M.R.O. 1—82 406—29-11-80

MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

Cons. 11-8-57

G.O. No. 1536 Press Mis.

43-44

Dated 7—8— 1857.

Not to be folded or roughly handled

No. 43. Read the following letter from Colonel C. E. FABER, Chief Engineer; to H. FORBES, Esq., Acting Secretary to Government, dated 15th July 1857, No. 2050.

SIR,

In compliance with the orders of Government contained in Extract Minutes of Consultation No. 1238, dated 27th June 1857, requiring, that instead of a textual Schedule of references regarding the several works for which further information was called for by Colonel Baker in his despatch of the 11th July 1856, No. 3173, such as had been carefully prepared by me, as the most concise exposition of the progress made in the obtainment of the additional particulars wanted by the Government of India, a report should be drawn up in the usual shape, embodying all the explanations required; I now do myself the honor to state as follows.

2. The necessary Extracts from Extract Minutes of Consultation No. 1405, of 12th August 1856, were duly and promptly despatched to the several Officers of the Department of Public Works concerned.

3. The works to be noticed in succession are.

Para 8. Rupees 3,26,100. 1st. Constructing a portion of the Kistnah Southern high level channel in continuation from Juganampaudoo to Inkole.

I. In regard to this work, it was observed, that no designs had been submitted for the Aqueducts across the several streams alluded to, and that the streams themselves had not been marked on the Sketch Map.

II. The District Engineer Kistnah Division with his letter dated 13th April 1857, furnished a Sketch Map with the streams marked on it, and observed, that the designs of the Aqueducts Accompanied the original Project.

III. The designs of the Aqueducts which were inadvertently omitted to be forwarded to Government with the project, are together with the Sketch Map, and the District Engineer's letter above referred to, herewith submitted.

Para 9. Rupees 1,39,700. 2nd. Opening a channel along the western bank of the Kistnah, from Valahapooram to tide water at Adavipolliem.

I. In regard to this project, assurance was required of the sufficiency of supply, and of the security of the Canal proposed from the river encroachment, and some further information relating to the cost of the bridges, and minor channels of distribution.

II. The District Engineer's letter No. 60, dated 2nd September 1856, furnishing the required information, was forwarded to Government with Extract from Proceedings No. 6509 of the 13th Idem.

III. With Extract Minutes of Consultation No. 1942, dated 22nd October 1856, Government returned the District Engineer's letter to be re-submitted with one general Report.

IV. A subsequent letter No. 127, dated 14th November 1856, from the District Engineer urging the execution of the work, was forwarded to Government with my communication No. 8651, dated 5th December 1856, and in Extract Minutes of Consultation No. 39, dated 7th January 1857, Government authorized the work.

Para 12. Rupees 64,840. 3rd. Embanking the Mahanuddy from its junction with the Kolandaur, near Aska to Russelcondah.

I. Colonel Baker, in his despatch of the 11th July 1856, referred to a letter No. 1215, dated 22nd March 1856, sanctioning an advance of Rupees 30,000 for the above work, and observed.

" 1st. The sections run merely along the banks of the river, and do not shew the relative ' levels of the banks, and of the adjacent country."

2nd. " No information is given of the site of the embankments, what area of flood way ' they enclose between them, what volume of water is discharged by the river in the highest

" floods, or to what extent the embankments would limit the present spread of the water, yet " on these points depend the sufficiency of the floodway; and the stability of the embankments."

3rd. " To show that the evils attendant upon the Damoodah embankments, are not likely " to result in this case."

II. It appears unnecessary to refer to all the correspondence that has passed on this subject, the documents which have been received in, and despatched from the Central Office, amounting to 17 in number. I shall therefore merely notice, that the Acting Superintending Engineer Northern Circle, with his letter No. 10559, dated 28th February 1857, forwarded to Government a report on the river embankment by Lieutenant Harrington, then in charge of the Ganjam District and that Government in Extract Minutes of Consultation No. 495 of the 17th March 1857, pronounced the information given to be insufficient.

III. Further information is still pending from the Acting District Engineer of Ganjam, and Lieutenant Colonel F. C. Cotton, and the subject remains to be disposed of.

The 4th work noticed by Colonel Baker, was the extention of the Eastern Coast Canal from the Palaur to the frontier of Pondicherry, ordered in para 5. of Extract Minutes of Consultation No. 1258, dated 27th Ultimo, to be omitted from this report.

Para 15. Rupees 64,820. 5th. Constructing Locks and Calingulahs at Yalarpaud, and Chinnacapaveram and an embankment to Weyairoo, Project for keeping open a navigable communication from the Weyairoo into the Colair Lake, and the Sea.

I. The information called for by Colonel Baker, regarding the nature and extent of the expected traffic, and of the probable returns, was furnished with my letter No. 8882, dated 15th December 1856, and the estimate received the sanction of the Government of India in their, Secretary's letter No. 5879, dated 19th December, as communicated in Extract Minutes of Consultation No. 43, dated 8th January 1857.

Para 17. Rupees 36,021. 6th. Opening a Canal from the Tuddry river to Coompta.

I. Colonel Baker observed, that the length of the Canal was not stated, and that there was no scale on the Map, also that such tolls should be imposed on this, and every other Canal of navigation, as will defray the cost of maintenance, and afford a fair return for the outlay on the work.

II. Messrs. Brice and Co's. letter, dated 30th August 1856, with a letter No. 41, dated 22nd December 1856, from the Collector of Canara, furnishing in part, the required information, were forwarded to Government in my letter No. 9516, dated 16th January 1857.

III. The further information required, and called for, as noticed in the Government order of the 28th January 1857, is.

1st. Length of the Coompta Canal.

2nd. Calculation of the charge for ton ℔ mile, at the proposed rates of toll.

3rd. My opinion on the District Engineers establishment, for the annual maintenance of the Canal.

4th. The extension of the Canal to Honore, and to the improvement at Kutgul, both suggested by Messrs. Brice, and Co.

