the arrangement proposed for that purpose appears to be fair and acceptable.

3. With reference to the weight of rail to be used it appears that the Chief Engineer D. P. W. has made three estimates. One for 64 lb. rail throughout, another for a lighter rail throughout, and a third with a 64 lb. rail to the Cotaurs and a lighter rail for the service roads in the Cotaurs themselves, of these plans I should decidedly prefer the third, supposing the Government to have lighter rails at their disposal, but if they wish the Railway Company to supply the rails, it will not be possible to furnish any others than the 64 lbs. It might however be arranged to take back the heavy rails at a valuation whenever the Government should be disposed to lay lighter ones in their place.

4. Siding for empty waggons should I think be on the branch line A. B.* and not in the main line A. Q. where it would be less convenient. As for as this siding extends the rails of the branch line should be kept to the same level as those of the main line. The descending gradient might then commence.

* No plan referred to in letter of Chief Engineer, D. P. W.

5. The mode of working the branch line contemplated by this arragement is that the empty waggons should be run by the Railway Company on to the siding at A. B. they should then

be taken down to the Cotaurs filled and brought back on to the main line at A. B. by the parties sending the goods, where there they would be picked up by the Goods Train.

6. The siding at 55 would not be required in this manner of working as far as the Railway Company are concerned, and if required at all would be for the internal arrangements of the Cotaurs, at a future period if the trade should develope itself to an extent to justify the employment of a locomotive on the branch line, a siding in this position would become necessary to the Railway Company.

7. I take it therefore that in carrying out the work the proper arrangement would be that the Railway Company should construct all the works within their boundary as well as any additional breadth of earthwork that may be required for the siding at A. B. which siding they should lay in and should any further works be found necessary within their boundary, they should do them, that the Government should do and maintain all works other than the above for bringing the Salt Cotaurs into communication with the line, but that if amongst these they should find it necessary to make a siding at S S, the Railway Company should take to it and reimburse them for it, whenever the trade should be sufficiently great to occupy a locomotive on the branch line.

8. With reference to the suggestion in the Chief Engineer's Department Public Works letter, that the Railway Company should construct the works for the Government, I have only to say that I can see no objection to their doing so, should the conditions which may be proposed appear on consideration acceptable.

9. I return herewith two plans and the printed letter of the Engineer Department Public Works.

Letter from H. A. FLETCHER, Esq., Traffic Manager; to Major T. A. JENKINS, Agent and Manager, dated 7th August 1857, No. 57.

SIR,

From Consulting Engineer No. 692, 1st August. From Chief Engineer D. P. W., 8th July 1857, No. 1863.

I have the honor to acknowledge the receipt of your letter, No. 113 of the 3rd Instant; enclosing correspondence as per margin and plans of the proposed arrangements for connecting the Railway with the Salt Cotaurs at the bridge over the Canal near to the Madras Terminus.

2. I beg to inform you that I have had an interview with the Chief Engineer, and concur with him that the plan proposed will meet the requirements of the case. The plan is, as you observe, identical with that suggested by my letter No. 16 of 27th February, and I would strongly urge the necessity for the work being proceeded with at the earliest possible period.

3. I would suggest that the 64 lbs. rail should be used throughout as it would be found inconvenient to establish a point up to which a locomotive could work and no further. I do not anticipate that the traffic in Salt will reach a point at present to justify a locomotive Engine being specially run for haulage on the branch line, but it is probable that in the event of there being a sufficient number of waggons to form a Train, that an engine may frequently be despatched to take them direct from the Cotaurs to their destination, in which case it would be desirable that the branch line should be so laid down as to permit an Engine running to its full extent over it. I think the saving to be effected by laying down a light rail through the Cotaurs as they at present stand would not be equivalent to the inconvenience whenever a locomotive may be brought into requisition.

4. I would beg to bring to your notice that it is exceedingly probable that the Cotaurs will eventually extend all along the Canal side up to the Canal bridge, and that the branch line should be so constructed as to admit of this being done without incurring any expense for the alteration of line to meet such an arrangement.

5. At present the haulage upon the branch line could be most economically performed by bullocks or coolies, and as I suggested in my letter No. 16 of 27th February, para. 8. "I "would propose that the Railway Company should simply place the empty waggons in their own "siding," i. e. immediately at the point of junction of the proposed branch line with the main line, and "when loaded take them from the siding to their destination leaving the merchants to

honor to annex copies of letters from the Chief Engineer of this Company No. 159 dated the 5th of August 1857, from the Traffic Manager No. 57 dated the 7th of August, and from the Locomotive Superintendent No. 120 of the same date, in which each Officer expresses his respective opinion upon the subject matter adverted to in your communication.

2. The plan proposed for connecting the Salt Cotaurs with the main line, the Chief Engineer observes, is nearly identical with that submitted with my letter No. 490 dated 17th June 1857, and the arrangements proposed appear to be fair and acceptable.

3. With reference to the weight of rail, opinions are in favor of the use of that of 64 lbs.

4. In regard to the mode of working the line, much, as the Traffic Manager states, will depend upon the amount of traffic; I beg to suggest that that point be left to the judgment of the Officers of the Company, but that the construction should be sufficiently substantial to admit of the working of a locomotive upon the line at any time if considered necessary.

5. In respect to the suggession conveyed in the 11th paragraph of Colonel Faber's letter, that the work be executed by this Company, I beg to state that there does not appear to be any objection thereto; and that permanent way materials and other appliances can be provided by this Company and charged to the Government for their portion of the branch line.

6. The plans sent with your letter are herewith returned.

Submitted (with observations) for the orders of Government.

Madras,
14th September 1857.

(Signed) T. T. PEARS,
Consulting Engineer for Railways.

Letter from J. M. HEPPEL, Esq., Chief Engineer; to Major T. A. JENKINS, Agent and Manager, Madras Railway, dated 5th August 1857, No. 159.

SIR,

Yours No. 688 August 3rd forwarding letter of Consulting Engineer No. 692 August 1st with enclosure letter of Chief Engineer D. P. W. to Acting Secretary of Government No. 1863, July 8th.

2. The plan proposed is as you observe nearly identical with that proposed some time ago by the Railway Company's Officers, and looking at it in its general features and without regarding details which may require modifications I may say that in my opinion it is desirable that it should be carried into effect and that the arrangement proposed for that purpose appears to be fair and acceptable.

3. With reference to the weight of rail to be used it appears that the Chief Engineer D. P. W. has made three estimates. One for 64 lb. rail throughout, another for a lighter rail throughout, and a third with a 64 lb. rail to the Cotaurs and a lighter rail for the service roads in the Cotaurs themselves, of these plans I should decidedly prefer the third, supposing the Government to have lighter rails at their disposal, but if they wish the Railway Company to supply the rails, it will not be possible to furnish any others than the 64 lbs. It might however be arranged to take back the heavy rails at a valuation whenever the Government should be disposed to lay lighter ones in their place.

4. Siding for empty waggons should I think be on the branch line A. B.* and not in the main line A. Q. where it would be less convenient. As for as this siding extends the rails of the branch line should be kept to the same level as those of the main line. The descending gradient might then commence.

* No plan referred to in letter of Chief Engineer, D. P. W.

5. The mode of working the branch line contemplated by this arragement is that the empty waggons should be run by the Railway Company on to the siding at A. B. they should then

be taken down to the Cotaurs filled and brought back on to the main line at A. B. by the parties sending the goods, where there they would be picked up by the Goods Train.

6. The siding at 55 would not be required in this manner of working as far as the Railway Company are concerned, and if required at all would be for the internal arrangements of the Cotaurs, at a future period if the trade should develope itself to an extent to justify the employment of a locomotive on the branch line, a siding in this position would become necessary to the Railway Company.

7. I take it therefore that in carrying out the work the proper arrangement would be that the Railway Company should construct all the works within their boundary as well as any additional breadth of earthwork that may be required for the siding at A. B. which siding they should lay in and should any further works be found necessary within their boundary, they should do them, that the Government should do and maintain all works other than the above for bringing the Salt Cotaurs into communication with the line, but that if amongst these they should find it necessary to make a siding at S S, the Railway Company should take to it and reimburse them for it, whenever the trade should be sufficiently great to occupy a locomotive on the branch line.

8. With reference to the suggestion in the Chief Engineer's Department Public Works letter, that the Railway Company should construct the works for the Government, I have only to say that I can see no objection to their doing so, should the conditions which may be proposed appear on consideration acceptable.

9. I return herewith two plans and the printed letter of the Engineer Department Public Works.

Letter from H. A. FLETCHER, Esq., Traffic Manager; to Major T. A. JENKINS, Agent and Manager, dated 7th August 1857, No. 57.

SIR,

From Consulting Engineer No. 692, 1st August. From Chief Engineer D. P. W., 8th July 1857, No. 1863.

I have the honor to acknowledge the receipt of your letter, No. 113 of the 3rd Instant; enclosing correspondence as per margin and plans of the proposed arrangements for connecting the Railway with the Salt Cotaurs at the bridge over the Canal near to the Madras Terminus.

2. I beg to inform you that I have had an interview with the Chief Engineer, and concur with him that the plan proposed will meet the requirements of the case. The plan is, as you observe, identical with that suggested by my letter No. 16 of 27th February, and I would strongly urge the necessity for the work being proceeded with at the earliest possible period.

3. I would suggest that the 64 lbs. rail should be used throughout as it would be found inconvenient to establish a point up to which a locomotive could work and no further. I do not anticipate that the traffic in Salt will reach a point at present to justify a locomotive Engine being specially run for haulage on the branch line, but it is probable that in the event of there being a sufficient number of waggons to form a Train, that an engine may frequently be despatched to take them direct from the Cotaurs to their destination, in which case it would be desirable that the branch line should be so laid down as to permit an Engine running to its full extent over it. I think the saving to be effected by laying down a light rail through the Cotaurs as they at present stand would not be equivalent to the inconvenience whenever a locomotive may be brought into requisition.

4. I would beg to bring to your notice that it is exceedingly probable that the Cotaurs will eventually extend all along the Canal side up to the Canal bridge, and that the branch line should be so constructed as to admit of this being done without incurring any expense for the alteration of line to meet such an arrangement.

5. At present the haulage upon the branch line could be most economically performed by bullocks or coolies, and as I suggested in my letter No. 16 of 27th February, para. 8. "I "would propose that the Railway Company should simply place the empty waggons in their own "siding," i. e. immediately at the point of junction of the proposed branch line with the main line, and "when loaded take them from the siding to their destination leaving the merchants to

honor to annex copies of letters from the Chief Engineer of this Company No. 159 dated the 5th of August 1857, from the Traffic Manager No. 57 dated the 7th of August, and from the Locomotive Superintendent No. 120 of the same date, in which each Officer expresses his respective opinion upon the subject matter adverted to in your communication.

2. The plan proposed for connecting the Salt Cotaurs with the main line, the Chief Engineer observes, is nearly identical with that submitted with my letter No. 490 dated 17th June 1857, and the arrangements proposed appear to be fair and acceptable.

3. With reference to the weight of rail, opinions are in favor of the use of that of 64 lbs.

4. In regard to the mode of working the line, much, as the Traffic Manager states, will depend upon the amount of traffic; I beg to suggest that that point be left to the judgment of the Officers of the Company, but that the construction should be sufficiently substantial to admit of the working of a locomotive upon the line at any time if considered necessary.

5. In respect to the suggession conveyed in the 11th paragraph of Colonel Faber's letter, that the work be executed by this Company, I beg to state that there does not appear to be any objection thereto; and that permanent way materials and other appliances can be provided by this Company and charged to the Government for their portion of the branch line.

6. The plans sent with your letter are herewith returned.

Submitted (with observations) for the orders of Government.

Madras,
14th September 1857.

(Signed) T. T. PEARS,
Consulting Engineer for Railways.

Letter from J. M. HEPPEL, Esq., Chief Engineer; to Major T. A. JENKINS, Agent and Manager, Madras Railway, dated 5th August 1857, No. 159.

SIR,

Yours No. 688 August 3rd forwarding letter of Consulting Engineer No. 692 August 1st with enclosure letter of Chief Engineer D. P. W. to Acting Secretary of Government No. 1863, July 8th.

2. The plan proposed is as you observe nearly identical with that proposed some time ago by the Railway Company's Officers, and looking at it in its general features and without regarding details which may require modifications I may say that in my opinion it is desirable that it should be carried into effect and that the arrangement proposed for that purpose appears to be fair and acceptable.

3. With reference to the weight of rail to be used it appears that the Chief Engineer D. P. W. has made three estimates. One for 64 lb. rail throughout, another for a lighter rail throughout, and a third with a 64 lb. rail to the Cotaurs and a lighter rail for the service roads in the Cotaurs themselves, of these plans I should decidedly prefer the third, supposing the Government to have lighter rails at their disposal, but if they wish the Railway Company to supply the rails, it will not be possible to furnish any others than the 64 lbs. It might however be arranged to take back the heavy rails at a valuation whenever the Government should be disposed to lay lighter ones in their place.

4. Siding for empty waggons should I think be on the branch line A. B.* and not in the main line A. Q. where it would be less convenient. As for as this siding extends the rails of the branch line should be kept to the same level as those of the main line. The descending gradient might then commence.

* No plan referred to in letter of Chief Engineer, D. P. W.

5. The mode of working the branch line contemplated by this arragement is that the empty waggons should be run by the Railway Company on to the siding at A. B. they should then

be taken down to the Cotaurs filled and brought back on to the main line at A. B. by the parties sending the goods, where there they would be picked up by the Goods Train.

6. The siding at 55 would not be required in this manner of working as far as the Railway Company are concerned, and if required at all would be for the internal arrangements of the Cotaurs, at a future period if the trade should develope itself to an extent to justify the employment of a locomotive on the branch line, a siding in this position would become necessary to the Railway Company.

7. I take it therefore that in carrying out the work the proper arrangement would be that the Railway Company should construct all the works within their boundary as well as any additional breadth of earthwork that may be required for the siding at A. B. which siding they should lay in and should any further works be found necessary within their boundary, they should do them, that the Government should do and maintain all works other than the above for bringing the Salt Cotaurs into communication with the line, but that if amongst these they should find it necessary to make a siding at S S, the Railway Company should take to it and reimburse them for it, whenever the trade should be sufficiently great to occupy a locomotive on the branch line.

8. With reference to the suggestion in the Chief Engineer's Department Public Works letter, that the Railway Company should construct the works for the Government, I have only to say that I can see no objection to their doing so, should the conditions which may be proposed appear on consideration acceptable.

9. I return herewith two plans and the printed letter of the Engineer Department Public Works.

Letter from H. A. FLETCHER, Esq., Traffic Manager; to Major T. A. JENKINS, Agent and Manager, dated 7th August 1857, No. 57.

SIR,

From Consulting Engineer No. 692, 1st August. From Chief Engineer D. P. W., 8th July 1857, No. 1863.

I have the honor to acknowledge the receipt of your letter, No. 113 of the 3rd Instant; enclosing correspondence as per margin and plans of the proposed arrangements for connecting the Railway with the Salt Cotaurs at the bridge over the Canal near to the Madras Terminus.

2. I beg to inform you that I have had an interview with the Chief Engineer, and concur with him that the plan proposed will meet the requirements of the case. The plan is, as you observe, identical with that suggested by my letter No. 16 of 27th February, and I would strongly urge the necessity for the work being proceeded with at the earliest possible period.

3. I would suggest that the 64 lbs. rail should be used throughout as it would be found inconvenient to establish a point up to which a locomotive could work and no further. I do not anticipate that the traffic in Salt will reach a point at present to justify a locomotive Engine being specially run for haulage on the branch line, but it is probable that in the event of there being a sufficient number of waggons to form a Train, that an engine may frequently be despatched to take them direct from the Cotaurs to their destination, in which case it would be desirable that the branch line should be so laid down as to permit an Engine running to its full extent over it. I think the saving to be effected by laying down a light rail through the Cotaurs as they at present stand would not be equivalent to the inconvenience whenever a locomotive may be brought into requisition.

4. I would beg to bring to your notice that it is exceedingly probable that the Cotaurs will eventually extend all along the Canal side up to the Canal bridge, and that the branch line should be so constructed as to admit of this being done without incurring any expense for the alteration of line to meet such an arrangement.

5. At present the haulage upon the branch line could be most economically performed by bullocks or coolies, and as I suggested in my letter No. 16 of 27th February, para. 8. "I "would propose that the Railway Company should simply place the empty waggons in their own "siding," i. e. immediately at the point of junction of the proposed branch line with the main line, and "when loaded take them from the siding to their destination leaving the merchants to

" haul the waggon to the heaps of Salt allotted to him by the Superintendent of the Salt Co-
" taurs, load the Salt and bring the waggon back loaded, and leave it upon the siding" ready to be attached to the Goods Train.

