M.R.O. 1—27,000—8-6-56.

(1) Number of pages 8 14

(2) Date of report 16-6-1958

3. Initials of the Reference

MADRAS RECORD OFFICE.

Government of Madras.

DEPARTMENT.

G.O. No. 1250 Press Mrs.

241-252.

Dated 1-7- 19 58.

13/6

Not to be folded or roughly handled

No. 261. Read the following letter from W. S. HARINGTON, Esq., District Engineer of Malabar, to Colonel G. W. WALKER, R.E., Chief Engineer and Secretary to Government, Public Works Department, Fort St. George, dated Calicut, 14th May 1874, No. 39 :—

Government in their Order, dated 13th March last, No. 427, sanctioned an estimate of Rupees (43,970) forty-three thousand nine hundred and seventy for constructing the Kudacadavoo Bridge on the road from Cannanore to Tellicherry. The estimate bears Captain Bailey's signature, and is apparently right in the main ; but I find, after very careful personal inquiry, that sound seasoned teak beams of the scantling of 26½ feet long by 12 inches broad by 15 inches deep cannot be procured, and I have the honor, therefore, to solicit your sanction for altering the design so far as to make twenty-three bays or spans according to the accompanying plan instead of twenty; this will enable me to reduce the scantling of the beams from, as noted above, 26½ feet by 12 inches by 15 inches to 22⅝ feet by 12 inches by 12 inches; also instead of three lines of longitudinal beams as in Captain Bailey's estimate, I propose to have only two 12 inches by 12 inches in section, the cross beams or joists to be 10 inches by 6 inches and 3 feet 9⅜ inches apart from centre to centre as exhibited in the plan forwarded. My calculations are as follow :—

" Surface of bridge-floor to be supported by two main beams = 224 superficial feet at 150 lbs. per foot = 33,600 lbs. The breaking weight of a teak beam 12 inches by 12 inches by 16 feet between supports = 177,264 lbs. distributed over its length, one-tenth of this is 17,726 equals safe distributed load on each beam ; then two beams will safely carry 17,726 by 2 = 35,452 lbs."

These alterations, if sanctioned, will decrease the weight of the timber which would have been very great for four-inch piles; but six iron piles will have to be added for the three additional bays; and in compliance with the instructions laid down in paragraph 6, Chapter V., of the Code, I have the honor to solicit your sanction, at your earliest possible convenience, for the alterations proposed, should you approve of them, as I am anxious to push the work vigorously on. There will be no excess over the estimate but on the contrary a saving. The work is undertaken in its entirety by Mr. W. Maylor, of Beypore.

Transferred to the Inspecting Engineer for Communications.

(Signed) G. W. WALKER, Colonel, R.E.,
18*th May* 1874. *Chief Engineer, P. W. D.*

From Colonel E. A. FOORD, R.E., for Inspecting Engineer for Ports and Communications, to W. S. HARINGTON, Esq., District Engineer of Malabar, dated Madras, 23rd May 1874, No. 53—9.

Adverting to your letter to the Chief Engineer of the Public Works Department, No. 39, dated the 14th instant, transferred to me for disposal, I have the honor to request you will be so good as to furnish me with the plan and sections and specification report of the Kudacadavoo Bridge, sanctioned in the Financial G.O., No. 427, dated 13th March 1874, together with a revised estimate and comparative

statement, prepared with reference to the alterations proposed by you, agreeably to paragraph 6, Chapter V., of the Public Works Code. Would not your longitudinal beams be stronger if their depth was increased and breadth diminished ?

From W. S. HARINGTON, Esq., District Engineer of Malabar, to Colonel G. W. WALKER, R.E., Chief Engineer and Secretary to Government, Public Works Department, Fort St. George, dated Calicut, 13th June 1874, No. 58.

In forwarding copy of letter* from the ex-Inspecting Engineer for Ports and Communications, I have the honor to submit the papers called for by him, as per margin, with a request that they may be returned. They are all that I can find in the office, and are not very clearly or correctly made out. I forward a fresh specification with an estimate in the form of a comparative statement showing the alterations proposed by me. The plan forwarded with my No. 39, dated the 14th instant, is, I presume, with you, as it has not been returned by Colonel Foord. You will observe that I have answered the query put at the conclusion of his letter in the affirmative, by making the scantling of the longitudinal beams 14 inches in depth by 10 inches in breadth instead of 12 inches by 12 inches, this gives an increased strength to the beams of about thirteen per cent. The memorandum attached will show the result of my calculations regarding the carrying strength of the beams.

* No. 53—9, dated 23rd May 1874.

1. Specification Report of the Kudacadavoo Bridge, sanctioned in the Financial G.O., No. 427, dated 13th March 1874.
2. Three Sections of Bridge.

No. 551.

MEMORANDUM.

In these papers the Chief Engineer is requested to sanction, under paragraph 6, Chapter V., of the Public Works Code, an alteration of the sanctioned plan of the Kudacadavoo Bridge, in Malabar, to the following extent:—

1*st*.—The substitution of 23 spans for 20 involving reduction of scantlings of spanning beams from 26¼ feet by 12 inches by 15 inches to 22⅝ feet by 14 inches by 10 inches, and six additional screw piles.

2*nd*.—The substitution of two rows of spanning beams for three rows.

The Chief Engineer is decidedly not satisfied as to the necessity for the change; but it is put to him not on professional grounds, but as regards impossibility of obtaining teak scantlings of sufficient size. Yet the District Engineer owns to not having asked the Forest Department for information; and while reducing lengths of beams by 3½ feet only, most unnecessarily adds to their width and depth by diminishing the number in each span by one-third. The Chief Engineer is decidedly of opinion that Annaymullay beams *can* be obtained of sufficient dimensions for the larger span. He knows that the Forest Department can deliver at Ponany for Rupees 1-6-6 per cubic foot, so that if they charged Rupees 1¾ they would still have a profit of 5½ Annas per foot. The Local Fund Board are interested that a prohibitive profit be not charged on Government timber admirably adapted for much of their work.