IV. The additional information not having yet been received, has been again called for.

Para 18, Rupees 41,851
" 14,439
..... 56,290

7. For increased width of metalling on Trunk road. No. 1.

I. Colonel Baker, observed, that for a road running parallel to a Railway road, it appeared that a width of 18 feet of metalling should suffice, and that a decision upon this item would be therefore suspended, until the actual effect of the Railroad, on the traffic of the road shall have been ascertained.

II. The railroad has not been sufficiently long in existence, to show, what its effect will be on the road traffic. Traffic returns are regularly kept, and a comparison of them with the former returns will be made in due course.

Para 21. Rupees 84,580. 8th. Masonry works, consisting of 16 Bridges, and 65 Tunnels, on Trunk road No. 6 between Covoor and Middegunda.

I. In regard to these works, it was observed, that the designs of them, in this, and most of the Trunk road Projects, were drawn to a standard pattern, without any variation to suit local peculiarities, that there was no report on the nature of the soil, and that the foundations appear to be somewhat deficient in depth.

II. The information regarding these works, not having yet been received, has been again called for.

Para 22. Rupees. 46,550. 9th. Repairing, and improving 34½ miles of Trunk road, No. 6, from Suntashapooram to Dundagedda near Itchapore.

I. An approximate estimate for the larger Bridges on the above road was called for.

II. With my report No. 8662, dated 6th December 1856, E. E. I forwarded to Government, two estimates.

One of Rupees (23,790) twenty-three thousand seven hundred and ninety, for masonry works between Chicacole and Sunthashapooram.

And one of Rupees (23,430) twenty-three thousand, four hundred and thirty, for those between Sunthashapooram and Itchapore.

III. These estimates have been retained in the Government Office for disposal.

Para. 21, Rupees 1,06,333. 10th. Bridge over the Pennaur on Trunk road No. 8.

I. Some doubt was felt regarding the sufficiency of the foundations in the probable event of sand being found in the river bed to a greater depth than that of the substructure.

II. The information on this point not having yet been received, has been again called for.

Para 28. Rupees 39,142
" 55,742
" 12,482
" 21,387

11th. Bridges on Trunk road No. 11, between Kulloor, and Kulcudda.

And between Kulcudda and Goolcherroo.

I. The remark regarding the apparent deficiency of foundations was applied to the whole of these designs.

From Atg. Dist. Engr. North. Arcot. Letter No. 73 dated of 10th Jan. 1857.
" " 1186 " 8th April "
From District Engineer Cuddapah.

II. The correspondence noted in the margin, relating to this subject is forwarded to Government, from which it will be seen that of the 16 Bridges, the foundations of two only the Chittoor, and Calavagoontah, are considered to be insufficient in part, the probable increased expenditure on account of the former will be 8½ ℔ cent on the estimate, and of the latter 3¼ ℔ cent.

III. The Acting District Engineer of North Arcot states, that " in the Chittoor river, the " North abutment will be on sand and will require 6 feet wells, the five adjacent piers will also " require 6 feet wells and the 6th 5 feet wells it will rest on rock, the former ones still resting " on sand the remainder of the Piers, and the South abutment will rest on rock."

Estimate Rupees 12,482 probable additional expenditure, Rupees 1,060.

IV. " In the Calavagoontah river bottom, was found all the way across at depths varying " from 4 to 12 feet."

Estimate Rupees 21,387, probable cost of increasing depth of foundations to 8 piers, Rupees 700.

V. The District Engineer of Cuddaph states, " that the beds of all the large rivers in this " District on Trunk road No. 11, with the exception of the Maundaveer at Raichottee, are very " rocky."

VI. " Owing to the presence of rock near the surface of the beds of many of the rivers; " it will not in every case be necessary to build foundations so deep as those allowed in the esti- " mates, as the piers and abutments will often rest on solid rock."

12th. Completing branch road from the ferry at Vizagapatam to Punchadarlah, and constructing the line up to Poolapurty on Trunk road No. 6, also partial repairs to the Masulipatam and Hydrabad road from Ebrampatam to Masulipatam.

Para. 29 Rupees 45,750
" 43,250

I. Colonel Baker expressed a doubt as to the efficiency of Sand and Potters earth for road metalling, and suggested, as the roads were represented to be important, and therefore subject to heavy traffic, that the additional cost of proper metal might perhaps wisely be adopted. The works were at the same time sanctioned for execution.

II. With my letter No. 9658, dated 22nd January 1857, I forwarded to Government copy of one from the District Engineer Kistnah Division, No. 164 of the 3rd Idem, in which that Officer observed, that "no suitable material for road making being found in the Delta through "which the road from Masulipatam to Ellore and to Bezoarah passes, burnt brick would be an "excellent substitute, though expensive in the first Instance; and in maintenance, but unfortu-"nately the means of preparing it in the requisite quantities do not exist; owing to the scarcity "of fuel, and recourse must therefore be had to Sand, or to the Earth mixed with broken Pot-"tery, which is found on the sites of deserted villages, neither of which is capable of making a "road fit for heavy wheeled traffic during the rains, however well raised and drained it may be."

III. I am of opinion, that the excessive cost of gravel which is stated by the District Engineer, not to be procurable within any reasonable distance, is a sufficient reason for not advocating its being used, until at all events, the traffic on the road in question is proved to be of sufficient importance to justify the heavy expenditure that would be necessary.

Para 30. Rupees 31,100.
Rupees 78,710.

13th. Earthwork and minor bridges on the portion of the Bellary and Cuddapah road from Royalcherroo to Ghooty.
and, completing the Bellary and Cuddapah frontier road.

I. Colonel Baker remarked, that the above roads in their present shape were essentially isolated portions of a project for one work, viz., a road from Cuddapah to Bellary, and that a complete project for the whole line should be submitted.

II. The estimates for the portion of the road in the Bellary District, have not yet been completed.

III. An estimate of Rupees (1,07,580) one lac, seven thousand, five hundred and eighty, was forwarded to Government with my Report No. 8662, dated 6th December 1856; and was returned with Extract Minutes of Consultation No. 1131, dated 12th June 1857.