6. It should be borne in mind that under different circumstances a different mode of working the branch line would be desirable if the traffic is small as at present; the bullocks and coolies would be found to be the more economical, but if the trade should increase as I have no doubt it will, it would then be found most advantageous to use a locomotive upon the branch line, but in this case the Engine would take the wagons from the Cotaurs to their destination direct, and not be employed to haul those from the heaps of Salt to the point of junction, on the main line only. I think that would never be found under any circumstance an economical mode of working. I trust however that such a matter will be left to the discretion of the Officers of the Company as they alone can say from day to day what will be the best way of dealing with the subject.

Letter from Mr. W. B. WRIGHT, Locomotive Superintendent; to T. A. JENKINS, Agent and Manager of the Madras Railway Company, dated 7th August 1857.

DEAR SIR,

With reference to the printed letter from the Chief Engineer D. P. W., to H. Forbes, Esq., Acting Secretary to Government, I beg to observe that I do not understand from what data that Officer deduces his Estimate of the cost per ton per mile moved on the branch line at the proposed Salt Cotaurs by Locomotive power.

2. To keep a Locomotive there for the special purpose of leading or Shunting Trucks would be undoubtedly much more costly than the performance of that work by manual labor, unless the amount of work to be done was very great, say at least 1,000 tons of Salt per diem.

3. I would however certainly advocate the laying of the line to the Cotaurs with Rails strong enough to carry Locomotives, as the loaded Trucks might be found in a row close to the Salt Cotaurs and the engine might be detached from the Train on the main line and run in and bring out the Trucks which would save the labor of pushing the Trucks by hand from the Salt Cotaur end of the siding to the junction of the branch with the main line.

Letter from Lieutenant Colonel T. T. PEARS, C. B. Consulting Engineer for Railways; to Major T. A. JENKINS, Agent and Manager of the Madras Railway Company, dated 13th August 1857, No. 725.

SIR,

I have the honor, by order, to request you will explain for the information of Government, whether by the " arrangements proposed" spoken of in the 2nd para. of your letter, No. 644, of the 11th Instant, you refer to your Chief Engineer's proposal regarding the share in the cost of construction to be borne by the Government and the Railway Company, and whether you concur in the suggestion contained in the 7th para. of Mr. Heppel's letter.

2. I shall feel obliged by an early reply.

Letter from Lieutenant Colonel T. T. PEARS, C. B. Consulting Engineer for Railways; to Major T. A. JENKINS Agent and Manager of the Madras Railway Company, dated 13th August 1857, No. 725.

SIR,

In your letter, No. 644, of the 11th Instant, para. 4, you suggest in regard to the working the line, i. e. the proposed branch to the Salt Cotaurs, that that point be left to the judgment of the Officers of the Company, &c.

2. You will observe, however, that your Chief Engineer proposes, that with the exception of that portion which lies within the Railway boundary, the Government should construct and maintain all works for bringing the Salt Cotaurs into communication with the line, and it does not appear clear whether, in speaking of working the line, you refer to that portion only which will be the property of your Company, or to the whole branch.

3. To enable the Government to determine upon the propriety of expending so large a sum, with a view of bringing the Salt to your line, it is desirable that they should have all possible information as to the cost and manner of working the branch, and the probable effect thereof in the consumption of Salt. Without therefore requiring from you any decided opinion now as to the " mode of working the line," the Government would wish to be informed from what point, assuming the arrangement contained in the 7th para. of Mr. Heppel's letter to be adopted, you think your Company would undertake to move the Salt under what terms and conditions, with reference to the mileage rate for the commodity established at the time being.

4. As an illustration of my meaning it may be observed, that with such a branch laid down it might be desirable and convenient for your Company to undertake to provide moving power

from a siding at, or close to, the Salt Cotaurs, where at the Salt Department would undertake to place or load the waggons.

5. Should this plan be adopted, it would be for you to arrange to move the loaded waggons by whatever means appeared most convenient on to the main line; but it should be distinctly understood that a single waggon stood ready with a certain minimum load at a given time, the load being booked and paid for, you would be prepared to attach it to the ordinary Goods Train; and also what amount of load would suffice to justify the employment of a special Engine.

6. It would probably be better, for all parties, that the Government should have nothing to do with the movement of the Salt when once loaded on Railway waggons.

7. Should you propose thus to work the entire branch, there would be no question of course about your waggons being employed upon it down to the Cotaurs themselves.

8. I request I may be favored with an early reply.

Letter from Major T. A. JENKINS, Agent and Manager; to Lieutenant Colonel T. T. PEARS, C. B. Consulting Engineer for Railways, dated 21st August 1857, No. 670.

SIR,

I have the honor to acknowledge the receipt of your letter No. 723, dated the 13th of August, and to acquaint you that the recommendation set forth by Mr. Hepple in the 7th paragraph of his letter* to the effect that the Railway Company should construct all the works within their boundary, together with such additional width of earth work for the siding adverted to, and that the Government should maintain all works other than the above for bringing the Salt Cotaurs into communication with the line &c. is, in my opinion fair and equitable, and that I concur in the sentiments therein expressed.

* No. 159, dated 15th August 1857.

Submitted (with observations) for the orders of Government.

Madras, 14th September 1857.

(Signed) T. T. PEARS,
Consulting Engineer for Railways.

Letter from Major T. A. JENKINS, Agent and Manager; to Lieutenant Colonel T. T. PEARS, C. B. Consulting Engineer for Railways, dated 2nd September 1857, No. 698.

SIR,

With reference to your letter No. 725, dated the 13th of August, I have the honor to annex a report from the Traffic Manager upon the mode of working the branch line between the Salt Cotaurs and the main line as therein requested.

Submitted (with observations) for the orders of Government.

Madras, 14th September 1857.

(Signed) T. T. PEARS,
Consulting Engineer for Railways.

Letter from H. A. FLETCHER, Esq., Traffic Manager; to Major T. A. JENKINS, Agent and Manager, dated 22nd August 1857, No. 59.

SIR,

1. Referring to the letter No. 725 from the Consulting Engineer on the subject of the mode of working the proposed branch line and siding connecting the Salt Cotaurs with the Railway, I have the honor to observe that experience will, in my opinion, suggest the best method to be adopted as the trade becomes developed upon the line or diverted from the road to the Railway.

2. In my previous communications upon this subject, I have considered only one mode of working the branch line as it occurred to me that such would be the most simple, viz. " that the " Railway Company should place the empty waggons in their own siding" (i. e. upon their own land) " and when loaded take them from the siding to their destination, leaving the merchant to " haul the waggons to the heaps of Salt allotted to him by the Salt Cotaurs, load the Salt, and " bring the waggon back loaded and leave it upon the siding."

3. A very large trade is conducted upon this principle at Southampton from the wharves upon the river Itcher, and I see no reason why it should not succeed here; and without venturing to express a decided opinion that this method would be the best at all times, I may say that it would be the best, in my opinion, at the commencement.

4. Referring to para. 2 of the Consulting Engineer's letter No. 725, I beg to remark that, in my previous letter, I referred to the working of the branch line from the Cotaurs to the junction at the Railway bridge, and that my proposal amounted to this, that the merchants should

load the Salt into the Railway waggons as they now do into the bandies, and that they should perform the haulage upon so much of the line as was constructed by Government, or, in other words, to haul the waggons to and from a siding on the Railway Company's land. With regard to para. 3, I assume that the effect of the facilities afforded to the Salt trade by the construction of the branch line, will be to increase the consumption, but to what extent may be fairly assumed to be a matter of opinion with no means of arriving at a positive conclusion; I should, however, imagine that there cannot exist a doubt that the increase in the consumption would justify the Government in incurring such an expence and permitting either the Railway Company or the merchants, as may hereafter be decided upon, to run waggons over the portion constructed by them free of charge, for although the branch line would undoubtedly bring Salt to our line, it may fairly be assumed that the Government must feel a greater interest in the increase in consumption of Salt than any carrier is supposed to do, the profits or income derivable by the Government and carrier respectively being so disproportionate.

5. I have already said that I think the most desirable point to and from which we should haul our waggons would be to and from our own siding proper at the Canal bridge as a rule, leaving the merchant to haul over the branch line to be constructed by Government, and in that case I apprehend that our Railway charge should be made upon the principle already in force upon the line, viz. a mileage rate; but if we undertook the haulage upon the branch line to the Salt Cotaurs whether by Bullocks, Coolies, or Locomotive Engine, I apprehend that an increased charge should be made.

6. Suppose that Bullocks or Coolies were the motive power used, probably a charge of 4 annas per ton would suffice to cover the expense of parties moving waggons at the Salt Cotaurs, hauling the Engines from, and bringing the loaded waggons back to the Railway. If a Locomotive were used, probably the additional rate for the increased distance would be the only charge we could make, but this should depend upon the rule we were required to do, as for instance whether we loaded the Salt in the Railway waggons or not.

7. Referring to para. 4, I apprehend the Salt Department of Government would not be desirous of undertaking to load the waggons, and that they would require either the merchant or the carrier to perform this work as at present.

8. Referring to para. 5, I think that probably it would be desirable to lay it down as a rule that the Train Engine should haul from the Cotaurs a quantity of Salt of not less than a heap or 45 tons, any less quantity being hauled by the merchants to the junction at the Canal bridge.

9. Referring to para. 6, I think it would be very desirable "that the Government should "have nothing to do with the movement of the Salt when once loaded on Railway waggons."

10. Referring to para. 7, I do not understand the meaning of this para. If the Railway waggons were not employed upon the branch line down to the Cotaurs themselves, I imagine it would not be necessary to construct the branch line at all.

11. I would beg to observe that I think the following principle should be kept in view relative to the construction, maintenance, and working of the branch line.

First. That considering the interest which Government has in the developement of the Salt Traffic, that they should be pleased to construct the line and maintain it in good working order at their own cost.

Second. That they should permit the line so constructed to be worked free either by the merchants or the carrier, if by the carrier upon a principle hereafter to be submitted to Government for sanction.

Third. That the Government, the merchant, and the Railway Company, being interested more or less in the developement of the Salt Trade, should adopt such means in working the branch line as shall increase its cost as little as possible to the consumer.

Letter from Lieutenant Colonel T. T. PEARS, Consulting Engineer for Railways; to Major T. A. JENKINS, Agent and Manager of the Madras Railway Company, dated 3rd July 1856, No. 341.

SIR,

Government having had under their consideration the expediency of facilitating as much as possible the export of Salt from Madras by Railway, are desirous of being favored with your opinion upon a request which has been made for the construction of a branch line of Railway from some point or points on your line to the Madras Salt Cotaurs.

I shall feel obliged by your favoring me with your sentiments, as to the manner in which such a branch could be most conveniently laid down, so as "to serve the purposes of the trade both to the interior and for exportation"—what would be the probable cost of such a work, and whether your Company would undertake the construction of it.

No. 25. ORDER THEREON, No. 2048; dated 3rd November 1857.

1. In Extract from the Minutes of Consultation of the 18th May last No. 953, the Government had under consideration two of four plans for connecting the Salt Cotaurs at Madras with the Railway; and for the reasons stated in para. 7, they rejected the plan which involved the construction of a new Platform, close to the point where the Railway passes over the Canal, with a siding from the rail, and expressed their entire concurrence in the preference given by the Chief Engineer and the Board of Revenue, to the plan of connecting the present Platform with the rail by a short branch line. The Consulting Engineer for Railways was accordingly requested to report the share of the expense of the branch line which should be borne by the Railway Company, and the Chief Engineer was instructed to cause careful estimates to be prepared of the cost of constructing the line.

2. In obedience to this requisition, the Chief Engineer submitted the following estimates of the probable cost of constructing a branch line of Railway from the limits of the ground belonging to the Railway Company to the Madras Salt Cotaurs, and extending it afterwards through the Cotaurs to a point on the main road, leading from the Elephant Gateway; viz.

	Rs.
1st. For a branch line with heavy rails throughout	54,400
2nd. For a do. do. with light do.	43,760
3rd. For a do. do. with heavy rails to the commencement of the Cotaurs, on which locomotives might be run, and lighter rails throughout the Cotaurs, on which trucks might be moved by men.....	49,300

The Chief Engineer, after discussing the cost of working the traffic by means of heavy rails and a locomotive, compared with that by means of a light rail, the waggon being propelled by manual labor, expressed a preference in favor of the heavier rail, as being the most convenient and best suited upon a consideration of all circumstances; and the Government, considering the question of the weight of rails, to depend on the view taken by the Railway Company respecting the use of locomotive engines, requested* Colonel Pears, after communicating with the Railway authorities, to advise Government on the whole matter, and to report at the same time, as requested in a previous order, on the share of the cost of constructing the branch rail that should be borne by the Railway Company. The paper from Colonel Pears, above recorded, transmits a correspondence with the Railway authorities, and conveys his opinion on the two points referred for his report.

* E. M. C. 30th July 1857, No. 1479.

3. Before proceeding to record their views on these points, the Government regret to have to remark that the Railway authorities appear to have taken little trouble to consider the project under discussion. In para. 28 of his observations, Colonel Pears represents the Railway Agent, and apparently with justice, as showing "a singular misapprehension of the whole business;" and in para. 33, he shows that the result of the Traffic Manager's proposal would be that,

while the Railway waggons were certainly to be made use of, neither the Railway Company nor the Government were to have any thing to do with hauling them from the Cotaurs to the main line. This, it appears, was to be left wholly to the traders, on whom was to devolve the expense of moving waggons carrying from 6 to 7 tons, and in themselves weighing† at least 5½ tons each.

† Para. 42.

4. In reply therefore to the first point referred for his report, Colonel Pears states‡ that if the Railway Company, who alone can do so, will not work the branch line with locomotive engines, the permanent way should not be constructed with reference to that mode of working, and to the use of the large heavy waggons, whose employment can only be economical or advantageous, when associated with steam power and comparatively high speed. He is of opinion that, if Salt Depots were established by Government along the line of Railway, in which case none but large loads would be despatched from the Cotaurs, the branch should be made a first class rail; but as the Government have already decided against such a measure, he proceeds to show that the effect of laying a heavy broad guage line on the proposed branch, in the present state of the salt traffic, would be to establish a monopoly in the hands of a few capitalists, which would prove highly injurious both to the people and to the Government revenue. This view of the question is stated and discussed by Colonel Pears in para. 38 to 44 of his report, and the objection which may be alleged against it, on the part of a capitalist, is anticipated and met in paras. 50 and 51.

‡ Para. 34.

5. On the foregoing considerations, Colonel Pears recommends¶ that the Cotaurs should be furnished with lines of light rails of four feet guage, and that a double line of the same should be laid on the branch to the Railway siding, whence the transfer from the light trucks, or waggons, to the Railway waggons would be made. He further recommends‖ that the branch line up to the formation level should be proceeded with, as proposed by the Chief Engineer in the Department of Public Works, at once, and only suggest that it be carried to a point somewhat further west on the main line, thus reducing the height of bank at the station, decreasing the curve, and improving the gradient at the same time. He also recommends that, in the event of Government approving the light rail and narrow guage, while the salt traffic is carried on as at present, the portion of the work which belongs to Government should be done by the Public Works Department, and not by the Railway Officers.

¶ Para. 45.

‖ Para. 52.

6. In para. 39 of Colonel Pears' report it is stated that, even if circumstances should induce the Railway authorities to place their engines on the branch line, the traffic Manager thinks that 45 tons should be the minimum load for which they would send an engine. The Government are of opinion that any arrangement which fixes the minimum quantity of salt to be moved from the Cotaurs to the main line, in effect decides the class of people who are to be admitted to the trade. If the minimum be so high that cattle, or a number of coolies, can alone move the load, those only can trade who have capital sufficient to purchase a large quantity of salt; if it be fixed so low that each man can wheel away his own purchase, all now trading may continue to trade, and competition will keep down price.

7. It may probably be urged as an argument against this plan, by those who are interested in keeping out the petty trader, and retaining the monopoly in their own hands, that the use of the small sized waggon would involve the removal of the salt from it to the Railway waggon, when the main line is reached. But this objection is not real; for even supposing that heavy rails, with a broad guage, were laid from the main line *to* the Cotaurs, it is impossible that the system should be carried out *in* and through the Cotaurs; the turn tables, and the rails themselves, would occupy far too much space, and would destroy a great part of the salt platform. These minor works must therefore be on a small scale, and it will signify, nothing to the trader, whether the removal of his salt from the smaller to the larger waggon, is made at the Cotaur, or at the Railway; there must be a removal in both cases, and there will be but one in either.