IV. The District Engineer of Bellary has been requested to expedite the preparation of his estimates, which when received, will be submitted with the one for Cuddapah, for entry in the Budget of 1858-59.

Para. 33 Rupees 42,200.

14th. Constructing a bridge of 25 arches across the river Vigay at Madura, on the high road No. 4 from Madras to Travancore.

I. It was pointed out, that the wells of the above bridge appear rather deficient in depth, and suggested for consideration, whether it would not be advisable to carry to a greater depth than 8 feet, the foundation Cylinders of the Ambravutty bridge, which was to be founded on sandy soil.

II. The information regarding these bridges not having yet been received, has been again called for.

Para. 37 Rupees 50,310.
Rupees 10,700.

15th. Additions and alterations to the Sea Custom house at Madras.
and, improving the internal accommodation of the Sea Custom house for the landing and shipping of goods, and their conveyance to, and from the Custom house.

I. It was observed, that the projected arrangement for the sea [illegible] appear to be unexceptionable, but a doubt was entertained, whether the Verandah on the Seaward [illegible] which it appears that the doors of the building open) can be conveniently used as an export warehouse, and, that the details of the tram way, if correctly shewn in the drawing, are apparently susceptible of improvement.

16th. The information upon the remarks made by Colonel Baker upon the Sea Custom house export shed, was forwarded to Government in my letter No. 5596, dated 7th August 1856, the doubts felt by the Bengal Government, have not been entertained or experienced by the local functionaries, the shed is commodious, convenient, and does not interfere with access to the import sheds. It was commenced in obedience to the orders of this Government, see Extract Minutes of Consultation No. 485, dated 12th May 1856, it has been completed, and gives great satisfaction to the Sea Custom's Officers.

17th. The disposition of the tram way seems to have been partially misunderstood, the rail nearest the Custom House is merely a siding on which wagons are run out of the way. The switches are probably drawn at too great an Angle, which is merely an error in the drawing, and which will of course be rectified in construction.

No. 14. ORDER THEREON, No. 1536; dated 7th August 1857.

In the above letter, the Chief Engineer replies to para. 5 of Extract Minutes of Consultation, No. 1238 of 27th June 1857, in which it was pointed out to that Officer, that a tabulated list of the correspondence which had taken place with reference to the projects respecting which the Supreme Government had called for more information while reviewing the Budget of 1856-57 was wholly inadmissible as a reply to that call; and furnishes a report embodying some few of the particulars required.

2. The first point noticed was an omission to submit designs for the Aqueducts across the streams which were to be crossed by the proposed southern high level channel from the Kistnah annicut, and to mark the streams themselves on the sketch map. Colonel Faber now states that the District Engineer duly forwarded a sketch map shewing the streams and the plans, &c. of the Aqueducts with his letter of 13th April 1857; but that they were inadvertently detained in the Central Office.

Para. 8 of Col. Baker's letter to Govt No 3173 of 11th July 1856. Chief Engineer para. 3, clause 1.
No. 17, Statement 1.
Chief Engr's para. 3, Cl. III.

3. The second point on which information was called for was respecting the sufficiency of supply generally, for the already existing, as well as the projected channels connected with the Kistnah project; an assurance was demanded that the supply was sufficient, as also that the proposed canal was secured from encroachment by erosion of the banks of the river. Further information was likewise asked for, relating to the cost of bridges and minor channels of distribution.

Letter of Sup. Govt. para. 9, No. 18 Statement 1. Budget of 1856-57.

The Chief Engineer now shews that he was directed in Extract Minutes Consultation, No. 1942, of 22nd October 1856, to re-submit the District Engineer's letter, furnishing the required information, with one general report containing all the information required by the Supreme Government. Subsequently Government authorized the execution of the work, but this did not do away with the necessity, as Colonel Faber seems to have supposed, of complying with the order of Government of 22nd October. Colonel Faber will now be good enough to submit Captain Orr's letter, with his own remarks.

Extract Minutes Consultation No. 39 of January 7, 1857.

4. In para. 12 of Colonel Baker's letter, the amount of information concerning the Mahanuddy embankments was stated to be wholly defective.

It appears that much correspondence has taken place in the Central office on the subject of these embankments, which resulted in a reference to Government on 28th February 1857. But on 18th March, Government pronounced the information still insufficient; and reports are still due from the Acting District Engineer of Ganjam, and Lieutenant Colonel F. C. Cotton.

5. The Government observe that the information supplied by the Chief Engineer in his letter of 8th September 1856, respecting the extension of the Sadras Canal to the Pondicherry frontier has been furnished to the Government of India in para. 6 of the Report on the Budget of 1857-58.

6. The deficiency noted in para. 15 of Colonel Baker's letter respecting Project No. 14 of Statement No. 1 (for keeping open a navigable communication between the Godavery and Kistnah across the Delta, &c.) was supplied by the Chief Engineer in his letter No. 7313 of 18th October 1856, (and not No. 8882 of 15th December 1856, as stated by the Chief Engineer,) and the project, on being again recommended by this Government, in Mr. Chief Secretary Pycroft's letter No. 2097 of 11th November 1856, was sanctioned by the Government of India on 19th December 1856. No further notice of the case is consequently necessary.

Chief Engineer Clause 3 from end of para. 5. Col. Baker para. 13.

Chief Engineer last clause of para. 5.

7. The subject of the Tuddry and Coompta Canal is still pending; the additional information called for, as noticed in Extract Minutes Consultation 28th January 1857, not having been yet supplied.

Letter from Government of India para. 17.
Chief Engineer para. 6.

8. With reference to increased width of metalling to Trunk road No. 1, Colonel Baker remarked that a decision on the question would be suspended until the actual effect of the Railway upon the traffic shall have been ascertained.

Para. 18.

9. The Chief Engineer states that traffic returns are regularly kept and that a comparison of them will be made in due course. As the returns are kept, it seems reasonable to suppose that a reference to them would have answered the purpose required to some extent; inasmuch as the Railway has now for a year been open as far as it runs parallel to the Trunk road. Colonel Faber's attention will now be prominently drawn to the subject, and he will be requested to avail himself of the information procurable which will be, protanto useful.