8. It has been understood from Colonel Pears that, in his opinion, a waggon measuring 9×5×2 feet, will be the most convenient maximum size. It will hold half a garce of salt, or 2¼ tons, and by raising the sides with planks made to fit, may be made to contain more. An ordinary cart load is half a ton, and the proposed waggon would therefore contain as much as from five to seven cart loads. Although the turn tables, within the Cotaurs, made to suit these waggons, would not suit any of a larger size, they would perfectly well suit those of a smaller size; and waggons might be made of a size to hold the smallest quantity of salt sold at the Cotaurs and of sizes intermediate between them, and that which is above given as the maximum, so that all classes might be served.

9. The Government are of opinion that it is of great importance to the people that the trade in salt should be in many hands, and that no plan should be adopted which may have the effect of confining the trade to capitalists; for although more than one of this class may hereafter engage in the trade, they will combine to keep up prices, and the community must suffer in consequence.

10. With regard to the question of the share of the expense of the branch line to be borne by the Railway Company, it appears from para. 35 of Colonel Pears' report, that that Company will undertake only the execution of that portion which lies within the limits of their ground, and which is stated to be little more than the siding, A. Q. in the plan submitted by the Chief Engineer. The Government however presume that this includes also the expence of constructing the portion of the rail A. B. which will pass through those limits; and on this understanding, they will not object to the arrangement.

11. The Government have very carefully considered the question as to the weight of rails to be laid down, and they are of opinion that, in the existing state of the salt trade, and to guard against its becoming a monopoly in the hands of one or two capitalists, the best plan to be pursued would be that advocated by the Consulting Engineer for Railways. They accordingly approve of the recommendation of Colonel Pears that, for the present, the Salt Cotaurs should be furnished with a double line of light rails of four feet guage, to be laid on the branch to the

Railway siding. In para. 54, Colonel Pears refers to the estimate submitted by Colonel Faber, amounting to Rupees 43,760, for a branch line from the point B. to, and through the Cotaurs, with a light rail weighing 36lbs. to the yard but with a broad guage; and he states that, to make the line double with a narrow guage, the same width of bank would probably suffice, and that the additional cost would be merely the cost of the second line of rails or about 25,000 Rupees. As the Government consider it advisable, as suggested by Colonel Pears, that the portion of the work which belongs to Government should be executed by the Public Works Department, the Chief Engineer is requested to state whether the entire line, from B to Z can be executed in the manner proposed by Colonel Pears, at the expense above calculated by him, and to submit a fresh estimate for the work, in view to its entry in the Budget.

12. In para. 48 Colonel Pears refers to another point, connected with the communication between the Salt Stores and the Railway, which appears to Government to be of considerable importance, and that is, the establishment of a good's station at the junction of the branch and the main line. This measure seems very necessary to ensure the petty trader from loss by delays and absolutely to prevent the Railway Officer from serving the interests of any particular party and throwing such obstacles in the way of others, as shall virtually exclude them from the trade. If there is a station and a booking office, every man will be able to bring up his salt, whether the quantity be large or small, to book it, and ensure its despatch by the next goods train; all will be on the same footing, and no favor can be shown. But if a station be not established the Railway Officers may refuse to halt the train at the junction, and may at all times decline to receive at that place, the salt of any one but such as they please to oblige and may insist on all others taking their salt to Royapoorum, and thus entail on them the loss of the whole advantage of the branch line to the Cotaurs. For these reasons, the Government are of opinion that a good's station should be erected at the point indicated by Colonel Pears, and they accordingly resolve to communicate this para. to the Financial Railway Department, whence orders on the subject will be issued.

13. Colonel Pears suggests in para. 46, that the branch line from the Cotaurs should be connected with the Canal by sidings, of the same light narrow guage, leading down to the bank. He thinks it highly probable that if this were done, there would be an interchange of miscellaneous goods, in addition to the salt; and that it would afford no small convenience to traffic, as well as to passengers between Pulicat and its neighbourhood on the north of the Railway and (when the Coast Canal is completed) the towns in the neighbourhood of the canal on the south, and Vellore, Bangalore, &c. The suggestion seems judicious, and the expense attending it would be small. It may however be advisable that the trade on the Southern canal should be somewhat developed, and the junction through Madras formed, before the work is actually undertaken, but the Government resolve, in the mean time, to refer the project to the Chief Engineer for report and estimate.

(Signed) H. FORBES,

Acting Secretary to Government.

of the Roads, and for suitable the Railway wagons,
and if so whether there is any objection to this
being done, and should there be no necessity
for the salt being taken passed the Railroad to the
present Salt Godowns, it is probable that Convenient
Arrangement can be made for Sidings and Platforms
at a moderate expense near to the Canal Bridge.
May I request that you will have the goodness
to favor me with your opinion upon these points.
I have the honor to be,
Sir,
Your most Obedient Servant
A. Fenton
Agent & Manager

Encl. 1 Ltr.

Submitted (with Observations)
for the orders of Government
Madras
11th Sept 1873
J. T. Pringle
(Executive Engineer
for Railways
To
The Acting Chief Secy to Govt
Fort St George

PUBLIC WORKS DEPARTMENT

Railway Depart.

Engineering Engineers Office

No 1246.

To

The Agent and Manager of the
Madras Railway Company.

Sir.

Have the honor to request that you
will be so early as possible favor me
with a letter, of the 25th August 1856
stating whether a proposition to excavate a
tank for the Railway Company, at the
Cannamalai Hill, would be agreeable
to the directors of the Railway Company
and if so, what would be the probable
cost of the excavation, and whether the
Company would be prepared to enter
into a contract for the same.

2. In a late letter from Lord Elphinstone
Governor of Madras, he requested that
I would consult the Agent of the Madras
Railway Company, and the Collector of
Chingleput, on the subject of the
Cannamalai Hill, and report to his
Lordship, whether the Hill could be
cut down, so as to form an embankment
for the Railway, and if so, what would
be the probable cost of the work.

Road.

3. The Nawab of Carnatic has also
proposed to make a tank on the
Cannamalai Hill, and has requested
that I would arrange for the Railway
Company to excavate the tank, and
to form the embankment, on the
Railway side of the tank, and
to allow him the right to make
use of the earth, which may be
excavated from the tank, for the
purpose of forming the embankment
on the opposite side of the tank.

I have &c

(Signed) C. Pasley Lieut. Colonel
Chief Engineer.

Madras Railway

From

The Agent and Manager

To

The Consulting Engineer

Date 15th Augt. 1856.

Rec. 16 Augt.

No 537.

Stating that it is probable that convenient arrangements can be made for the construction of a branch Line of Railway for the transport of Salt.

R.R./57-8.

R. 20.5.56.

be fully discussed and determined, as I apprehend some time in the Execution, and I have been directed, therefore, to request your opinion as to the practicability and Expediency of adopting one plan at once, similar to that above referred to, for the attainment of this desirable object.

4. It seems highly probable that if it were notified to the public, that Salt would be loaded from boats at the bridge that if above a certain quantity, I say a wagon load of 160 maunds or whatever that may be it would be lifted and carried in bulk, that the facility, thus offered for loading & taken with the present moderate rate of charge for transit by rail, would rapidly lead the whole of the trade in that direction now to your line.—

Madras
18th Decr 56

I have the honor &c
(Sd) J. J. Pears
Consulting Engineer
for Railways

(True Copy) for Railways

W. Rees
Comptr. & Paymaster Cons. Engr. for Railways

2 75

No 50.

Madras Railways
Madras 20th January 1857
No 57

From
Major T. A. Watkins
Agent and Manager

To
Lieut Col. J. J. Pears C.E.
Consulting Engineer for Railways &c &c

Sir,

In adverting to your letter No 1715 dated the 18th of December, and letter No 38 dated the 10th of January, having reference to the proposal to erect a Crane as a temporary expedient at the Canal Bridge for the purpose of landing Salt & other Commodities from boats on to waggons standing at that place, I have the honor to state that the Traffic Manager has gone at some length into the subject connected with the best arrangement to be made to facilitate the conveyance of Salt by Railway, in his letter No 3 dated the 6th instant, a copy of which is annexed; and beg to state that I concur in the opinion therein set forth, that the best plan to be adopted is for a new platform to be constructed by the Canal side abutting on the Railway, and has also been recommended by the Collector of Madras in his letter dated the 5th September last to my address which is also annexed. You will perceive that the system of manufacture of Salt now existing will not permit of its being brought at all times when required into Madras, so that the Salt could be removed from the Boats direct into the Waggons; even were such the case, I consider it to be more economical and much more expeditious to remove the Salt from the boat to the waggon on the siding, by Cooly, or bags, than by Crane. I therefore beg to

I recommend that the Government may be pleased
to take into Consideration the plan herewith submitted.-

I have the honor to be
Sir
Your most Obedient Servant-
J. A. Hutchins
Agent and Manager

Ex. Mbrs

Submitted (with Observations) for
the orders of Government

Madras
1st Sept. 57

J. T. Pears
Consulting Engineer
for Railways

To
The Acting Chief Secy to Government
Fort St George

No. 3

M.R. Traffic Manager's Office
11th January 1857.

From
W. A. Hitchcock Esqr.
Traffic Manager

To
Major J. A. Hutchins
Agent and Manager
Madras Railway

Sir,

I have the honor to acknowledge the receipt of your letter No. 154. enclosing letter No. 745 from the Consulting Engineer dated 18th Ultimo, regarding the transmission of Salt by Railway.-

2. I think it desirable to state what the practice is, as I am informed with reference to the Salt trade on the part of Government.-

3. Salt is made or gathered at Ennore and other points to the North, and is delivered by the different Salt makers or Contractors at the Central depot known as the Salt Colaurs. Salt is not sold at any of the points where it is made, or on the line of the Canal, or any other place except the Salt Colaurs, and I am informed that it is illegal for Salt to be sold from any other place in this District than the one named.-

4. It would be understood that Salt is not taken into stock by Government until it has been landed, heaped and measured, at the Colaurs - each heap is made to contain 10 Garces of Salt weighing about 45 Tons each; the heaps of Salt are, I am told, numbered and sold in date order. That is, the oldest Salt is sold first and there is generally about one year's stock on hand.-

5. Under existing orders of Government, Salt

Cannot

cannot be landed from Boats at the Canal bridge, and transferred to the Railway Waggons, and Salt can only be taken, whether to be transmitted by Railway or Road, from the Salt Colauns.-

6. Colonel Pears has suggested in his letter No 421. dated 25th August para 4. that, as a temporary Expedient, a Crane can be erected for raising the Salt out of Boats into Waggons placed on a siding at the Canal bridge.-

7. Colonel Pears refers further to a Crane being erected in his letter No 705 of the 18th Ultimo and considers it (para 6) highly probable that if such plan were accepted and it were notified to the public that Salt must be loaded from Boats at the Bridge in bulk, that it would infallibly lead the whole of the Salt traffic to the Railway.-

8. I am of opinion that if arrangements can be made for storing or heaping Salt at the Canal bridge in the same way as is pursued at the Salt Colauns, that Colonel Pears' views must be fully realized, and that the whole of the Salt now passing along the Western Road must be transferred to the Railway; it is therefore in my opinion of the greatest possible importance to this Company that Government should be solicited to allow Salt to be stored at that point for transmission by Railway.-

9. With reference to the conveyance of Salt by boats from the present Colauns to the Canal Bridge there to be loaded from the Boats into the Railway Waggons whether by Crane or other means, I am of opinion that it would not meet the requirements of the Trade, and would in fact offer little, if any advantage over the best system that can be pursued in Carting to Royapooram.-

10. I have been over the ground, and I have considered the Plan proposed by Colonel Pears, as well as a Plan which suggested itself to me, of a siding being placed at

at the level crossing nearest to the Colauns, in the latter case conveying the Salt by Bandies instead of by Boats on the Canal but neither plan is in adequate to the requirements of the Trade.-

11. If we consider that the distance is little more than 2½ miles from Royapooram to the Colauns, where we have every facility for loading and a regular Staff to conduct the business, and that it is a mile or more from the nearest point on the Railway to the Colauns, and that the same waiting for boats, loading and unloading whether by Boat or Bandy, must take place in one case as well as the other, and bearing in mind that it is the delay and cost of loading and unloading which constitutes the principal objection in the haulage, I think it must be evident that for such short distances there is no advantage in using the Canal Bridge, or a level crossing, where the saving is simply a mile and a half of haulage by Bandy to Royapooram.

12. If we consider that the point to be gained is reduced to a mile and a half of haulage by Bandy on the one hand, and that it would involve the erection of a Crane and other arrangements for Platform &c. the employment of a Staff, however small, together with the stoppage of the Trains having empty waggons and taking up full ones, that is twice a day, besides the increase of what the Company must incur as Carriers by loading such an Article and having it all night although watched, I consider the advantages far outweighed by the disadvantages.-

13. You will perceive that in my opinion nothing can be done to facilitate the Salt trade, until we can induce the Government to allow Salt to be unloaded at the Canal Bridge and stored as is done at the present Colauns; I cannot therefore too urgently press upon you the necessity of bringing this matter to the notice of Government.-

14. The Salt hitherto carried upon the Railway has been

Carted

carted to Royapooram on Gunny Bags. Adding the cost of handage, including loading into bags Coolies and stitching, is about 30 Rs. per heap of 10 Garce equivalent to about 6½ Tons or 10/8 per Ton, the cost of wear and tear upon Gunny bags it is stated, has cost the large sum of 30 Rs, making a total for handage and use of Bags of Rs 1-5-3 per Ton, equivalent to one half of the Railway rate from Madras to Arcot.-

15. I need scarcely observe that if salt had been landed to be at Salt at the Canal bridge that the 60 Rs. per heap or Rs 1-5-3 per Ton would have been nearly saved, I think that this, deducted from the price hitherto charged for salt at the Railway Stations at Broadwaters have had a material effect upon this branch of our traffic.-

16. In my letter No. 99. dated 22d May 1856, I referred, para 15, to 3 means by which the Salt traffic could be conducted from the Railway.-

First that the Railway Company could become dealers in the Article as well as Carriers.-

Second the Government could carry on the Trade as had been suggested they might do.-

Third that it could be conducted by private Enterprize.-

17. I can scarcely say that the only plan tried up to the present time has been the latter but Messrs Cammiade Martin and Co of this City have been the only people who have entered into the matter in any way.-

18. The quantity they have conveyed upon the Railway has been very trifling in comparison with the large quantities which have been daily conveyed upon the Road.-

19. Although private Enterprize has hitherto failed in procuring this important Traffic upon the Railway, it is but right to state that both the Government on the one hand, and the Railway Company on the other dealt with this Article on the

Railway

Railway under the same circumstances and with the disadvantages under which the Merchants have laboured and still labour, they could not have succeeded better; their want of success hitherto can be no test of the principle of leaving the development of the Salt Traffic to private Enterprize.-

20. I beg to observe that the cost of Boatage or Cartage from the Colaries to the Canal Bridge or Cartage to the Railway Terminus must constitute a serious disadvantage to the Railway in competing with the Road for the Salt Trade, in the latter case when once loaded into the Waggon no moving takes place, whilst under present circumstances it is twice when conveyed upon the Railway.-

21. I have the honor to enclose a Relief of the arrangements I would suggest at Cochrane's Canal for heaping Salt specially intended for transmission by Railway, should you approve of it, you can doubtless obtain an estimate of the Cost from the Chief Engineer. I have considered it with a view to economy.-

I have &c &c &c H W Hitchins
Superintendent Manager.-

Madras 6th September 1856.-

From

B. Cunliffe Esquire
Collector of Madras

To

Major T. A. Jenkins
Agent and Manager of the
Railway Company.-

Sir,

I had the honor to receive this morning your letter of the 2d Instant, requesting me to state if there is any objection to the plan proposed by the Chief Railway Engineer

Engineer, and concurred in by the Consulting Engineer and
Captain Collyer, of landing the Railway Trucks with Salt
direct from Vessels in the Canal, rather than joining the
Colaroe to the Railway by a branch line.-

The Salt when conveyed from the Pans to at
and beyond Ennore, by means of the Canal, to the plat-
form near the Elephant Gate at Madras, is in a perfectly
fit state for transport into the interior, indeed the Salt is
in better order at that period, as the Crystals are larger,
and have not been subjected to the processes of storage
and subsequent retail or wholesale.-

But the proposed plan will not answer
for this reason, it implies we spread it, that the Salt is
to be brought from the Pans by boat to the Railway
Canal Bridge <u>whenever required</u> for transit to the
interior. Our system of manufacture will not permit
of this. The Salt is made at and beyond Ennore during
the months from February to September, and when made,
there cannot the requirements of the Trade what may
not occur it off for many months after it has been received
into store. We cannot keep the Salt in passed at the Pans
as the being then unavoidable, we may consider whether
the Construction of a new platform by the Canal side,
abutting on the Railway, would be more economical than
the Junction of the present Colaroe with the Railway
by a branch line. I imagine that the latter would
be found infinitely, the less expensive plan.-

I have &c
(Sd) R. Cunliffe. Collector-

True Copies/

G. A. Stevens
Agent and Manager.-

Ex. Mr Bu

Madras Railway.

From

The Agent & Manager

To

The Consulting Engineer

Dated 20th Jany. 1857.
Recd 22nd " "

No 50.

F. R/57. D.

In No 561.

Transmits copies of communications from the Traffic Manager and Collector of Madras upon the subject of erecting a Crane at the Canal Bridge for lifting salt, and as to the best means of conveying that article by Railway.

sale of salt by the Canal side abutting on the railway-

3- There are some points noticed in these letters, in connexion with which I request that Government may be favored with further explanation-

4- In your letter you state that the proposal, viz^z, to construct a new salt platform near the Canal bridge has been recommended by the Collector of Madras in a letter × Sept^r 4^th copy of which you have forwarded, but on reference to that letter I find that Mr^r Cunliffe distinctly states his opinion that "the junction of the present Cotaurs with the Railway by a branch line would be found infinitely the less expensive plan".

5- You will observe that the permanent arrangements for the more convenient transfer of salt by rail, now under the consideration of Government, whether they involve the construction of a branch line, or the moving of the salt Cotaurs, will

will necessarily occupy some time, and in the mean time your waggons are running empty to Arcot, and the salt pumps by the high road- The plan of advance receiving salt at the Canal bridge, as I believe for your own works you now receive shells, was proposed as a temporary expedient, one which might be adopted in a few days-

6- In the 12^th para of Mr^r Fletcher's letter, that gentleman says that the point to be gained is reduced to a mile and a half of haulage by bandy- but this is not quite a correct view of the matter- According to the statement given in the preceding para of the same letter, one point to be gained would be the difference between the cost of 2½ miles carriage by Cart, and that of one mile by boat-

7- The former is stated /para 14/ to be 10-8 per ton, while the latter no one can doubt would be very much less-

Again

8- Again it is said, that if one had been enabled to load salt at the Canal bridge the 60 lbs per heap (viz^h 30 for haulage &c^a and 30 for wear and tear of gunny bags) would have been nearly saved - I shall be much obliged by your explaining the grounds upon which it is assumed that a similar saving, less the carriage for one mile by boat, would not be effected in loading at the Canal bridge, salt brought by boat from the present Cotaurs -

9- You will observe in fact that if the salt is, pending more complete arrangements, to be lifted on to the rail by crane or otherwise the mere removal of the Cotaurs to the neighbourhood of the Railway, a work that would involve considerable expenditure of time and money would make little difference -

10- Every heap purchased would have to be loaded into some vehicle and from thence lifted on to the rail - The loading and unloading would

would be the same - the distance to be conveyed to the rail by cart, or otherwise, would vary with the distance of each particular heap, and in fact to the purchaser it seems there would be very little saving under present circumstances, if you loaded at the bridge, the purchaser would have to bring the salt by boat one mile - the cost of such transport being very small, and if, as I gather from Mr^r Fletcher's letter, the expense of gunny bags would be saved in the case of salt stored for sale near the railway, it would be no less in the case of salt brought by boat from the present Cotaurs -

11- The merchants mark under present arrangements may be lost from Government - The latter can not without increase of expense, as well as of risk of loss from smuggling, have many places of disposal and sale - The present place is by Canal one mile, it is stated, from the railway -

&c

If these Cotaurs were moved near to the railway, so extensive are they that some of the heaps would be even then nearly as far as at present, and in every case loading and unloading between the heaps and the rail would be necessary.

12. It may be added that the movement of the Cotaurs is one of those measures that would excite discussion and difference of opinion, and if sanctioned require some time to effect, and, therefore, does not properly come under consideration as an alternative to the proposed temporary arrangement.

13. The important point to be now considered is, if anything, and what, can be done under present arrangements to facilitate the transfer of salt from the Cotaurs to the rail, assuming Mr. Fletcher's calculation to be correct, it appears perfectly clear that a very great saving to the dealer would be effected by permitting him

him to load into your wagons at the bridge.

14. Mr. Fletcher has, I think, overlooked the great saving in the haulage for one mile by boat, over that for 2½ miles by Cart, and it remains to be shown, why, if the cost of sunny bags would be saved by loading at the bridge from stores near the rail, they might not also be saved in loading at the same bridge from heaps a mile off, the salt being in both cases brought to the spot in boats.

I have the honor to be Sir
Your obt. Servt.
W. T. Reeves
Consulting Engineer
for Railways.

Madras
24th Jany
1857

True Copy

W. T. Reeves
Consulting Engineer
for Railways.

Comp. Ed. Ramsett

N°490 Madras Railway

From

Major T. A. Dickens

Agent and Manager

To

Lieut Col. T. T. Pears CB

Consulting Engineer for Railways &c

Sir,

With reference to your letter N° 89 dated the 24 of January, on the subject of the Conveyance of Salt by Rail and the best mode of transporting it from the Coleroon to the Line, I have the honor to acquaint you that the Acting Chief Engineer has expressed his opinion that he would not recommend a Crane of the size that would be necessary, to be constructed upon the piers of the Canal Bridge; he estimates that the cost of a Crane complete will be about Rs 2000.

2. The Traffic Manager, in further explanation of the views in regard to the subject matter of your letter, furnished me in the latter end of February with a Report, but to make it complete it was necessary that it should be accompanied by a plan in illustration of his proposals for connecting the Salt Golauns with the Line. This was called for early in March, and has this day been received. I therefore take the earliest opportunity of transmitting the report in question to you together, with the Plan and Estimates.

x Vide 27th July

3. Mr Fletcher proposes that a Railway should be constructed between the Canal Bridge and the Powder Mills, leading down parallel to the Line near, to a level with the foot of the embankment; where there should be a level standing for full and empty

"Canal Bridge has been recommended by the
"Collector of Madras in a letter, Copy of which
"you have forwarded; but on reference to that
"letter I find that Mr Cunliffe distinctly
"states his opinion, that the junction of the
"present Cotaurs with the Railway by a branch
"line would be found infinitely the less ex-
"pensive plan".

3. I would beg to refer you to the plan I have already painted out to you by which I would propose to Connect the Salt Cotaurs with a Siding at the Canal Bridge from the Main Line of the Railway. I am well aware that this would embrace the new Platform by the Canal side abutting on the Railway and the Junction of the present Cotaurs with the Railway be a Branch Line, as adverted to by Mr Cunliffe, and I think that any thing short of effecting both objects will fall short of what is required.

4. It appears to me upon looking over the ground between the Railway and the present Cotaurs and Considering the position of the Cotaurs as they are laid out, coupled with the extention of the Salt trade which is now increasing, and the large increase which we may naturally expect from the Railway being brought in Connection with the Cotaurs and the salt trade being extended by the facilities and impetus which the Railway will bring to bear on the Consumption of salt I feel no hesitation in saying that the Salt Cotaurs

Cotaurs will require to be extended and that eventually they will occupy all the ground between the Railway and their present position.

5. I would propose that the extention of the Salt Cotaurs should Commence at the Railway Bridge on the South side, where salt could in the first instance be stored for transmission by Railway.

I would also propose to lay down a line of Rails from the Railway Siding to the present Cotaurs so that a heap of Salt could be loaded at once into the Railway Wagons.

6 I think that the Salt Platforms at the Railway Bridge should be Constructed and the Rails off the Railway Companys Land should be laid down at the expence of Company Government, whilst the Railway should lay in the siding from the main Line of the Railway upon a workable gradient on to a level with the Salt Platforms Precisely the same kind of Arrangement has been made at Southampton, Connecting the South Western Railway with various Wharves on the River Itchen. the Railway Company laid in the siding on their own Land and put down Turntables for accessing the Merchants the owners of the several Wharves, to lay down the Rails Connecting them with the Railway

7. This was found to succeed well for the Railway Company and the Merchants, and as the Government are largely interested in the articles of Salt, probably they would not think it

it an unnecessary amount of money to expend on the development and encouragement of the salt trade.

8. It may be as well to state that I would propose that the Railway Company should simply place the Empty Wagons in their own Siding, and when loaded take them from the siding to their destination, leaving the merchant to Load the wagons to the heaps of Salt, allotted to him by the Superintendent of the salt Cotaurs, load the salt, and bring the wagon back loaded, and leave it upon the Siding.

9. A weigh-Bridge could be placed upon the Railway siding to weigh the wagons in & out, as a check for any over Carriage, and as a check upon the quantity for the protection of the Merchants from theft &c.

10. The Consulting Engineer in para 5 observes, that the permanent arrangements will necessarily occupy sometime; and in the meantime ruts made and spinning empty to & fro, and the salt going up by the high Road.

11. I am fully sensible of these facts and should be glad to see any plan devised by which this state of things could be changed, but I understand and decidedly is opinion that the plan advocated by Colonel Pears could have no effect whatever in transferring the salt trade from the high Road to the Railway.

12. In my letter No. 3 of the 14th Ultimo, I considered the feasibility of adapting Colonel Pears' plan of conveying salt in Boats from the Cotaurs to the Canal Bridge, there to be loaded from the Boats into the Railway wagons; and I was of opinion that whether a Crane, or other means were used, it would offer very little, if any, advantage over the best system that could be adopted in lieu to our Timmins at Goyaporam.

13. The Consulting Engineer however still considers that his proposal of erecting a Crane at the Canal Bridge, would have the effect of transferring the salt Trade from the Road to the Railway, and requires further information stated in para 10 of my Letter No. 3.

14. "I have seen over the ground, and I have considered "the plan proposed by Colonel Pears, as well as "a plan which suggested itself to me of a siding "being placed at the level crossing nearest to "the Cotaurs, in the latter case conveying the "salt by Bundles instead of by Boats on the "Canal, but either plan is inadequate to the "requirements of the trade"

15. The plan which suggested itself to me to convey the salt by Bundles to the Canal Bridge was to meet the objections (which I think insurmountable) of conveying the salt by Boat. In the first place a Boat must remain on the Canal Stationary to a certain extent - the Heaps of salt are scattered over a large space of ground and most of them at some distance from the Boat; a Bundle is moveable, and can be placed immediately alongside

alongside the Heaps of Salt wherever situated and would cause Carty hire to some extent besides the damage done to the Chrystals of Salt, by being knocked about in loading. I think that Conveying the salt by Barge would be preferable to Conveying it by Boat, but as I observed either plan is inadequate to the requirements of the Trade, as it would not, affect the transfer of the salt from the high Road to the Railway in my opinion.

16. In para 6 the Consulting Engineer observes (referring to para 12 of my letter No. 3. that "according to the statement given in the preceding para (11) of the same letter one "point to be gained would be the difference "between the Cost of 2½ Miles Carriage by Cart "and that of one Mile by Boat" In para 7 it is observed that, "the former is stated (para 14) "to be 10/8 per Ton, while the latter no one could "doubt would be very much less"

17. I think that para (11) of my letter No. 3 meets para 6 as above, but the matter may probably be considered one of Opinion Rather than Calculation. The difference however is something more than between the Cost at 2½ Miles Carriage by Cart, and that of one Mile by boat - To the one Mile by Boat must be added the Cart hire to the Boat, and the Carriage of loading into the Railway wagon from the Boat, and in practice, I feel persuaded there would be found no advantage gained by the one Mile of boat, as Compared with the

the 2½ by 13 and by to Roy a person's whilst, as stated in my Letter No 3, we should be required to stop our Goods Trains at the Canal Bridge employ a Staff there) and erect a Crane to save, in my Opinion, nothing or a sum so small as to be insignificant.

18. With Reference to para 8 I submit to you that it is very obvious that if there had been a Salt Platform at the Canal Bridge, and the Salt had been heaped there for transmission by Railway and a siding had been laid down, so that salt could have been loaded from the Heaps direct into the Railway wagon, that the only expence would have been for Carty hire in loading, so that the Cost of Haulage would have been nearly saved, whilst the Gunny Bags could have been dispensed with, by using Covered Goods Wagons, loading the salt in bulk and backing the wagon - His and Opinion and I may add the opinion of Messrs Commissioner Martin & Co at present engaged in the Trade, that Gunny Bags could not be dispensed with if the salt were loaded into Boats, and I may say, as I am acquainted with Boating that it would be impossible more necessary to use Gunny Bags in Boats, than if Barges were used - and the Merchants think they cannot dispense with them in the latter case.

19. With reference to para 9 - I beg to say that I cannot think that any plan, which will

will effect less than attaining the Salt to be loaded direct from the Heaps into the wagon, will suit the requirments of the trade if the Colaroo were simply removed to the Canal Bridge, and no provision made for a siding to bring the Railway wagons on the same level or nearly so, as the Salt I think it would act prejudicially and fall short of what is wanted.

20. With reference to para 10 I can merely observe that, Gunny Bags could only be saved by placing the Railway wagons on a level, and near to the Heaps of Salt as observed in para 9.

21. With reference to para 11 I have proposed to have a Line of Rails laid down through the Centre of the Heaps of Salt, on the plan adopted of having a Windy track through them, so that any Heaps of Salt could be loaded into a Railway wagon.

22. With reference to para 12 and 13 I have already stated that, in my opinion am plans proposed or any that was suggested to me as a temporary measure, would not meet what is required, and I think anything short of what has been Contemplated as a permanent arrangement will not meet the Case. I Cannot discover that any important saving to the dealer would be effected by permitting him to load into the Railway wagon at the Canal Bridge, and after Carefully Considering the subject and Conferring with the present dealers in Salt via Railway, and Comparing notes with them I Can arrive at no other Conclusion.

23. With reference to para 14 I have answered this para in the foregoing Remarks

24. I beg to observe that it is a matter of Considerable importance to the quality of Salt that it should be subjected to as little knocking about, by Coasting and unloading as possible, as it breaks the Chrystals, and small grained Salt is peculiarly liable to adulteration. As an instance of this I ascertained during my Recent visit to Salem that 10 Measures of Cuddalore Salt were sold there for a Rupee, whilst 12 Measures of Madras Salt were sold for a Rupee. The only Reason I Could obtain for the preference being given and the increased price being paid, for Salt made at Cuddalore, was that it was larger in grain and Consequently Could not be adulterated; — the loading direct in. the Railway wagon on this Account alone should be Considered of some importance to all parties interested

I have &c.
(Sd) H. A. Fletcher
Traffic Manager.

(True Copy)
J. K. Jenkins
Agent and Manager.

xd
1866.

Madras Railway

Estimate of the Work in the Siding and portion of Branch Line to Salt Gotaars, to be executed at the expense of the Railway Company.

Earthwork	C.yds.	7371	¼	460	11
Fencing	Sqrs.	198	10	99	"
Brickwork	C.yds	13	5	65	"
Ballasting	"	630	1½	945	"
Laying Permanent Way	Yds.	378	½	189	"
Carriage of Materials	Tons	73.50	1¼	73	9
Contingencies				183	12
			Rupees	2.016	"

Company's Rupees Two thousand and Sixteen.

Chief Engineers office
16th June 1854.

Approved
Robt Stephenson
for Mr: Chief: Engr:

J. F. Fraser
Agent and Manager.

Madras Railway.
Copy of a letter from
the Traffic Manager
regarding the cancel-
lation of Rates.

Copy of a letter from
the Traffic Manager
to the Chief Engineer
dated 15th June 1854
No 456.

Madras Railway

Estimate of the work in that portion of the branch Line to Salt Cotaars, to be executed at the expense of Government.

Earthwork	C.Yds.	9251	-/1/-	578	3 -
Turfing	Sqrs.	832	-/8/-	416	- -
Brickwork in Bridges &c.	C.Yds.	356	5/-/-	1780	- -
Teakwood in Bridges &c.	C.feet	3775	2/-/-	7550	- -
Planking	Sq.feet	1638	-/3/8	375	6 -
Bolts, Washers and Nuts		24	1/4/.co	30	- -
Ballasting	C.Yds.	3560	1/8/-	5340	- -
Laying Permanent Way	Lin.Yds	1492	-/8/-	746	- -
Gates	Pairs	4	66/-/-	264	- -
Guard Rails, at Level Crossing		2	42/-/.co	84	- -
Approach- Fencing	Yds.	80	3/8/-	280	- -
Fencing		2640	1/-/-	2640	- -
Carriage of Materials	Tons	290.42	1/-/-	290	7 -
Contingencies				2036	- -
			Rupees	22.410	- -

Company's Rupees Twenty two thousand, four hundred and ten —

Chief Engineer's Office
16th June 1857

Robt Vetch
for all: Chief: Engr:

H Goodwin
Agent and Manager

KB

c. Madras Railway.
No 102.