Para. 7.

10. Respecting the adoption of an uniform standard plan for bridges on Trunk road No. 6, without reference to local peculiarities, Colonel Faber seems to have partly misapprehended the remarks of the Government of India; one omission noticed was the absence of an assurance on the part of the Chief Engineer that he had satisfied himself as to the foundations of the masonry works having been sunk to the requisite depth. This is still wanting, and will be supplied together with the report said to have been called for from the District Engineer respecting the nature of the soil, and the apparent disregard of local peculiarities in making all masonry works of the same pattern.

Govt. of India para 21.
Chief Engr. para. 8, Clause 1.

11. The estimates alluded to in the para. of Colonel Baker's letter noted in the margin, the Chief Engineer shews, were forwarded to Government on 6th December 1856, and retained for disposal in the Government Office.

From Government of India para 22
From Chief Engineer para 9.

12. The information respecting the depth of foundations of the Pennar bridge is stated to be still wanting.

Government of India para 24.
Chief Engineer para. 10.

13. In para. 28 of their letter, the Government of India expressed an opinion that the whole of the designs for bridges on Trunk road No. 11 exhibited an apparent deficiency of foundation.

The Chief Engineer now forwards the correspondence which has taken place on the subject. It appears that, of the 10 bridges proposed, the foundations of two only are considered to be partly insufficient, the evil will be remedied by an addition of 8½ and 3½ per cent. respectively, to the estimates.

Chief Engineer para. 11, from Acting District Engineer North Arcot No. 73 of 10th January 1857, and 1186, of 8th October 1857, from District Engineer of Cuddapah.

14. In para. 29 the Government of India expressed a doubt as to the efficiency of "Sand and Potter's earth" for road metalling, on the road between Masulipatam and Ibrahimpatam.

It is now explained that no material at all suitable for making a road is found in the Delta, and though sand and broken pottery such as is procurable from the sites of deserted villages will not form a road fit for very heavy traffic during the rains, it is the best material that can be procured; and Colonel Faber deprecates any attempt to bring gravel from a distance, "till the traffic on the road in question is proved to be of "sufficient importance to justify the heavy expenditure that would be necessary." From these

Clause III para. 12.

remarks the Government are led to believe that the Chief Engineer has altogether lost sight of his subsequent letter of 28th January last, No. 9821, wherein he recommended, at the instance of Captain Orr, that the route originally proposed for the Masulipatam and Ibrahimpatam road should be abandoned, and that the road in question should be constructed on the bank of the Masulipatam Canal, with the view of facilitating the transport of gravel at a moderate cost. In para. 4 of the Extract Minutes of Consultation, dated 8th May 1857, the proposed change of line was sanctioned, and a fresh estimate called for for carrying out the measure.

15. In para. 30 of his letter it was laid down, that the Cuddapah and Bellary road should be treated as an entire project; and Colonel Baker further desired the re-submission of the estimates for it as such. The Chief Engineer shews that the estimates for the whole are not yet complete, though part was sent in to Government and returned with Extract Minutes of Consultation, No. 1131 of 12th June 1857.

Chief Engineer para. 13.
Clause II and III, para. 13.

16. In clause 2 of para. 33, the Supreme Government expressed a doubt as to the sufficiency of depth of the foundations of the bridges over the Vigay at Madura, and over the Amravaty at Darapooram. No information has yet been supplied to the Chief Engineer on these points.

Clause II, para. 15.

17. The last point noticed by the Government of India bore reference to the improvements of the Custom House. They expressed a doubt whether the verandah on the sea front could be conveniently used as an export warehouse; and whether (supposing the sketches submitted to be correct) the details of the Tramway were not susceptible of improvement.

18. It is now explained that the doubts entertained by the Government of India have not been felt by the local Officers; the shed having been completed, and giving great satisfaction to the Sea Custom Officers.

Chief Engineer, para. 16

The impression that the Tramways would prove inconvenient is proved to have arisen from an error in the drawing.

19. The Government must remark that inasmuch as their object has been throughout to have one complete and connected report respecting the points to which exception was taken by the Government of India, they cannot but look upon it as unsatisfactory that the Chief Engineer should have (even after the delay that has taken place,) submitted his report in so very incomplete a state. They have preferred reviewing the information of which they have been placed in possession (though inconvenience and additional labour must always be involved in disposing of a subject piecemeal) to running the risk of further disappointment by returning the present report to the Central Office till it could be submitted in a perfectly complete state. Colonel Faber will now be good enough to use his best endeavours to supply the deficiencies in his communication under reply at an early date.

(Signed) H. FORBES,
Acting Secretary to Government.

Public Work 1857 Dept.
Cons 11th August

No. 1448

From the Chief Engineer
d/15th July 1857

In compliance with the Orders of Government contained in Extract Minutes Cons No. 1255 dated 27th June 1857 forwards as far as it has been obtained information regarding the works noticed by Colonel Baker in his despatch of the 11th July 1856 No. 3173.

No. 43-44

With an order d/27th Aug 1857 / 11 1856

Central Office of P.W.
Fort St George July 1857

No. 2050

9

From The Chief Engineer

To The Secretary to Government
P.W. Department

7 Enclosures

Sir,

In compliance with the Orders of Government contained in Extract Minutes of Consultation No. 1258, dated 27th June 1857, requiring that instead of a textual schedule of references regarding the several works for which further information was called for by Colonel Baker in his despatch of the 11 July 1856 No. 3173 such as had been carefully prepared by me, as the most concise exposition of the progress made in the obtainment of the additional particulars wanted by the Government of India, a Report should be drawn up in the usual shape, embodying all the explanations required, I now do myself the honor to state as follows.

2. The necessary Extracts from Extract Minutes of Consultation No. 1405, of 12 August 1856 were duly and promptly despatched to the several Officers of the Department of Public Works concerned.