In a letter from the Agent and Manager dated 17th June 1857.

Estimate of the amount of Cotaar to be incurred at the expense of the Railway Company. Rupees 22410 - -

Examined
Chief Engr's Office
Madras 19th June 1857
for Secy.

Madras Railways

No. 538.

From

Major J. A. Jenkins
Agent and Manager

To

Lieut Col. J. T. Pearse C. B.
Consulting Engineer for Railways

Sir

I have the honor to acknowledge the receipt of your letter No. 612 dated the 3d Instant, and to acquaint you that the Acting Chief Engineer has intimated to me that he will, as soon as possible after his return to the Presidency (expected in a few days) go into the Subject of the branch-line to the Salt Colaurs as proposed by the Government, and I shall without delay communicate with you on the Subject.

I have the honor to be,
Sir
Your most obedient Servant

Madras
4th July 1857

J. A. Jenkins
Agent and Manager.

Submitted with Observations
for the orders of Government

Madras
14th Septr 1857

J. T. Pearse
Consulting Engineer
for Railways

To The Acting Chief Secretary
to Government
Fort Saint George

x2 Ill

No 614. Madras Railway

From

Major J. A. Jenkins.
Agent and Manager.

To

Lieut.t Col. J. J. Pears C. B.
Consulting Engineer for Railways.

Sir,

With reference to your letter No 566 dated the 16th of June, in which you request that I will state whether in the event of the Government constructing a branch line from the main line to the salt Cotaurs, to the formation level, this Company will be prepared to lay down the permanent way with materials and ballast, with turn-tables and other appliances as may be required to the said Cotaurs, I have the honor to state that some delay has occurred in replying to your letter consequent upon information having to be obtained from different Departments, I now however beg to annex a copy of a letter from the Chief Engineer No 136 dated the 17th of July, and one from the Traffic Manager No 56 dated the 1st Instant, by which you will observe that these Officers shew reasons to object to the plan you proposed; they being strongly in favor of that so recommended to the Government in my letter No 490 dated 17th Ultimo, and which is apparently identical with that recommended by the Chief Engineer D. P. W. received with your letter No 692 dated the 1st

Madras Railway
17th July 1857

From
The Agent & Manager
To
The Consulting Engineer
Railways
Madras

F.D. 157.
No 5398

Sir,
I have the honor to transmit herewith for your information a copy of a letter from the Chief Engineer No 136 dated the 17th Instant, and of one from the Traffic Manager No 56 dated the 1st Instant, on the subject of the proposed Railway to the Salt Cotaurs, and to state that I will go into the details of the proposed line to the Cotaurs on receipt of the Government sanction to the construction of the line.
I have the honor to be Sir
Your most obedient Servant
Engineer on the Railway.

1st Instant, a reply to which communication I hope to be able to send you in a few days.

I have the honor to be
Sir,
Your Most Obedient Servant

Madras
3d August 1857.

Agent and Manager

No. 136.

Madras Railway Chief Engrs Office
Madras 17th July 1857.

From

J. M. Heppel Esqre
Chief Engineer.

To

Major J. A. Jenkins.
Agent and Manager

Sir,

With reference to your letter No. 531. of June 17th, on the subject of the branch to the Salt Cotaurs, I beg to observe that the proposition of the Government to be in most favorable acceptation that is to say that they should construct all works of every description with the exception of the ballasting and permanent way, amounts to fixing on the Railway Company an expenditure on construction of about 30,000 Rupees.

Supposing for the present that the arrangements for the subsequent working and maintaining the branch line, which are not adverted to in the letter of the Consulting Engineer, should be made in the manner most

Madras Railway.

3629

Road

The Agent & Manager

To

The Consulting Engineer

Dated 17th June
Rec'd 19th " } 1859.

No 490.

Conveying a copy of a letter from the Traffic Manager regarding the conveyance of Salt by rail and the best mode of transporting it from the Salt Lines, with a Plan in illustration of the measure, and two Estimates for the construction of the necessary works at the Expense of the Government and the Company.

R. 26/5/59.
Ge No 501.

Madras Railway Co.

Traffic Manager's Office.

1st August 1859.

From

H. W. H. Fletcher Esqre

Traffic Manager

To

Major D.C.H. Jenkins.

Agent and Manager

Madras Railway

Sir,

I have the honor to acknowledge the receipt of your letter No 108 dated the 29th Ultimo, enclosing Letters No 388 from the Board of Revenue and 3629 from the Chief Engineer on the subject of a railway or Tramroad along the Salt Lines with a view to the Salt Chalans being paid down carriage for the Salt they may convey.

2. The Plan of connecting the Salt Chalans with the Railway by a Branch Line advised to by the Consulting Engineer would not I think be convenient as the filling of Carts down a sloping at the Canal Bridges and obtaining in my letter No 1410 dated 21st February last the following

following reasons –

First – a Branch Line upon the plan suggested would of necessity have to be run out at some distance from the Canal Bridge and the ground between the point of Junction and the Canal would thus become if not altogether useless for the storing of Salt at any rate not nearly so valuable for the purposes as it would be if a Line ran parallel and close to the Canal from the Railway at the Canal Bridge.

Second – a Branch Line if constructed upon the proposed plan could not be worked conveniently by a Locomotive as the time occupied in haulage would be too long to keep the Goods Trains standing upon the main Line whilst Empty Waggons were taken to the Salt Cotaurs and the loaded Waggons brought back – I am of opinion that such a Branch Line could best be worked by Bullocks or Coolies and all that the Railway Company should be called upon to do would be to leave the Empties upon or take up the loaded Waggons from a Siding at the point of Junction – the dealers in Salt having taken the Empty Waggons loaded & brought them back to be attached to the Goods Trains at their leisure in the course of the day – such is the practice upon many Small Branch Lines –

Third – I think it should be taken into consideration that the grounds on the side of the Canal between the Canal Bridge and the present Salt Cotaurs will in all probability be required for the Salt Trade, as that Trade increased by the increased Sale which will be the result of the operations of the Railway under judicious management – the Branch Line would run too far from the side of the Canal to bring the whole of the grounds I allude to into convenient working as Wharves or places for stacking Salt – whilst the plan of running a Line as I have proposed close to the Canal would enable the Government to keep the Salt close to the Canal and economize in the stacking or unloading from Boats & a great economy would be practised in the loading into the Railway Waggons –

4. The ground should be seen and the comparative merits of the different plans discussed upon the spot, as it is difficult to describe plans of this kind by letter – I may say that after careful consideration I think the plan of Connecting the Salt Cotaurs with the Railway by a Siding at the Canal Bridge as already described by me would prove much more convenient and economical in every respect than the Branch Line adverted to –

4. I am of opinion that the Railway Company should be called upon to construct all works and to lay down such Sidings as might be required upon their own land, and that the Government should construct all works and lay down the Rails required upon the land outside of the Railway fence as being largely interested in the sale of Salt and that the maintenance of the Line outside the Railway fence should be borne by Government –

I have &c
(Signed) H. A. St. Fletcher.
Traffic Manager.

(True Copies)

Agent and Manager.

Submitted with Observations for the orders of Government

Madras 11th Sept 1857

To The Acting Chief Secy to Govt Fort St. George

Engineer for Railways

Rec'd 14th

Madras Railway

No 644.

From

Major J. A. Jenkins.
Agent and Manager.

To

Lt. Colonel J. F. Pears C.B.
Consulting Engineer for Railways.

Sir, Refers to Mr. Pears' letter, No 544

With reference to your letter No 692 dated the 3rd of August, and letter from the Chief Engineer Department Public Works to the Acting Secretary to the Government, I have the honor to annex copies of letters from the Chief Engineer of this Company No 159 dated the 5th of August 1857, from the Traffic Manager No 54 dated the 7th of August, and from the Locomotive Superintendent No 120 of the same date, in which each Officer expresses his respective opinion upon the subject matter adverted to in your communication.

2. The plan proposed for connecting the Salt Colaura with the main line, the Chief Engineer observes, is nearly identical with that submitted with my letter No 590 dated 17th June 1857, and the arrangements proposed appear to be fair and acceptable.

3. With reference to the weight of rail, opinions are in favor of the use of that of 60 lbs.

4. In regard to the mode of working the line, much, as the Traffic Manager states, will depend upon the Amount of Traffic; I beg to suggest that that

point

Madras Railway

No 159 D.

Chief Engineer's Office, Fort St. George, 5th August 1857.

To

Major J. A. Jenkins,
Agent & Manager.

Sir,

I have the honor to acknowledge the receipt of your letter No 692 dated 3rd instant, and in reply to the 2nd paragraph thereof, to state that the plan proposed for connecting the Salt Colaura with the main line is nearly identical with that submitted with my letter No 590 dated 17th June last, and the arrangements proposed appear to me fair and acceptable.

2. With reference to the 3rd paragraph of your letter, I am in favor of the use of the 60 lbs rail.

3. With reference to the 4th paragraph of your letter, I am of opinion that the mode of working the line will depend upon the amount of traffic, and that the Company will be the best judges of the mode of working.

I have &c.

(Signed) J. F. Pears
Lt. Colonel
Chief Engineer

point be left to the judgment of the Officers of the Company, but that the construction should be sufficient & substantial to admit of the working of a Locomotive upon the Line at any time if considered necessary.—

5. In respect to the suggestion conveyed in the 11th paragraph of Colonel Fabers letter, that the work be executed by this Company, I beg to state that there does not appear to be any objection thereto; and that permanent way materials and other appliances could be provided by this Company and charged to the Government for their portion of the branch line.—

6. The plans sent with your letter are herewith returned.—

I have the honor to be
Sir,
Your Most Obedient Servant.

Madras
11th August 1857.

T. L. Hankin
Agent and Manager.

Ex Letter

Submitted (with Observations)
for the orders of Government.

Madras
14th Septr 1857.

J. T. Price
Civil Engineer
for Railways

To
The Actg Chief Secretary Govt
Fort St George.

No 159. Madras Railway Chief Engineer's Office
Madras 8th August 1857.

From
J. A. Hoppel Esqr
Chief Engineer

To
Major T. L. Hankin.
Agent and Manager
Madras Railway Company

Sir,

Yours No 155 August 3d forwarding letter of Consulting Engineer No 1562 Augt 1st with enclosure letter of Chief Engineer P. W. D. to Acting Secretary of Government No 1863 July 8th.—

2. The plans proposed is as you observe nearly identical with that proposed some time ago by the Railway Company's Officers, and looking at it in its general features and without regarding details which may require modifications I may say that in my opinion it is desirable that it should be carried into effect and that the arrangement proposed for that purpose appears to be fair and practicable.

3. With reference to the weight of rail to be used it appears that the Chief Engineer P. W. D. has made three Estimates. One for 65 lb. rail throughout, another for a lighter rail throughout, and a third with a 65 lb. rail to the Bridges & a lighter rail for the Service roads in the Bridges themselves—of these plans I should decided-ly prefer the third, supposing the Government to have lighter rails at their disposal, but if they wish the Railway Company to supply the rails, it will not be possible to furnish any others than the 65 lbs-

lbs.

No 57

Aberdeen Railway
Traffic Manager's Office
2nd August 1859

From H. A. Fletcher Esqre
Traffic Manager

To Major T. A. Addams
Agent and Manager &c.

Sir

I have the honor to acknowledge the receipt of your Letter No 113 of the 30th Instant, enclosing correspondence and plans of the proposed arrangements for connecting the Railway with the Salt Colours at the Bridge over the Canal near to the Aberdeen Terminus.

From Loco Supt No 692 1st Augt. From Ch. Engr. 2. P. W. 8 July 1859 No 1863.

2 I beg to inform you that I have had an interview with the Chief Engineer, and convers with him that the plan proposed will meet the requirements of the case. The plan is, as you observe, identical with that suggested by my Letter No 16 of 29th February; and I would strongly urge the necessity for the works being proceeded with at the earliest possible period.

3 I would suggest that the 66 lbs Rail should be used throughout as it would be found inconvenient to establish a point

to

at to which a Locomotive could work and no further. I do not anticipate that the Traffic on the Quay will reach so great at present to justify a Locomotive Engine being specially sent for Shunting on the Branch Line, but it is probable that in the event of there being a sufficient number of Wagons to form a Train, that an Engine may frequently be despatched to take them direct from the Sidings to their destination, in which case it would be desirable that the Branch Line should be so laid down as to permit an Engine running to its full extent over it. I think the Saving to be effected by laying down a Cast Rail through the Sidings as they at present stand would not be equivalent to the inconvenience a Locomotive may be brought into requisition.

4 I would beg to bring to your notice that it is exceedingly probable that the Sidings will eventually extend all along the Canal side to the Canal Bridge, and that the Branch Line should be so constructed as to admit of this being done without incurring any expense for the re Construction of Line to meet such an

arrangement

arrangement.

5 At present the Haulage upon the Branch Line could be most economically performed by Bullocks or Cattle, and as I suggested in my Letter No 6 of 28th February last dated 8th "the Railway Company should simply "place the empty Wagons in their own "Sidings" i.e. immediately at the point of Junction of the proposed Branch Line with the main Line - and "as soon as loaded take them from the sidings to their destination" making Contracts with Landholders to haul the Wagons to the Depôts of Salt allotted to him by the Superintendent of the Salt Golaum to load the Salt and bring the Wagons back to Landholders and leave it upon the sidings" ready to be attached to the Goods Trains

6 It should be borne in mind that under different circumstances different modes of working would be desirable - at the Traffic is small as at present, the Bullocks and Carts would be found to be the most economical, but if the Trade should increase as I have no doubt it will, it would then be found most advantageous to use a Locomotive upon the Branch Line, but in this case the Company would take the Wagons from the Golaum to their destination direct, and not be employed to haul those from the heaps of Salt to the point of Junction on the main Line only - I think that would never be found under any circumstances, any economical mode of working -

Most however that such a matter will be left to the discretion of the Officers of the Company as they alone can say from day to day what will be the best way of dealing with the subject

I have &c
(Sgd) J. P. Fletcher
Traffic Manager

Madras Railway
Locomotive & Carriage Department
Engineers Office 7th August 1857

Secretary

With reference to the printed letter from the Chief Engineer D. P. W. to H. Forbes Esqre acting Secretary to Government, I beg to observe that I do not understand from what Data that Officer deduces his Estimate of the cost per Ton per Mile moved on the Branch Line

at

arrangement.

5 At present the Haulage upon the Branch Line could be most economically performed by Bullocks or Cattle, and as I suggested in my Letter No 6 of 28th February last dated 8th "the Railway Company should simply "place the empty Wagons in their own "Sidings" i.e. immediately at the point of Junction of the proposed Branch Line with the main Line - and "as soon as loaded take them from the sidings to their destination" making Contracts with Landholders to haul the Wagons to the Depôts of Salt allotted to him by the Superintendent of the Salt Golaum to load the Salt and bring the Wagons back to Landholders and leave it upon the sidings" ready to be attached to the Goods Trains

6 It should be borne in mind that under different circumstances different modes of working would be desirable - at the Traffic is small as at present, the Bullocks and Carts would be found to be the most economical, but if the Trade should increase as I have no doubt it will, it would then be found most advantageous to use a Locomotive upon the Branch Line, but in this case the Company would take the Wagons from the Golaum to their destination direct, and not be employed to haul those from the heaps of Salt to the point of Junction on the main Line only - I think that would never be found under any circumstances, any economical mode of working -

Most however that such a matter will be left to the discretion of the Officers of the Company as they alone can say from day to day what will be the best way of dealing with the subject

I have &c
(Sgd) J. P. Fletcher
Traffic Manager

Madras Railway
Locomotive & Carriage Department
Engineers Office 7th August 1857

Secretary

With reference to the printed letter from the Chief Engineer D. P. W. to H. Forbes Esqre acting Secretary to Government, I beg to observe that I do not understand from what Data that Officer deduces his Estimate of the cost per Ton per Mile moved on the Branch Line

at

the proposed Salt Caisson by Locomotive
Power.

2 To Work a Locomotive there for the
special purpose of Loading or Shunting Trucks
would be undoubtedly much more costly than
the performance of that work by Manual
Labor, unless the amount of work to be done
was very great, say at least 1000 Tons of Salt
per diem.

3 Should however a certain Locomotive power
be necessary for the
laying of the Line to the Caisson with Rails
strong enough to carry Locomotives, no Load-
ed Trucks might be found in a position close to
the Salt Caisson, and the Engine might
be detached from the Train on the main
Line, and pass on and bring out the Trucks
which would save the Labor of pushing the
Trucks by hand from the Salt-Caisson and off
the siding to the Junction of the branch with
the main Line.

Dear Sir
Yours faithfully
W. Bell Knight
Loc. Supt.

To The Agent & Manager
(Spuce Harbour)

J. H. Scott
Agent and Manager

St. John

Madras Railway.

From 3840

The Agent & Manager

To

The Consulting Engineer.

Dated 11th August
Rec'd 12th do 1859.

No 644.

Submits his opinion and those of the Heads of Departments upon the proposition of the Chief Engineer to [illegible] as to the best mode of connecting the Salt Cotaurs with the main line of Railway.

Vide Letters to Agent No 723 & 725 of 13th August 1857.

F.R. 57. 2.
do No 5 61.

2- I shall feel obliged if you can early reply-

Madras
13th August
1857.

I have the honor to be Sir
Your obedient Servant
(Signed) J. A. Dean
Consulting Engineer
for Railways-
(True Copy)
J.T. Dean
Consulting Engineer
for Railways-

Compared

To
The Railway Dept.
Consulting Engineer's Office
No 725-

From
Lieutenant Colonel J. T. Dean R.E.
Consulting Engineer for Railways-
To
Major J. A. Jenkins
Agent and Manager of the
Madras Railway Company
Sir,

In your letter, No 644, of the 11th instant, para 4, you suggest in regard to the working the Line, i.e, the proposed Branch to the Salt Cotaurs, that that point be left to the judgment of the Officers of the Company &c-

2- You will observe, however, that your Chief Engineer proposes, that with the exception of that portion which lies within the Railway boundary, the Government should construct and maintain all works for bringing the Salt Cotaurs into communication with the Line,

and

and it does not appear clear whether, in speaking of working the line, you refer to that portion only which will be the property of your Company, or to the whole branch -

3. To enable the Government to determine upon the propriety of expending so large a sum, with a view of bringing the salt to your line, it is desirable that they should have all possible information as to the cost and manner of working the branch, and the probable effect thereof in the consumption of salt. Without therefore requiring from you any decided opinion as to the "mode of working the line" the Government would wish to be informed from what point, assuming the arrangement contained in the 7th para of Mr Keppel's letter to be adopted, you think your Company would undertake to move the salt - under what terms and conditions, with reference to the mileage rate for the

the commodity established at the time being -

4 - As an illustration of my meaning it may be observed, that with such a branch laid down it might be desirable and convenient for your Company to undertake to provide moving power from a siding at, or close to, the Salt Cotaurs, whereas the Salt Department would undertake to place or load the waggons -

5. Should this plan be adopted, it would be for you to arrange to move the loaded waggons by whatever means appeared most convenient on to the main line; but it should be distinctly understood that a single waggon stood ready with a certain minimum load at a given time, the load being booked and paid for, you would be prepared to attach it to the ordinary goods train, and also what amount of load would suffice to justify the employment of a special engine -

M

6- It would probably be better, for all parties, that the Government should have nothing to do with the movement of the Salt when once loaded on Railway wagons.

7- Should you propose thus to work the entire branch, there would be no question of course about your wagons being employed upon it down to the Cotaurs themselves.

8- I request I may be favored with an early reply.

Madras 13th August 1857. } I have the honor to be &c.
(Signed) J. J. Pears
Consulting Engineer
for Railways.

/True Copy/

J. J. Pears
Consulting Engineer
for Railways.

Compd. P. Bennett

Madras Railway

No. 670.

From

Major J. A. Jenkins.
Agent and Manager.

To

Lieut. Col. J. J. Pears C. E.
Consulting Engineer for Railways.

Sir,

I have the honor to acknowledge the receipt of your letter No. 723 dated the 15th of August, and to acquaint you that the recommendation set forth by Mr. Heppel in his No. 159 dated 15th August 1857 in the 7th paragraph of his letter to the effect that the Railway Company should construct all the works within their boundary, together with such additional width of earth-work for the siding adverted to, and that the Government should maintain all works other than the above for bringing the Salt-Cotaurs into communication with the Line &c., is, in my opinion fair and Equitable, and that I concur in the sentiments therein expressed.

I have the honor to be
Sir,
Your Most Obedient Servant
J. A. Jenkins
Agent and Manager.

Madras
21st August 1857.

Submitted (with Observations)
for the orders of Government

J. J. Pears
Consulting Engineer
for Railways

Madras
14th Sept 1857.

To The Secretary
to Government
Fort St. George

4th Section

No. 698. Madras Railway.

From
Major J. A. Jenkins
Agent and Manager

To
Lieut.t Colonel J. F. Pears C.B.
Consulting Engineer for Railways

Sir,

With reference to your letter No. 725 dated the 13th of August, I have the honor to annex a Report from the Traffic Manager upon the mode of working the branch-line between the Salt Cotaurs and the main line as therein Requested.

I have the honor to be
Sir,
Your most obedient Servant

J. A. Jenkins
Agent and Manager.

Madras
2nd September 1857

Submitted (with Observations)
for the orders of Government

Madras
11th Sept.r 1857

J. F. Pears
Consulting Engineer
for Railways

To The A.t Chief Secry to Govt
Fort St George

Ed.d Blenderson

Madras Railway
Traffic Office
Dated 2nd Sept.r 1857.

From
The Agent & Manager
To
The Consulting Engineer

C.l No 50.

Sir. With reference to the enclosed letter No. 698 dated the 2nd instant addressed to you by the Agent & Manager of this Railway, I beg to state that the Agent will refer to the Construction Committee the question of the Connection with the Branch Line to the Salt Cotaurs.

I have &c.
(Signed) W. Keir
Traffic Manager.

№59.

Madras Railway,
Traffic Manager's Office,
Madras 22nd August 1857.

From

H. A. Fletcher Esqre
Traffic Manager

To

Major T. A. Jenkins
Agent and Manager.

Sir,

1. Referring to the letter №725 from the Consulting Engineer on the Subject of the mode of working the proposed branch-line and siding Connecting the Salt Cotaums with the Railway, I have the honor to observe that experience will, in my opinion, suggest the best method to be adopted as the Trade becomes developed upon the Line or diverted from the Road to the Railway.

2. In my previous Communications upon this subject, I have Considered only one mode of working the branch-line as it occurred to me that such would be the most simple, viz "that the Railway "Company should place the Empty Wagons "in their own Siding", i.e upon their own Land, "and when loaded take them from "the siding to their destination, leaving the "Merchant to hand the wagons to the Heaps "of Salt allotted to him by the Salt Cotaums, "load the Salt, and bring the wagon back "loaded and leave it upon the Siding."

3. A very large trade is Conducted upon this principle at Southampton from the wharves upon the River Itchen, and I see no Reason why it should not succeed here; and without venturing to express a decided opinion that this method would be the best at all times, I may say that it would be the best, in my opinion, at the Commencement.

4. Referring to para 2 of the Consulting Engineer's letter №725, I beg to Remark that, in my previous letter, I referred to the working of the branch-line from the Cotaums to the Junction at the Railway Bridge, and that my proposal amounted to this, that the Merchants should load the salt into the Railway Wagons as they now do into the Bandies, and that they should perform the Haulage upon so much of the Line as was Constructed by Government, or, in other words, to Haul the wagons to and from a Siding on the Railway Company's Land. With Regard to para 3, I apprehend that the effect of the facilities afforded to the Salt Trade by the Construction of the branch-line, will be to increase the Consumption, but to what extent may be fairly assumed to be a matter of opinion with no means of arriving at a positive Conclusion; I should, however, imagine that there Cannot exist a doubt that the increase in the Consumption would justify the Government in incurring such an

Expense

expense and permitting) either the Railway Company or the merchants, as may hereafter be decided upon, to Run wagons over the portion Constructed by them free of charge, for although the branch-line would undoubtedly bring salt to our lines, it may fairly be opinned that the Govern-ment must feel a greater interest in the increase in Consumption of Salt than any Carrier is supposed to do, the profits or means derivable by the Government and Carrier respectively being so disproportionate.

5. I have already said that I think the most desirable point to and from which we should Haul our wagons would be to and from our own siding proper at the Canal Bridge as a Rule, leaving the Merchant to haul over the Branch-line to be Constructed by Government, and in that Case I apprehend that our Railway charge should be made upon the principle already in force upon the Line, viz a Mileage Rate; but if we undertook the Haulage upon the Branch-line to the Salt Cataus whether by Bullocks, Coolies, or Locomotive Engine, I apprehend that an increased Charge should be made.

6 I suppose that Bullocks or Coolies were the motive power used, probably a charge of 4 Annas Per Ton would suffice to Cover the expense of parties moving wagons at the Salt Cataus, hauling the Engines from, and bringing the loaded

wagons

wagons back to the Railway. If a Loco-motive were used, probably the additional Rate for the increased distance would be the only charge we Could make, but this should depend upon the Rule we were Required to do, as for instance whether we loaded the salt into the Railway wagons or not.

7. Referring to para 4. I apprehend the salt Department of Government would not be desirous of undertaking to load the wagons, and that they would Require either the Merchant or the Carrier to perform this work as at present.

8. Referring to para 5, I think that probably it would be desirable to lay it down as a Rule that the Train Engine should Haul from the Cataus a quantity of Salt of not less than a Heap or 45 Tons, any less quantity being Hauled by the Merchants to the Junction at the Canal Bridge.

9. Referring to para 6, I think it would be very desirable "that the Govern-"ment should have nothing to do with the "movement of the Salt when once loaded "on Railway Wagons".

10 Referring to para 7, I do not understand the meaning of this para. If the Railway Wagons were not employed upon the Branch-line down to the Cataus themselves, I imagine it would not be

necessary

necessary to construct the Branch Line at all.

11. I would beg to observe that I think the following principle should be kept in view relative to the Construction, maintenance, and working of the Branch Line.

First. That Considering the Interest which Government has in the development of the Salt Traffic, that they should be pleased to Construct the Line and maintain it in good working order at their own cost.

Second. That they should permit the line so Constructed to be worked free either by the Merchants or the Carrier, if by the Carrier upon a principle hereafter to be submitted to Government for Sanction.

Third. That the Government, the Merchants and the Railway Company, being interested more or less in the development of the Salt Trade, should adapt such means in working the Branch Line as shall increase its Cost as little as possible to the Consumer.

I have &c.
(Sig.) H. A. Fletcher
Traffic Manager.

(True Copy)
C. H. Fletcher.
Agent and Manager.

Railway Depart.

Consulting Engineer's Office

No. 341

To

Major G. A. Jenkins

Agent and Manager of the

Madras Railway Company.

Sir

Government having had under their Consideration the Expediency of facilitating, as much as possible the Export of Salt from Madras by Railway, and desirous of being favored with your opinion upon a Request which has been made for the Construction of a branch line of Railway from one point upon the Madras Salt Coture.

I shall feel obliged by your favoring me with your sentiments, as to the manner in which such a branch could be most Conveniently laid down, so as to serve the purposes of the trade both to the interior and for exportation - what would be the probable Cost of such a work, and whether your Company would undertake the Construction of it.

I have the honor to

Madras
3rd July 1856

Sir
Your Obt Servt
W. Price
Consg Engr

Compd. E.B. Hammett

Consulting Engr for Railways

Railway Department
No. 93 — 1856.

Submitted to
Colonel Pears
the Agent & Manager
& to
the Consulting Engineer

Consulting Engineer's Office
3/7/56

Transmitted to Block
plan the Traffic Returns
&c regarding the inside
working of the Branch
Line to the Salt Coture.

E.B. 5/7/56.
Dr Wm. 1/07

Dr Wm. 1/07

P. W. 1854/57

Memorandum

The Chief Engineer D. O. W. has the honor to request the Secretary to Government D. O. W. to favor him with Plans and Estimates of the proposed branch Railway to the Salt Cotaurs referred to in Ex: Engrs: Cons: N°2048 dated 3d: November 1857 for transmission to the Civil Architect to enable him to meet the wishes of Government as expressed in Ex: Engrs: Cons: N°2210 d/30th Idem.

3 Estimates sent W. Mens. 7 Dec/57.

By Order

Central Office of P. W.
Fort Saint George,
1st December 1857.

Lawford Engr
Superintending Engineer
Sth: of the Circle

To,
The Secretary to Government P. W. D.

Previous correspondence

This question of the Branch
Line from the Salt Springs to the
Harbour has been so fully discussed
and every item connected with it so minutely scrutinized by
Government & Chiefs of the Public Works
Department in previous correspondence
and Reports, that it is needless for me
to enter into it now. The Plans
and Estimates of Government Works
will also be forwarded by next Steamer
for Inspection.

I am &c &c

(Signed) Sandford Fleming
Chief Engineer

To the Secretary to the Commissioners of Public Works &c &c &c
Toronto

Public Works
Canada
Railways
Vol. 29, 25

Public Works Department

Memorandum.

From The Chief Engineer.

To, The Sec'y to Govern't. P.W.D.

Dated 4th December/57.
Received

Requests to be favored with
the Plans and Estimates of the
proposed branch Railways to
the Salt Springs referred to in
E. In. C. No 2048 dy 3d Nov/57

for heavy rails throughout, and one for light rails throughout. As the determination of this question depended on the decision of the railway authorities regarding the use of locomotive engines, the whole matter was referred to the Consulting Engineer, who was requested to advise Government upon it, after communicating with the railway officials.

These Gentlemen appear to have had a few little trouble to consider the project under discussion as paragraph 28. Colonel Yorke represents the Railway Agent as shewing by his letter "a singular misapprehension of the whole business," and in paragraph 33, he shews that the result of the traffic Manager's proposal would be that, while the railway waggons were certainly to be made very, million

the railway Company were like the Government were to have any thing to do with banking the main from the bottom to the main line. This is to be left wholly to the trader. A railway waggon carries from 6 to 7 tons, and is likely weighs about 5 tons.

Colonel Yorke would advise the Government to form the main line of heavy bar iron rails as for as Kirkee with the broad gauge of 5 feet 6 inches, so that at any future time when the said trade demanded the change, heavy rails might be laid down, and locomotives be put upon them, but for the present he recommends that a double line of light rails with a gauge of 3 feet be laid, in order that light waggons, such as one man can propel, may be put, so that the trade may not become a monopoly

in the hands of one or two capitalists
to the exclusion of the petty dealer.

The Government will
at once see that any arrangement
which fixes the minimum quantity
of salt to be moved
from the Cotaurs to the main
line, in effect decides the class
of people who are to be admitted
to the trade. If the minimum
be so high that cattle or a number
of carts can alone move
the load, there only can traders
who have capital sufficient
to purchase a large quantity
of salt, if it be fixed so low
that cart loads may be moved away
by most purchasers, all may trade,
and competition will keep
down price.

With this small sized
waggon, there must of course
be a removal of the salt from

it to the railway waggon, where
the main line is reached, and
this will probably be made
use of as an argument against
the plan by those who are in-
terested in keeping out the
petty trader, and retaining
a monopoly of the trade. But the
objection is not real for even sup-
posing that Railway rails with
a broad guage were laid
from the main line to the
Cotaurs, it is quite impossible
that the system should be
carried out in and through
the Cotaurs. The turn tables,
and the rails themselves, would
occupy far too much space,
and would destroy a great
part of the salt platforms.
These minor works must be on
a small scale, and it will

signify

signify nothing whatever to the trader, whether the removal of his salt from the smaller to the longer waggon is made at the Cotaurs, or at the railway. There must be a removal in both cases, and there will be but one in either.

I have conversed with Colonel Beard on the subject, and have learnt that, in his opinion, a waggon measuring 9 x 5 x 2 feet, will be the most convenient maximum size. it will hold half a ganee of salt, or 2¼ tons, and by paiving the sides with planks made to fit, may be made to contain more - our ordinary Cart load viz half a ton, so that the waggons would contain as much as from five to seven Cart. Although the turn tables within the Cotaurs made to suit these waggons would not suit any of a larger size, they would perfectly well suit those of a smaller size, and waggons might be made of a size to hold the smallest quantity of salt sold at the Cotaurs, and of sizes intermediate between them, and that which is above given as the maximum - so that all classes might be suited.

I cannot but think that it is of great importance to the people that the trade in salt should be in many hands, and that, without serious consideration, no plan should be adopted which may

may have the effect of confining the trade to capitalists. although more than one may hereafter engage in the trade, they will combine to keep up prices, and the Community much suffer.

There is another point connected with the communication between the Pond's salt stores and the railway referred to by Colonel Pearse of which the Government will see the importance, and that is, the necessity for directing the Company to establish a goods station at the junction of the branch and main lines. It is very necessary to ensure the petty traders from loss by delays, and absolutely to prevent the railway Officer from playing into the hands of any particular party, and throwing such obstacles in the way of others as shall virtually exclude them from the trade. If there is a station and a booking Office every man will be able to bring up his salt, whether the quantity be large or small, to book it, and ensure its despatch by the next goods train, all will be on the same footing, and no favor can be shown - such if this be not done, the railway Officer may refuse to halt the train at the junction for any small quantities, and may ask all times deshire to procure

receive at that place, the
salt of any one but such
as they please to oblige,
and may insist on all
others taking their salt
to Royapooram, and thus
lose the whole advantage
of the branch line to the
Cotaurs. The Government have
authority to insist on
the erection of a station,
and if the proposal be
approved of, the matter
can be referred to the
Financial Railway Dept.,
whence orders on the
subject should issue.