3. The works to be noticed in succession are:

1st Constructing a portion of the Kistnah

Kishnah Southern high level Channel, in continuation from Eguanam pandoh to Sholá.

Vo: 8. Ns 32 to 120

I In regard to this work it was observed, that no designs had been submitted for the Aqueducts across the several streams alluded to, and that the streams themselves had not been marked on the Sketch Maps.

II The District Engineer Kistnah Division with his letter dated 13th April 1837, furnished a Sketch Map, with the Streams marked on it, and observed that the designs of the Aqueducts accompanied the Original Project.

III The designs of the Aqueducts, which were inadvertently omitted to be forwarded to Government with the Project, are together with the Sketch Map, and the District Engineer's letter above referred to, herewith submitted.

2d Opening a Channel along the Western bank of the Kishnah, from Kalahasteeram to tide water at Adamkollum.

Vo: 9. Ns 137 to 163

I. In regard to this Project, assurance was required of the sufficiency of supply and of the security of the Canal proposed from the river encroachment, and some further information relating to the cost of the Bridges and minor Channels of distribution.

II. The District Engineer's letter No: 60, dated 2d September 1836, furnishing the required information was forwarded to Government with Extract from Proceedings No: 6509, of the 13th idem.

III With Extract Minutes of Consultation No: 1942, dated 22d October 1836, Government returned the District Engineer's letter to be resubmitted with one general Report.

IV A subsequent letter No: 127, dated 11th November 1836, from the District Engineer, urging the execution of the work, was forwarded to Government with my communication No: 8651, dated 5th December 1836, and in Extract Minutes of Consultation No: 39, dated 7 January 1837, Government authorized the work.

3d Embanking the Mahanuddy from its junction with the Kolendaur, near Attra to Russelendah.

Vo: 10. Ns 64 to 70

I Colonel Baker in his despatch of the 11 July 1836, referred to a letter No: 1215, dated 22d March 1836, sanctioning an advance of Rupees 30,000 for the above work, and observed.

1st "The sections are merely along "the banks of the river, and do not shew "the relative levels of the banks and of "the adjacent country.

2d "No information is given of the "site of the Embankments, what areas of "flood way they enclose between them, "what volume of water is discharged "by the river in the highest floods, or to

"what

what extent the Embankments would limit the present spread of the water, but on these points depend the best freeway of the flood away, and the stability of the Embankments.

3d To show that the soils abundant upon the Damoodah Embankments are not likely to result in this case.

II It appears unnecessary to refer to all the Correspondence that has passed on this subject, the documents which have been received in, and detached from the Central Office, amounting to 17 in number. I shall therefore merely notice, that the Acting Superintending Engineer Northern Circle, wrote his letter No 1559, dated 28th February 1837, forwarded a Government Order for an Embankment by Lieutenant Harington, then engaged in the Survey of the Ganjam Coast Canal, and inclosed an Extract Minute of Council of the 17th March 1837, sanctioning the proposition given to him in general terms.

III Further information was called for pending from the Superintending Engineer Ganjam, and Lieutenant Colonel Colleton, and the subject remains to be disposed of.

The Government and Colonel Butler, and the opinions of the Eastern Coast Canal from the Chilka to the frontier of Gondwana, inclosed in Extract Minutes of Council, have been

dated 27th Ultimo, to be omitted from this Report.

Re 15 Rs 5/1820. 5. Constructing Locks and Sluices at Calarpaud, and Channel of Communication and Embankment to Weyaroo. Project for keeping open a Navigable communication from the Weyaroo into the Colair Lake and the sea.

I. The information called for by Colonel Butler regarding the nature and expedients of the exported traffic, and of the probable returns was furnished with my letter No 8883, dated 15th December 1836, and the Estimates received the sanction of the Government of India in their Secretary's letter No 5879, dated 19th December, as communicated in Extract Minutes of Consultation No 43, dated 8 January 1837.

Re 17 Rs 36021. 6. ——— Opening a Canal from the Ludderypiver to Coomptah.

I. Colonel Butler observed, that the length of the Canal was not stated, and that there was no scale on the Map: also that such tolls should be imposed on this, and every other Canal of Navigation, as will defray the cost of maintenance, and afford a fair return for the outlay on the work.

II Messrs Price and Co's letter dated 30 August 1836, with a letter No 41, dated 23d December 1836, from the Collector of Canara furnishing in part, the required information were forwarded to Government in my letter No 9516, dated 16 January 1837.

The

III.— The further information required and called for, as noticed in the Government Order of the 28th January 1837. is...

1st Length of the Comptas Canal.

2d Calculation of the charges for tons & Mules, at the proposed rates of Toll.

3d Any opinion on the Estimate Engineers Establishment for the annual maintenance of the Canal...

4th The extension of the Canal to Honore, and the improvement at Kidgul both suggested by Mr Capt Briscoe &c.—

IV.— The additional information not having yet been received, has been again called for.—

5th For increased and 12 foundations &c. Rs 18-Rs 11251
on Trunk Road, No 1. 1/2 132
13.69

I.— Colonel Baillie observed, that for a road running parallel to a Railway road, it appeared that a width of 18 feet of metalling should suffice, and that the decision upon this item would be therefore suspended, until the Superintendent of the Railroads, on the spot, should have been consulted.

II.— The Railroad Layout has been sent recently, long explanations & comparisons effect will be on the road bridges. Surveys returns are regularly kept, and a comparison of them with the former returns will be made in due course.—

Masonry

Pa: 21. Rs 84580.

8th.— Masonry Works, consisting of 16 Bridges and 65 Tunnels on Trunk Road No 6. between Coorur and Noordegunda.—

I.— In regard to these works it was observed, that the designs of them in this, and most of the Trunk Road Projects, were drawn to a standard pattern, without any variation to suit local peculiarities, that there was no report on the nature of the soil, and that the foundations appear to be somewhat deficient in depth.—

II.— The information regarding these works not having yet been received, has been again called for.—

Pa: 22. Rs 46550.