Colonel Pears. Lastly para 46
suggests that the branch
line from the Cotaurs should
be connected with the Canal,
by sidings leading down to the
bank

bank along which wharves
might be constructed.

The suggestion is
very good, and the expense
attending it would be
small. Probably the Go-
vernment will wish
the trade on the Southern
Canal to be somewhat
developed, and the junc-
tion through Madras
to be formed, before the
work is actually under-
taken, but, in the
mean time, the question
might be referred to the
Chief Engineer for report
and estimate.

I quite concur. HD
with this and. Submit
all Rom's suggestions respecting
the Kaveri extra Canal should be called
on

HL

P. W. 1857 Copy.

Despatch from the Govt
of Madras to the Govt

To be kept with P.
W. C. & Rw 1857.
No. 2048.

P. W. 1857

24. 3.

26th Sept. Rg. 10th Oct. A15.

No. 318. 95

On letters from the Agent and Manager of the Madras Railway Company No.s 337, 30, 190, 538, 614, 614, 670 & 698 dated severally the 15th August 1856 20th January 17th June 4th July 3d 11th & 21st August and 2d September 1857

Observations by the Consulting Engineer.

By order of Government, No. 1479, in the Public Works Department dated 28th July last, a letter from the Chief Engineer C.P.W., with Estimates for a proposed branch Ry. Railway to the Salt Golauns, was forwarded to the Agent and Manager of the Madras Railway on the 1st of August, and he was requested to favor the Government with an early Report of his views, and those of the Heads of Departments concerned, upon the whole matter, with special reference to the weight of Rail recommended, and the use of Locomotive Engines on the proposed branch. The Agent was reminded also, that no reply had

Letter No. 692

had been received to a letter from this Office — No 366
on the same subject, dated the 15th June.—
2. To this letter the Agent — No 611
replied on the 11th of August, but as he
suggested that the mode of working the
branch should be left to the judgment of
the Officers of the Company, I considered it
necessary to point out to him that to enable
the Government to determine upon the
propriety of expending a large sum, with a
view of bringing the salt upon his line, it
was desirable that they should have all
possible information, as to the cost and manner
of working the branch, and the probable effect
thereof on the consumption of salt. My letter — No 725 & 13th August 1857.
to the Agent will be found appended
3. The Agent's reply to this,
dated the 2d instant, was received on the 3d
and is now submitted.
4. On the order of Government,
(No 1179) I was instructed to advise
Government on the whole matter at an
early date, reporting at the same time with
reference to a former order, on the share of the
cost of constructing the branch line that
should

should be borne by the Railway Company
5. It may save the Government
some trouble if I briefly refer to former
correspondence, and to the several opinions
that have been given on this subject.
6. The traffic of salt has been,
from the very first, looked upon as a very
important element in the business of a
railway, running from the Coast to the
interior
7. The present correspondence,
however, arose out of an order of Government
in the Revenue Department, No 655, dated
26th June 1856, on a letter from Messrs
Cammiade & Co, and a Report from the
Board of Revenue.
8. Under the orders then passed
the Agent and Manager of the Railway was — No 3111 of 3rd July 1856.
requested, by letter from this Office, to favor
the Government with his sentiments as to
the manner in which a branch could be most
conveniently laid down, so as to serve the
purposes of the trade, both to the interior and
for Exportation, what it would be the probable
cost of such work, and whether the Railway
Company

Company would undertake the construction of it.—

9. On an order in the Revenue Department, dated the 11th August 1856, Government, in reference to the above, observed that no report had been received from this Office, and my attention was called to the circumstance.

10. On the 15th August the Agent, with reference to this subject, asked certain questions ..... Nº 537
..... regarding the state of the salt on being brought down the Canal, and was informed in reply that it would be more convenient if he made such inquiries among parties engaged in the salt trade, or of the Manager of the Salt Department. He was also informed that some time had elapsed since Lieut. Ives Chief Engineer and Capt. Collyer on the Canal bridge, when the former Gentleman concurred with us in the practicability of at once, whatever might be the plan ultimately adopted, fixing a crane and establishing on the Canal, as a temporary expedient, the means of raising the salt out of boats

on to wagons placed on a siding; and inquiry was made as to whether it was proposed now to do anything of the kind.—

11. Reports Govt 5th Septr 1856 Nº 172. On the 2d September the Agent wrote, that he was collecting information on various points relative to the Salt trade, and when he received the Chief Engineer's Report would lose no time in submitting it.

12. Nº 755. On the 31st of October 1856, the Agent made his Report, forwarding an Estimate for a branch line amounting to Rupees 39,700, also one amounting to Rs. 16,000 for the construction of an inclined Railway along the North side to the Canal, the latter having been recommended for adoption by Mr Bruce. The Agent added that the traffic that would be derived from the working of either of these branch lines separately would not, it is supposed, be sufficiently remunerative to justify the outlay by the Company for the construction of either; and, considering private enterprize to have failed, he made certain suggestions regarding the mode of carrying on the trade of salt, which the Government did not, as subsequently appeared

appeared, approve.—

13. My Report upon the above was dated the 18th November 1856, wherein observed that in the discussion that took place between Mr Bruce, Capt Collyer, and myself "I was under the "impression that we agreed in thinking "that a basin with wharfwall retaining "the Railway bank widened, might be con- "structed with advantage close on the North "side of the bridge, and that Commodities, "whether salt or others, brought by the boats "for transport by rail might be lifted at "once on to the Railway bank and placed "in the wagons standing there on a siding." "It appeared to me" I added "that this would be "the simplest, most economical, and most "effectual mode of accomplishing the object "in view, provided the salt could be brought "direct from the Ennore or other pans on the "Canal to this basin."—

14. I added however "to "make this arrangement complete the "Colaurs should be moved from their "present position to the immediate vicinity "of the proposed basin, north of the Railway. The

No 242

"The cost of these works has been I believe con- "siderable and such an arrangement might "be therefore considered objectionable," and I suggested that this point would probably be referred to the Public Works Department.

15. I then considered the Agents opinion about private enterprize having failed &c., and recommended that no decision should be pronounced until a report was received from the Public Works Department on the subject, with especial reference to the propriety of moving the Salt Colaurs

16. Order was passed thereon by an Extract from Minutes of Consultation, No 1511, dated 2d December 1856, and Government resolved to defer the consideration of the Agent's estimate, and to refer the subject to the Public Works Department and the Collector of Madras for early Report, with especial reference to the expediency of moving the Salt Colaurs, and to the Expense approximately of such removal.

17. On the 18th December 1856, the attention of the Agent was again called to the proposal to erect, as a temporary Expedient

expedient, a crane on the Canal bridge for the purpose of lifting salt out of the boats direct on to the Railway - letter No 746 appended.-

18. The Agent replied on the 20th January 1857 and a correspondence appended - took place on the subject, but as the Agent (and Traffic Manager disapproved of the plan, it was not further pressed.- — From the Agent No 50

19. In an Extract from Minutes of Consultation (No 953) in the Public Works Department dated the 18th May 1857, the Government after reviewing the several opinions given on the subject entirely agree in the preference given by the Chief Engineer O.P.W. and the Board of Revenue, to the Branch Railway to the Depôt, and I was instructed to report as to what share of the expenses of the branch, if any, should be borne by the Railway Company, and it was observed that Colonel Faber's Estimate of the probable cost, and the Agent's Estimate, differs by about Rupees 4,100.0.0 — Ex. Mar. Cons. Civil Ry Dept No 279 of 25 May — x Rs 35,638 — o Rs 39,700

20.- On the 15th June this order was communicated to the Agent, he was informed that the Government did not contemplate any change in the present arrangement connected with the sale of salt, and was requested to state whether, in the event of the Government constructing the branch to the formation level, he was prepared, on the part of the Railway Company, to lay down the permanent way with materials and ballast similar to those now in use on his line.-

21 On the 17th June 1857, the Agent replied to a letter from this Office of the 24th January, and stated that the Acting Chief Engineer disapproved of the Construction of a Crane to lift the salt at the Canal bridge, the cost of which would be about Rs 2,000 - He also forwarded a letter from the Traffic Manager (No 16 dated 27th February 1857) in which that Gentleman proposed that a siding should be constructed between the Canal bridge and the Powder Mills, leading down parallel to the line nearly to a level with

with the foot of the embankment, and from this standing a branch line carried to the Salt Cotaurs.—

22 As the Government had already determined on a branch line, and the Traffic Manager's plan was merely a repetition of Mr Bruce's proposed scheme and appeared objectionable, this letter was reserved until the Agent's reply to the last Government order should be received.—

23 Being requested to reply to the order of Government, No 279 of the 25th May last, communicated on the 15th June, the Agent reported on the 1st July, that the Acting Chief Engineer would, as soon as possible after his return to the Presidency, "go into the subject of the branch line."— No 538.

24 On the 30th July last, Government considers a Report from the Chief Engineer D.P.W. and passed the order No 1479, upon which the present report is submitted 30th July 57.

25. The Chief Engineer D.P.W submitted three estimates for the branch line.—

1st for a branch with heavy rails through out Rupees 54,400

2d — do — light — do — Rs 43,760

3d — do — with heavy rails to the Commencement of the Cotaurs and thence after with light rails. Rs 49,300.— and Recommended the adoption of the heavier rail.— This Question, however, the Government thought would depend upon the view taken by the Railway Company, regarding the use of the Locomotive Engines.—

26 Having thus stated what has passed, it remains for me to submit, for the consideration of Government, the following observations upon the project, and upon the opinions of the Railway Company's Officers, as shown in the accompanying letters. Nos 1490, 1147 & 1961

27 It is proposed, and generally agreed, that there should be a branch line from the main line of Railway to the Salt Cotaurs, and that the Expense of its construction should be thus apportioned. That part of the work that lies within the limits of the Ground made over to the Railway

Railway Company to be executed at their cost, the rest by Government.

28. In his letter, No 614, of the 3rd August, being a reply to a letter conveying the Government orders No 2797 the 25th May, the Agent observes that the Chief Engineer and Traffic Manager object to the plan therein proposed, and prefer one recommended in his letter, No 190, dated the 17th instant, and "which is apparently identical with that recommended by the Chief Engineer D.P.W." in all of which the Agent shews a singular misapprehension of the whole business, inasmuch as the plan proposed by the Chief Engineer D.P.W. was that made known to the Agent, and to which he said his Officers objected and differed most materially from the siding "leading down parallel to the line", proposed in his letter, No 190 of the 17th June.

First Ry Dept.

29. The points upon which the Government desired information before passing final orders on the subject were,

1st The description of permanent way depending on the mode of working proposed

2dly The share which the Railway Company were prepared to bear of the expense of construction

30. In reference to the first of these points the Railway Agent first proposed that the mode of working should be left to be determined after the line is laid down, but subsequently forwarded a letter from the Traffic Manager (concurring it must be presumed in the opinions expressed therein) from which I learn that that Gentleman thinks "the most desirable point to and from which we should haul our wagons would be to and from our own siding proper" leaving the Merchants to haul over the branch line"

From the Agent Letter No 644

2d Letter No 698.

Letter No 59 2d Aug. Para 5.

31. There is some apparent inconsistency in this letter but not such as to induce me to delay any longer submitting the Question to Government.

32. Mr Fletcher in para 10 alluding to a very reasonable inquiry of mine as to the employment of Railway wagons down as far as the Cotaur sheds delivers says he does not understand the meaning

meaning of this para because if these wagons were not employed on the branch line it would not be necessary to construct it at all and in Para 9 he says he thinks Government should have nothing to do with the movement of the salt when once loaded in salt wagons.—

33. From this it would seem that the Railway wagons are of course to be used on the branch down to the very Colaurs (para 10) that the Railway Company will not haul them over the branch line but only to and from their own siding (para 5) and that the Government must have nothing to do with moving these wagons when once loaded with salt.

34. If the Railway Company do not work the branch with Locomotive Engines nobody will or can; therefore the permanent way should not be constructed with a view to that mode of working and to the use of the large heavy wagons whose employment can only be economical or advantageous when associated with steam power

power and comparatively high speed.—

35. With regard to the share in the cost of the branch line, the Railway Company undertake only that portion which lies within their ground little more in fact than the siding, the whole of the branch proper —— falls, together with the line of rails yea, to be laid about the Colaurs and among the Reaps, on the Government.

	yds
Length of branch from main line to Salt Colaurs	2486
Length within the Railway limits	176
Remaining to be executed by Government	2310

36. The question now becomes very simple.— It is resolved into two parts. The salt station and siding will be wholly prepared by the Railway Company—the way to it from the Salt Colaurs whether common road, tram road, or railroad by the Government; and it is for the Government to decide how the interests and convenience of the people can be best consulted in the construction of this road.

37. There can be no question but that the system by which the Railway would be most largely benefitted and the salt could be most cheaply carried at the same time entire

time would be one such as the Establishment of salt depôts along the line on the part of Government - under which none but large loads would be despatched from the Cotaurs Full trains of 150 or 200 tons would be despatched from time to time, and the importances to the Railway of thus providing a large and regular traffic westward can hardly be over estimated. In such a case the branch should of course be a first Class Rail - Of the effect of such a system on the people or upon the Revenue it is not within my province to speak and indeed I believe the Government have determined against the Establishment of salt depôts

38. If being determined then that the operations of the Government monopoly shall not be extended along the line, the next and most important point is to prevent the establishment of a private monopoly to which a Railway seems as it were naturally favorable, and which would certainly prove highly injurious

injurious both to the people and to the Government Revenue

39. Now it seems from Mr Fletcher's letter that, even if circumstances did induce them to place their Engines on the Branch, he thinks 45 tons the minimum load they would send an Engine for. What becomes then of all the petty traders in salt by whom competition is now maintained, and who sell the Cotaurs in quantities as low as 5 mercals?

40. Under any circumstances if a heavy broad guage line were laid on the branch and Railway wagons such men would be worse off than they are now.

41. At present if a Capitalist buys his 45 tons he must have his 90 bullock Carts to carry it to the Station, while the man who buys his ½ ton takes his one Cart for the same purpose, and if a man chooses to take his 100 lbs of salt in a bag, he can take it, and carry it on the Railway, at the same rate as the others -

On

entire

On the other hand if this branch were laid with heavy rails, broad guage, and if Railway wagons weighing at the least 5½ tons each, without load, were used thereon, it would be mockery to the small trader to day, "you have purchased 500 lbs of salt - you wish to send it by rail there is your wagon, put your 500 lbs of salt into it, and get some men to run it up the incline. It is true the wagon weighs 5½ tons empty, and your salt only 500 lbs, but there is no help for it."

113.

Neither - at least if full competition is desired - is it just or reasonable to say that such petty traders should be able to get complete loads; they are not obliged to do so when they bring their commodities to a regular Railway station; and the very necessity of doing so is a discouragement to traders of that class.

114.

It must be remembered that a Railway on broad guage, with heavy wagons, which may be, with sufficient traffic, the best and cheapest for Locomotive power, is the very worst where Animal and mere manual labor is to be used, in consequence of the

the great, and then unnecessary, amount of dead, or unprofitable, weight of the stock.

115.

Upon the above considerations I would propose to Government to furnish the Colaurs with lines of light rails at 4 feet guage, running with necessary turn table, or travelling platforms &c, among the heaps; and to construct a double line of the same up the branch to the Railway siding, where the transfer (which must be made somewhere) from the light trucks, or wagons, to the Railway Wagons would be made.

116.

I think it highly probable that if the same branch line was made available to connect the coast canal with the Railway, there would be an interchange of miscellaneous traffic, in addition to the salt, and this object might be kept in view by sidings of the same light narrow guage rails being laid down along the Canal and placed in connection with the branch. This would be no small convenience to traffic, whether in passengers or goods between Pulicat and its neighborhood on the north, and (when the Canal is completed) Towns similarly situated on the South, and Tellore Bangalore

entire

Bangalore Dec

47. I would suggest that this system of light rails with wagons, establishment, &c., be placed under the Management of the Salt, or other Government department

48 The Government have power to direct the Railway Company, and it is to the interests of that Company that they should be directed, not merely to establish a siding, but a regular Goods station at the point of junction of the branch and the main line.—

49. The effect of such an arrangement would be that any Trader, rich or poor, might go into the Colaurs buy his 100 tons of salt, or his 100 lbs, might ask for trucks or wagons, have them brought up to the heaps, run the salt up to the Railway station, book, pay, and despatch, while goods brought by Canal, shells, lime, salt-fish, miscellaneous traffic, &c., might be placed on the rail with similar facility

50. The only objection I Can

can see to this plan is that which might be urged by a Capitalist - He might say "I want to take my 100 tons at a time, and a Railway with Railway wagons and Locomotive power would answer my purpose much better, than these smaller vehicles."

51 "True", I would answer, "but in the present state of society here there are few like you, so few, that, if you did not stand alone, you would readily combine. The branch line which the Government laid down for their own and the people's benefit at a considerable cost, would become in fact your private property; and the use you would make of it would be to establish a monopoly to turn it to your own advantage, and to keep up the price of salt to the prejudice, both of the people and the revenue."

52 I would recommend that the branch line up to the formation level be proceeded with, as proposed by the Chief Engineer P.W. at once, only suggesting that it be carried to a point somewhat further west

work on the main line, thus reducing the height of bank at the station, flattening the Curve, and improving the gradient at the same time; but if the Government approve of the light rail and narrow guage, while the Salt traffic is carried on as at present, I do not see any good reason for asking the Railway Officers to carry out that portion of the work which belongs to Government, I think it had better be done by the Public Works Department.

52 — While the banks drains, &c, are under construction; arrangements might be made for obtaining light rails - say 40 lbs to the yard from England, sufficient for the branch to the Cotaurs and the Canal wharves, while timber might be collected for sleepers which, for a line to be worked by Animal power, it might be better to have longitudinal, —

54 The estimate prepared by the Chief Engineer P.W. for a branch line to the point B, to and through the Colaurs, with a light rail weighing 36 lbs to the yard single line, is Rs 3,760. To make the line double with a narrow guage, the same width of bank would probably suffice, and the additional cost would be merely on the double line of rails, about 25,000 Rupees more; but if at first it were only thought necessary to carry the rails down to the Cotaurs, the total cost, with the double line of light rails now recommended, would, according to the Chief Engineer's estimate, be about Rupees 40,000, including the additional material & ballast for the second line of rails. —

55. The original plans and estimates forwarded by the Chief Engineer P.W. are returned herewith.

Madras
14th September 1857

D T Reeve
Consulting Engineer
for Railways

To
The Acting Chief Secretary
to Government
Fort Saint George

Exp. Ex. Hammett

entire

Transferred to the Revenue & Public Works Dept.
Fort St George
18th Sept 1857

Dr Hamilton
Sec. to Govt

Copy & the Chief Engr with 2 Plans.
5 Nov 57.
R. 2048

Do. & Fin. Railway Dept.
3 Nov 57.
No 24.

c 26 Sept. Reg. c 10 Oct. 215.

c 20 [illegible]

Public Department
Cons 3 November
No 1854.

Financial
Railway 1857 Septr
From
The Consulting Engineer
for Railways
To
The Chief Secretary
to Government
Fort St George
Dated 14 September 1857
Rec 15 — " —
18
No 318.
Enclos 13.
Plans — 2.
Estimates 5 —

Encls: 3 — No. 561

No 2048. 3 Nov.

Observations on several letters from the Agent & Manager of the Madras Railway Company on the subject of a Branch line of Railway to the Nall Cotaurs. —

G.O. 11 D.

No. 2048 2

Extract from the Minutes of Consultation

Under date the 3d November 1857

Read observations of the Consulting Engineer on certain letters from the Agent and Managers of the Railway Company

Hereunto 14th September 1857 No 318

In Extract from the Minutes of Consultation of the 15th May Cust No 953, the Government had under consideration two of four plans for connecting the Nall Cotaurs at Madras with the Railway; and for the reasons stated in para 7, they rejected the plan which involved the construction of a new Platform, close to the point where the Railway passes over the Canal, with a siding from the Rail, and expressed their entire

entire concurrence in the preference given by the Chief Engineer and the Board of Revenue, to the plan of connecting the present Platform with the Rail by a short branch line. The Consulting Engineer for Railways was accordingly requested to report the share of the expense of the branch line which should be borne by the Railway Company, and the Chief Engineer was instructed to cause careful estimates to be prepared of the cost of constructing the line.

2 In obedience to this requisition, the Chief Engineer submitted the following estimates of the probable cost of constructing a branch line of Railway from the limits of the ground belonging to the Railway Company to the Madras Salt Cotaurs, and extending it afterwards through the Cotaurs to a point on the main road leading from the Elephant Gateway, Viz.

1st For a branch line with heavy rails throughout	Rs 54,460
2d For a do do with light do	43,760
3d For a do with heavy rails to the commencement of the Cotaurs, on which locomotives might be run, and lighter rails throughout the Cotaurs, on which trucks might be moved by men	49,300.

The Chief Engineer, after discussing the cost of working the traffic by means of heavy rails and a locomotive, compared with that by means of a light-rail, being propelled the waggon by manual labor, expressed a preference in favor of the heavier rail, as being the most convenient and best suited upon a consideration of all circumstances; and the Government considering the question of the weight

of

entire concurrence in the preference given by the Chief Engineer and the Board of Revenue, to the plan of connecting the present Platform with the Rail by a short branch line. The Consulting Engineer for Railways was accordingly requested to report the share of the expense of the branch line which should be borne by the Railway Company, and the Chief Engineer was instructed to cause careful estimates to be prepared of the cost of constructing the line.

2 In obedience to this requisition, the Chief Engineer submitted the following estimates of the probable cost of constructing a branch line of Railway from the limits of the ground belonging to the Railway Company to the Madras Salt Cotaurs, and extending it afterwards through the Cotaurs to a point on the main road leading from the Elephant Gateway, Viz.

1st For a branch line with heavy rails throughout	Rs 54,460
2d For a do do with light do	43,760
3d For a do with heavy rails to the commencement of the Cotaurs, on which locomotives might be run, and lighter rails throughout the Cotaurs, on which trucks might be moved by men	49,300.

The Chief Engineer, after discussing the cost of working the traffic by means of heavy rails and a locomotive, compared with that by means of a light-rail, being propelled the waggon by manual labor, expressed a preference in favor of the heavier rail, as being the most convenient and best suited upon a consideration of all circumstances; and the Government considering the question of the weight

of

entire concurrence in the preference given by the Chief Engineer and the Board of Revenue, to the plan of connecting the present Platform with the Rail by a short branch line. The Consulting Engineer for Railways was accordingly requested to report the share of the expense of the branch line which should be borne by the Railway Company, and the Chief Engineer was instructed to cause careful estimates to be prepared of the cost of constructing the line.

2 In obedience to this requisition, the Chief Engineer submitted the following estimates of the probable cost of constructing a branch line of Railway from the limits of the ground belonging to the Railway Company to the Madras Salt Cotaurs, and extending it afterwards through the Cotaurs to a point on the main road leading from the Elephant Gateway, Viz.

1st For a branch line with heavy rails throughout	Rs 54,460
2d For a do do with light do	43,760
3d For a do with heavy rails to the commencement of the Cotaurs, on which locomotives might be run, and lighter rails throughout the Cotaurs, on which trucks might be moved by men	49,300.

The Chief Engineer, after discussing the cost of working the traffic by means of heavy rails and a locomotive, compared with that by means of a light-rail, being propelled the waggon by manual labor, expressed a preference in favor of the heavier rail, as being the most convenient and best suited upon a consideration of all circumstances; and the Government considering the question of the weight

of

of rails, to depend on the view taken by the Railway Company respecting the use of locomotive engines, requested Colonel Pears, after communicating with the Railway authorities, to advise Government on the whole matter, and to report at the same time, as requested in a previous order, on the share of the cost of constructing the branch rail that should be borne by the Railway Company. The paper from Colonel Pears above recorded, transmits a correspondence with the Railway authorities and conveys his opinion on the two points referred for his report.

+ Ed M.L. 30th July/57 N°1479.

3 Before proceeding to record their views on these points, the Government regret to have to remark that the Railway

Railway authorities appear to have taken little trouble to consider the project under discussion. In para 28 of his observations, Colonel Pears represents the Railway Agent and apparently with justice, as showing "a singular misapprehension of the whole business" and in para 33, he shows that the result of the Traffic Manager's proposal would be that, while the Railway's wagons were certainly to be made use of, neither the Railway Company nor the Government were to have any thing to do with hauling them from the Collieries to the main lines. This, it appears, was to be left wholly to the Traders on whose was to devolve the expense of moving wagons carrying

carrying from 6 to 7 tons, and
in themselves weighing not + Para 42
+ less than 5½ tons each.

In reply therefore
to the first point referred
for this report, Colonel Pears
+ states that if the Railway + Para 31.
Company, who alone can
do it, will not work the
branch line with locomotive
Engines, the permanent way
should not be constructed
with reference to that mode
of working, and to the use
of the large heavy wagons,
whose employment can only
be economical or advantageous
when associated with steam
power and comparatively
high speed. He is of opinion
that, if Salt Depots were
established by Government
along the line of Railway, in
which case none but large
loads

would be dispatched
from the Cutcherry, the branch
should ~~in the first instance~~ be
made a first class road; but
as the Government have already
decided against such a
measure, he proceeds to show
that the effect of laying
heavy broad gauge lines
on the proposed branch, on
the present state of the salt
traffic, would be to establish
a Monopoly in the hands of
a few capitalists, which
would prove highly injurious
both to the people and to
the Government Revenue.
This view of the question
is stated and discussed by
Colonel Pears (see paras 38
to 41 of his report, and the
objection which may be urged
urged against it, on the
part of a Capitalist, is
anticipated

unsatisfactory until next inspection
51 and 51.

On the foregoing considerations Colonel Pears recommends that the Cotaurs should be furnished with lines of light rails of 4 feet gauge, and that a double line of the same should be laid on the branch to the Railway siding, whereby the transfer from the light trucks, or wagons, to the Railway wagons, would be made. He further recommends that the branch lines up to the formation level should be proceeded with, as proposed by the Chief Engineer in the Department of Public Works, otherwise, and only suggests that it be carried to a point somewhat further west on the main line, thus reducing the

+ Page 45

+ Para 52.

the height of bank at the station, decreasing the curve, and improving the gradient at the same time. He also recommends that, in the event of Government approving the light rail and narrow gauge, while the full traffic is carried on as at present, the portion of the work which belongs to Government should be done by the Public Works Department, and not by the Railway Officers.

In para 39 of Colonel Pears report it is stated that, even if circumstances should induce the Railway authorities to place their engines on the branch line, the traffic manager thinks that 45 tons should be the minimum load for which they

they would send an Engine.
The Government are of opinion that any arrangement which fixes the minimum quantity of salt to be moved from the Cotaurs to the main line, in effect decides the class of people who are to be admitted to the trade. If the minimum be so high that cattle, or a number of Coolies, can alone move the load, those only can trade who have capital sufficient to purchase a large quantity of salt; if it be fixed so low that each man can wheel away his own purchase, all now trading may continue to trade, and competition will keep down price.

It may probably be urged as an argument against this plan, by those who are interested in keeping out the petty trader, and retaining the monopoly in their own hands, that the use of the small sized wagon would involve the removal of the salt from it to the Railway wagon, when the main line is reached. But this objection is not real; for even supposing that heavy rails, with a broad gauge, were laid from the main line to the Cotaurs, it is impossible that the system should be carried out in and through the Cotaurs; the turn tables, and the rails themselves, would occupy far too much space, and would destroy a great part of the salt-platform. These minor works must therefore be

on

on a small scale, and it will signify nothing to the trader, whether the removal of his salt from the smaller to the larger wagon, is made at the Cotaux, or at the railway; there must be a removal in both cases, and there will be but one in either.

It has been understood from Colonel Pears that, in his opinion, a wagon measuring 9×5×2 feet, will be the most convenient medium size. It will hold half a ganne of salt, or 2¼ tons, and by raising the sides with planks made to fit, may be made to contain more than ordinary cart load is half a ton; and the proposed waggon would therefore contain as much as from five to seven cart-loads.

Although

Although the turn tables within the Cotaux, made to suit these wagons, would not suit any of a larger size, they would perfectly well suit those of a smaller size, and wagons might be made of a size to hold the smallest quantity of salt sold at the Cotaux, and of sizes intermediate between them, and that which is above given as the maximum, so that all classes might be served.

The Government are of opinion that it is of great importance to the people that the trade in salt should be in many hands, and that ~~without exception~~ no plan should be adopted which may have the effect of confining the trade to capitalists, for

although

although more than one of this class may hereafter engage in the trade, they will combine to keep up prices, and the community must suffer in consequence.

With regard to the question of the share of the expense of the branch line to be borne by the Railway Company, it appears from para 35 of Colonel Pears report, that that Company will undertake only the execution of that portion which lies within the limits of their ground, and which is stated to be little more than three in the plan submitted by the Chief Engineer residing, A.Q. The Government however presume that this includes also the expense of constructing the portion of the rail A.B. which will pass through those limits, and on this understanding, they will not object to the arrangement.

The Government have very carefully considered the question as to the weight of rails to be laid down, and they are of opinion that, in the existing state of the salt trade, and to guard against its becoming a Monopoly in the hands of one or two capitalists, the best plan to be pursued would be that advocated by the Consulting Engineer for Railways. They accordingly approve of the recommendation of Colonel Pears that, for the present, the Salt-Cotaurs should be furnished with a double line of light rails of four feet gauge, ~~and that a double line of rails of the same gauge~~ should

to be laid on the branch to the Railway Siding. In para 54 Colonel Pears refers to the estimate submitted by Colonel Faber, amounting to Rupees 43,760, for a branch line from the point B to, and through the Salterns, with a light rail weighing 36 lbs but with a broad gauge to the yard, and he states that, to make the line double with a narrow gauge the same width of bank would probably suffice, and that the additional cost would be merely the cost of the second line of rails or about 25,000 Rupees. As the Government consider it advisable, as suggested by Colonel Pears, that the portion of the work which belongs to Government should be executed by the Public Works Department, the Chief Engineer is requested to state whether the entire line, from B to Z, can be executed, in the manner proposed by Colonel Pears, at the expense above calculated by him, and to submit a fresh estimate for the work, in view to its entry in the Budget.

12 In para 48 Colonel Pears refers to another point, connected with the communication between the Salt Stores and the Railway, which appears to Government to be of considerable importance, and that is, the establishment of a goods station at the junction of the branch and the mainline. This measure seems very necessary to ensure the petty trader from loss by delays, and absolutely to prevent

prevent the Railway Officers from serving the interests of any particular party, and throwing such obstacles in the way of others, as shall virtually exclude them from the trade. If there is a station and a booking office, every one will be able to bring up his salt, whether the quantity be large or small, to book it, and ensure its dispatch by the next goods train; all will be on the same footing, and no favour can be shown. But if a station be not established, the Railway Officers may refuse to halt the train at the junction, and may at all times decline to receive at that place, the salt of any one but such as they please to oblige, and may insist on all others taking

taking their salt to Royapooram, and thus entail on them the loss of the whole advantages of the branch line to the Cotaurs. For these reasons, the Government are of opinion that a goods station should be erected at the point indicated by Colonel Pears, and they accordingly resolve to communicate this para to the Financial Railway Department, whence orders on the subject will be issued.

3. Colonel Pears suggests, in para 46, that the branch line from the Cotaurs should be connected with the canal by sidings, of the same light narrow guage, leading down to the bank. He thinks it highly probable that, if this were done, there would be an interchange of miscellaneous goods,

goods, in addition to the salt; and that it would afford no small convenience to traffic, as well as to passengers ~~or goods~~, between Pulicat and its neighborhood on the north, of the railway and (when the Coast Canal is completed) the towns in the neighborhood of the canal ~~situated~~ on the South, and Vellore, Bangalore, &c. The suggestion seems judicious, and the expense attending it would be small. It may however be advisable that the trade on the Southern Canal should be somewhat developed, and the junction through Madras formed, before the work is actually undertaken; but the Government resolve, in the mean time, to refer the project to the Chief Engineer for report & Estimate.

9 Copies to the Chief Engr with Copy of the Consulting Engrs observations & 2 Plans Rec'd
3 — Dist Engr Rec'd
1 — Consulting Engr for Railways —

Public Works 1857 Deptt.
Cons: 3d November.

No 2048.

Extract Mins: of Cons:
Dd 3d November 1857.
R. C. Fi Sw 57. Pi 226

From the Chief Engr Dd 24 Decr/57
No 2533. dearyafter
Cons: 23d Decr/57.
1446-1455
Exc: Mr of Cons: in the Fin: & Railway
Depart. Dd 6th Augt/58 Cons: 1353.
in Cons: 14 Sept. 78-79

Regarding the projected
a Branch Line of Railway to the
Madras Salt Cotaurs.

No 24 & 25.