9th.— Repairing, and improving 34½ miles of Trunk Road No 6, from Suntashapooram to Dundageddu near Itchapore.—

I.— An approximate Estimate for the larger Bridges on the above road was called for.—

II.— With my Report No 8662, dated 6 December 1836, E.E. I forwarded to Government, two Estimates.—

One of Rupees (23790) twenty three thousand seven hundred and ninety, for Masonry works between Chicacole and Suntashapooram.—

and One of Rupees (23130) twenty three thousand, four hundred and thirty, for those between Suntashapooram and Itchapore.

III.— These Estimates have been retained in the Government Offices for disposal.—

Bridge

10th Bridges over the Commencement Road &c Rs 24,Rs 16,933-

Road No 1 &c

I. Some doubt was felt regarding the sufficiency of the foundations in the probable event of sand being found in the river bed to a greater depth than that of the substructure.

II. The information on this point not having yet been received, has been again called for.

11th Bridges on Trunk Road No 11, &c Rs 39,442—
between Nellore and Kulcondah do. " 35,742—
and between Kulcondah and Cooke town " 12,482—
" 21387—

I. The remark regarding the insufficiency of foundations was applied to the whole of these bridges.

II. The correspondence noted in the margin relating to this subject was submitted to Government from which it will be seen that of the 11 Bridges, the foundations only of the Chittoor and Calingapatam bridges are considered to be insufficient, and the probable increased expenditure on account of the former will be 8,25 (one lakh) Estimate, and of the latter 3,42 (one lakh)

III. The Acting District Engineer of North Arcot states, that in the Chittoor river, the north abutment will be on sand and will require 6 feet wells, the four adjacent piers will also require 6 feet wells and the 5 piers next will rest on sand & the former ones will rest upon sand.

&c

"the remainder of the Piers and the South abutment will rest on rock."

Estimate Rupees 12,482 probable additional expenditure, Rupees 1060.

IV. "In the Calavagontah river bottom "was found all the way across at depths "varying from 4 to 12 feet."

Estimate Rupees 21387 probable cost of increasing depth of foundations to 8 piers, Rupees 700.

V. The District Engineer of Cuddapah states, "that the beds of all the large "rivers in this District on Trunk Road No 11, "with the exception of the Maundaveer at "Raichottee, are very rocky."

VI. "Owing to the presence of rock near "the surface of the beds of many of the rivers "it will not in every case be necessary to "build foundations so deep as those allowed "in the Estimates, as the Piers and Abutments "will often rest on solid rock."

Rs 29 Rs 45750-
" 43250- 12th Completing branch road from the ferry at Vizagapatam to Punchadarlah, and constructing the line up to Bodlapurty on Trunk Road No 5, also partial repairs to the Masulipatam and Hydrabad Roads from Bhamptapatam to Masulipatam.

I. Colonel Baker expressed a doubt as to the efficiency of Sand and Potters earth for road metalling, and suggested as the roads were represented to be important, and therefore subject to heavy traffic that

the

the additional cost of proper metal might perhaps wisely be added to it. The works were at the same time vaneboured for speedy

II.- With my letter No 9855, dated 22d January 1837, I forwarded to Government a copy of one from the (A)ssistant Engineer Nuddea Division, No 164 of the 3d idem, in which that officer observed that to enable him to commence road making being found in the villages through which the road from Cuddapah to Ellore and to Nellore passes, burnt brick would be an excellent substitute, though expensive in the first instance, and on account of preparing it in the requisite quantities do not exist, owing to the scarcity of fuel; and resource must therefore be had to sand or to the earth mixed with broken pottery, which is found on the sites of deserted villages, neither of which is capable of making a road fit for heavy wheeled traffic during the rains, however well raised and drained it may be.-

III.- I am of opinion that the expensive cost of gravel which is stated by the District Engineer not to be procurable within any reasonable distance, is a sufficient reason for not advocating its being used, under all circumstances, the traffic on the road in question is proved to be of sufficient importance to justify the heavy expenditure that would be necessary.-

13.- Earthwork and Minor Bridges on the portion of the Bellary and Cuddapah road from Royaleherro to Ghooty.

Rs 30- Rs 31100.

and, Completing the Bellary and Cuddapah frontier road.

Rs 78710.

I.- Colonel Baker remarked that the above roads in their present shape were essentially isolated portions of a Project for one work, viz, a road from Cuddapah to Bellary, and that a complete Project for the whole line should be submitted.-

II.- The Estimates for the portion of the road in the Bellary District have not yet been completed.-

III An Estimate of Rupees (107,580) One lac, seven thousand, five hundred and eighty, was forwarded to Government with my Report No 8662, dated 6th December 1836, and was returned with Extract Minutes of Consultation No 1131, dated 12 June 1837.-

IV.- The District Engineer of Bellary has been requested to expedite the preparation of his Estimates, which when received, will be submitted with the one for Cuddapah, for entry in the Budget of 1838/39.-

14.- Constructing a Bridge of 25 Arches across the river Nagay at Madura, on the high road No 4 from Madras to Travancore.-

Rs 33 Rs 43,200-

I.- It was pointed out, that the wells of the above bridge appear rather deficient in depth, and suggested for consideration, whether it would not be advisable to carry to a greater depth than 8 feet, the foundation Cylinders

Cylinders of the Ambattully Bridge: which is now
to be founded on sand rock.—

II.— The information regarding these
Bridges not having yet been received, has
been again called for.—

15:— Additions and alterations to the Rs. 5,940-
Sea Custom House at Madras.—
and improving the internal accom- Rs. 19,700
modation of the Sea Customs House for the
landing and shipping of goods, and their con-
veyance to and from the Custom House.—

I.— I have learned that the projected
arrangements for the new Imported shed ap-
pear to be unexceptionable, but a doubt
was entertained whether the Verandah on
the sea front (into which it appears that
the doors of the buildings open) could not
usefully exist as an effectual cover from
the rain, and that the details of the framing
if correctly shewn in the drawing are all
readily susceptible of improvement.—

16:— The information upon the remarks
made by Colonel Waller upon the Sea
Custom House effected should be remarked
to Government in my letter No. 5576 dated
7 August 1836, the double fill by the
Bengal Government has not hitherto
tained or finished by the contra-
functionaries, they shall be commenced
Command, and directed to be finished
accord to the Original Plans & Estimate
(Command.)

Commenced in obedience to the Orders of
this Government, see Extract Minutes
of Consultation No. 485, dated 12 May 1836.
it has been completed, and gives great
satisfaction to the Sea Customs Officers.—

17.— The disposition of the tramways
seems to have been partially misunderstood;
the rail nearest the Custom House is
merely a siding on which wagons are run
out of the way.— The switches are probably
drawn at too great an angle, which is
merely an error in the drawing, and which
will of course be rectified in construc-
tion.—

I have the honor to be

Sir

Your most Obed.t Servant

Central Office of P.W.
Fort St. George
July 1837.

A. Taylor Colonel
Chief Engineer

Off
Asst. Engr. A.C.

Public Works Dept.

No. 1536

From the Minister of Communication

Under date the 15th July 1857.

Read the following

Letter from the Chief Engineer

Dated 15th July 1857

No. 2050

Submitted

Sir

I have the honor to request that you will be pleased to move the Chief Engineer to direct a Survey to be made of 27 Acres of Land in the Township of Grey County of Huron, the property of Mr. Thomas Gibbons, which is wanted for the Harbour Office, Goderich.

I have the honor to be
Sir
Your most obedient
Servant
(Signed) [illegible]
Secretary

The Secretary
Public Works

Cons: 30 June 57 No. 55 & 56
" 12 Aug. " " " 87 & 90
" 28th October 1856 " 8-9
" 18 Jany 1857 " 16-17.

Public Works 3rd Aug. 57
No. 1158
(P)
Inn.
The Chief Engineer
The Secretary to Government
P.W. Department

Dated 15th July 1857.
No. 1736
Enclosures.
Signed
No. 2050
Dated 8th No. 1536. 7th Aug.

In compliance with the orders of Government contained in Exp. Minutes No. 1158 dated 27th June 1857 forwarded herewith I have the honor to submit for information regarding the work noticed by Colonel Baillie in his despatch No. of the 11th July 1856 No. 3173.

Copy Dft. 181 Aug.

reference to the projects respecting which the Supreme Government had called for more information while reviewing the Budget of 1856-57 was wholly inadmissible as a reply to that call; and furnished a report embodying ~~all~~ some few of the particulars required.

2. The first point noticed was an omission to submit designs for the Aqueducts across the streams which were to be crossed by the proposed Sonnerain high level channel from the Krishna

Paras 8 of C.C. Baker's letter to Govt. No 3178 of 11th July 1856 Chief Engr paras 3 Chief

Chief Engr paras 3 & 11

25

Krishna Annicut, and to mark the streams themselves on the sketch map. Colonel Faber now states that the District Engineer duly forwarded a sketch map shewing the streams and the plans &c. of the Aqueducts with his letter of 13th April 1857; but that they were inadvertently detained in the Central Office.

3. The second point on which information was called for was respecting the sufficiency of supply

supply generally, for the already existing, as well as the projected channels connected with the Kishna project; an assurance was demanded that the supply was sufficient as also that the proposed Canal was secured from encroachment by erosion of the banks of the river. Further information was likewise asked for, relating to the cost of Bridges and minor channels of distribution.

Letter Sec. to Govt. para 9. No 1821 Budget of 1856-57

The Chief Engineer now

now shews that he was directed in Extract Mins. Cons. No 1942 of 22d October 1856 A.O. to submit the District Engineers letter, furnishing the required information, with one general report containing all the information required by the Supreme Government. Subsequently Govt authorized the execution of the work, but this did not do away with the necessity of Colonel Taber's having complying with the order

Ex Mins Cons No 89 of Jany 7. 1857.

order of Government of 22d October. Colonel Taber will now be good enough to submit Captain Orr's letter, with his own remarks.

4. In Para 12 of Colonel Baker's letter, the amount of information concerning the Muhamdaly Embankment was stated to be wholly defective.

It appears that much correspondence has taken place in the Central Office on the subject of these embankments, which resulted in a reference to Government on 28th January February 1857. But on 18th March, Government pronounced the information still insufficient, and reports are still due from the Acting District Engineer of Ganjam, and Lt Col T. C. Cotton.

5. The Govt observe that the information supplied by the Chief Engineer in his letter of 8th Septr 1856, respecting the extension of the Cadiva Canal to the Pondicherry frontier has been furnished to the Govt of India in pursuance of the Report on the Budget of 1857-58.

Chief Engrs Clause 3 from end of para 5 Col Baker para 13.

5. ~~Regarding the Ecut Coast Canal, no report was called~~

6. for; ~~and~~ The deficiency noted in Para 15 of Colonel Baker's letter respecting Project No 14 of Statement No 1 (for keeping open a navigable communication between the Godavery and

Chief Engrs Clause 3 from end of para 5 Col Baker para 13.

Chief Engr's last clause of para 5.

Kistna

Kishna across the detlwt.

(Sec.) was supplied by
the Chief Engineer in
his letter No. 7518 of
18th October 1856 (and not 11th Dec. 1858 as stated by the Chief Engineer) and
the project was being
again recommended
by this Government
in Mr. Chief Secretary
Bycroft's Secretary Lower.
dilliam letter No. 2097
of 11th November 1856.
when sanctioned by
the Government of
India on 19th December
1856, when no further
notice of the case is
to consequently necessary
now. The subject
of the Sudderyand
ne Coompta Canal is still
to pending. The substitution
— information

letter from Govt of India
Para 17 —
Ch Engr's para 6

Para 18.

Para 7.

information called for
as noticed in Govt
Proceedings of 28th January
1857, not having been
yet supplied.

Mr. Bycroft's letter
No. 2097 of 11th November
1856 was sanctioned
on 19th December 1856.

To Trunk Road No 1,
Colonel Baker remarks
that no decision on the
question would be
dispensed with in the
estimate of the
Secretary of State
for the whole line
has been ascertained.

Para 7. The Chief
Engineer states that
traffic returns are
regularly kept under
...

Trunk

Govt of India
para 21.
4 Engrs para 8.
Annex 1.

which will be, pro tanto,
useful.

9.10 Respecting the
adoption of an uni-
form standard Plan
for Bridges on Trunk
Road Opn 6, without reference
to local peculiarities,
Colonel Taber deems
it unnecessary to
offer any observations
remarks of the
Govt of India on
the observations noticed under
the reference of an
application on the
part of the Chief
Engineer to be had
authorized himself
as to the interpretation
of the Secretary
letter

stet
a comparison of Returns
will be made in due
course. As the returns
are kept, it seems rea-
sonable to suppose
that a reference to
them would have
answered the purpose
required to some ex-
tent; inasmuch as
the Railway has now
for a year been open
as far as it runs
parallel to the Trunk
Road. Colonel Taber's
attention will now
be prominently drawn
to the subject, and
he will be requested
to avail himself of
the information procurable

which

works having been
sunk to the re-
-quisite depth.
This is still occurring
and will be rep-
-plied together
with the reports
said to have
been called for
from the District
Engineer respecting
the nature of the
soil, and the ap-
-parent disregard
of local peculiarities
in making all
masonry works
of the same pattern.

The

7. Govt. of India
para 22.
7. Chief Engr. para 9.

Govt of India
Para 24.
Chief Engineer Para 10.

11. The Estimates
alluded to in the
para of Colonel Baker's
letter noted in the
margin, the Chief
Engineer, Aden was
forwarded to Govt
on 6 December 1856,
and returned for
disposal in the
Post Office.

12. The informa-
-tion respecting
the depth of foun-
-dations of the
Dimnar Bridge is
stated to be still
awaiting.

13. In Para 28

of

of Rai Bellos, the Govt of India expressed an opinion that the whole of the designs for bridges on trunk road No 11 exhibited an apparent deficiency of foundations.

The Chief Engineer now forwards the correspondence on this head, & furnishes the subjoined remarks.

Chief Engr para 11 from Supdt Trunk Roads No 1753 10th June 1857 with original letter from Asst Engr of Cuddapah

It appears that, of the 10 Bridges proposed, the foundations of two only are considered to be partly insufficient, & the evil will be remedied by an addition of 8½ and 3½ per cent respectively, to the Estimates.

14. In Para 29 the Govt of India expressed a doubt as to the efficiency of Sand and Pottery earth for road metalling on the road between Madaliputam and Ibrahimpatam

15. It is now explained that no material at all suitable for making a road is found in the Delta, and though sand and broken pottery

Clause III para 1st

Chief Engineer para 15
~~Clause III, para 15~~

Clause II - III p. 3

potting such as is ~~found~~ procurable from
in the sites of ~~deserted~~ deserted
Villages will not ~~expedite~~
of ~~making~~ form a road
fit for very heavy traffic
during the rains,
it is the best material
that can be procured,
and Col. Faber deprecates
any attempt to bring
gravel from a distance,
"this the traffic on
"the road in question
"is proved to be of
"sufficient importance
"to justify the heavy
"expenditure that
"would be necessary."

15. In para 30
of his letter it was
laid down that the

Andalusia

From these premises the
Govt are led to believe
that the Chief Engineer
has misapprehended
of 20th January last
in the instructions of Capt
Orr that the proposed
improved for the Road
Engineer & Colonel Faber
Road should be abandoned
and that the road upon
should become two bridle
the bank of the Guadalquivir
Chief Engineer
Canal with the view of
the transport of Troops
materials over the line
Seville Junction of Cordova
May 1857, the proposed
of Engineers Guadalquivir
and a Road Commissioner
for the management
Andalusia

Andalusia and having
Chief Engineer to
branch roads and
projecting from
Road further
Road Commissioner
remaining portion of
Estimates for it were
work. The Engineer
Engineer observes that
the Estimates for
the whole cannot
first case, Estimates
forest were sent
to Government
recommended in the Engineer
Par 5 Cpt 1857
Jan 2 1857.

15. In answer to
Para 30, the Engineer
Post expressed a doubt
as to their sufficiency

of depth of the foundations of the Bridges over the Vijay at Madras, and over the Arrawaty at Devaraporam. No information has yet been supplied to the Chief Engineer on these points.

Clauses II, para 15.

¶ 17. The last point noticed by the Govt of India has reference to the improvements of the Custom House. They expressed a doubt whether the Foundations on the sea front could be conveniently used as an export warehouse, and whether providing the sheds submitted to be correct, the details of the tramway were not susceptible of improvement.

Chief Engineer para 16.

¶ 18 It is now explained that the doubts entertained by the Govt of India have not been felt by the local Officers, the sheds having been completed & giving great satisfaction to the Sea Custom Officers.

The impression that the tramway would prove inconvenient is proved to have arisen from an error in the drawing.

The

#19. The Government remark that inasmuch as their object has been throughout to have one complete and connected report respecting the points as to which exception was taken by the Board of Trade, they cannot look upon it as unsatisfactory that the Chief Engineer should have forwarded after the delay that has taken place, submitted his report in so very incomplete a state. They have preferred receiving

the information of which they have been placed in possession through unconnected and substitutional Reports which always be unsatisfactory in subjects requiring only to receive the result of [illegible] by proceeding step by step to a connected report. The Board of Trade should be dissatisfied with a report which could be considered as a complete compilation of the whole subject. Colonel Jackson will now be placed in possession of their views and recommendations to enable him to comply with the requisitions

in his communicat
under reply at a
early date. —

July 25.

2 Copies to the Chief Engr.
with yr. letter Dec 18th

Com 30th June 1857 £ 55150
" 12th Sept — 56 " 81290
" 28th Oct — " " 8469
" 18th Dec — 57 — 16817

Published Nov 1857 at 9h 0m
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" 12, 1858.

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Dft 7th August 57.

[illegible]

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£243144.

29th July & 11th Augt