The Chief Engineer would remark that he is now called upon to deal with a bridge plan on which two Government sanctions have been passed without reference to him. He deals, therefore, only with the specific points now submitted for his opinion, which is not adverse to the reduction of span, but decidedly opposed to the substitution of two beams for three in each span.

The papers submitted by the District Engineer are, as he states, not very clearly or correctly made out, including his own revised specification, in which joists are called transverse beams, intermediate beams are named which cannot be identified, and the scantlings of the main beams are entirely omitted. Lists of scantlings should accompany specifications, and these latter should be systematically drawn up.

To conclude with some general remarks, the Chief Engineer thinks it quite sufficient that the beams should simply abut at the ends, and prefers the original corbels to the revised ones. And he considers the cost of roadway, viz., Rupees 17,500 (including percentage) out of all proportion to Rupees 44,000, the total estimate of the bridge.

OOTACAMUND, 23*rd July* 1874.

(Signed) G. W. WALKER, Colonel, R.E.,
Chief Engineer, D. P. W.

To the Chief Secretary to Government, Fort St. George.

No. 262. ORDER THEREON, 29th July 1874, No. 1253.

The Chief Engineer's memorandum on an alteration proposed by the District Engineer of Malabar in the Kudacadavoo Bridge on the road from Cannanore to Tellicherry, will be remitted to the Board of Revenue for communication to the Local Fund Board of the Tellicherry Circle, in view to their taking the necessary action on the remarks and suggestions of the Chief Engineer.

2. The expediency of the Chief Engineer's approval being obtained to the designs of all important Public Works in Local Fund Circles before they are undertaken, having been recognised by Government, they have, it is observed, asked the Board of Revenue in G.O., dated the 8th July 1874, No. 1136, to issue the necessary instructions on the subject.

(True Extract.)

Acting Chief Secretary.

To the Board of Revenue.
,, Public Works Department.

Exd. J. Wright.

No 69
9

Inspecting Engineer's Office for
Ports & Communications
Egmore - Madras
23rd May 1874.

From

The Inspecting Engineer for
Ports & Communications

To.

The District Engineer
of Malabar

Sir,

Adverting to your letter to the Chief Engineer D.P.W. No 39 of 14th Instant, transferred to me for disposal, I have the honor to request you will be so good as to furnish me with the plans & Sections and Specification report of the Kudakadavoo Bridge, sanctioned in the Financial G. O. No 427 dated 13th March/74, together with a revised estimate and comparative Statement, prepared with reference to the alterations proposed by you, agreeably to para 6, Chapter V of the P.W. Code.

Would not your longitudinal beams be stronger if their depth was increased and breadth diminished?

I have &c

Sheet No 2

Port of Coast Boy's
for Inspecting Engineer for
Ports & Communications.

True Copy

M. Bannister
Distt. Engineer, Jhelum

Inclosing letter from
Asst. Engineer
Madras to the
Chief Engineer
P.W. Department
No. 58 dated 18 June 74

P.W. 3768/74
2

Copy of letter No. 53/9
dated 23rd May 1874
from the Inspg. Engr.
for Ports & Communs.
calling for the
plan, Section and
Specification report
of the Pondakadavu
Bridge.
Rec'd 15/6/74.

Above

Exterior Beam 16" × 12" × 12"

Assume safe distribution to be equal to that in Beam = 16 lbs per inch of length

Safe load for Exterior Beam = 16 × 12 × 12 = 2304 lbs

Safe load for Interior Beam = 16 × 16 × 12 = 3072 lbs

Assuming weight of Beam 16" × 12" × 12" = 200 lbs

Weight per foot = 100 lbs

Ultimate strength in middle = 2304 + 100 = 2404 lbs

Assuming the distributed weight = 2004 lbs

Safe distributed load for the Beam = 1202 lbs

Interior Beam 16" × 12" × 12"

Distributed load = 3072

Assuming weight of Beam 16" × 12" × 12" = 200 lbs

Ultimate strength in middle = 3272 lbs

Assuming distributed weight = 1772 lbs

Safe distributed load for the Beam = 1063 lbs

Above the Inventor

Is

Gran Prof. Stockholm

W. L. Darrington

District Engineer Fresno

Letter from Mr Fry & Malabar A.= 39 of 14 Jany 74
— do — do — do — E.= 58 of 13 Janʸ 74

No 551.

Memorandum

In Rice, before the Chief Engineer is requested to consider, and to submit to Circle V, the Public Works Circle, an estimate of the probable cost of the Mc Indradaram bridge on Malabar, to replace the existing structure.

1. The substitution of 23 beams for 20 necessitating reduction of centres of spanning beams from 26¼ × 12" × 15" to 22'6" × 14" × 10", and 6 additional Screw Piles.

2. The substitution of 2 rows of spanning beams for 3 rows.

The Chief Engineer is decidedly not satisfied as to the necessity for the change; but it is just to him not on professional

Letter from Mr Fry & Malabar A.= 39 of 14 Janʸ 74
— do — do — do — E.= 58 of 13 Janʸ 74

Received 15th Jany 74
Replied 22nd January 1874

Superintending Engineer
Northern Circle
Kandy

Herewith I have the honor to forward for your consideration and orders, a memorandum on the proposed alterations in the Indradaram bridge on the Malabar, and a plan of the bridge showing the proposed alterations.

I have the honor to be
Sir
Your most obedient servant
Chief Engineer

Dated 15th Jany 74
Received 22nd January 74

professional grounds but as regards impossibility of obtaining Teak Scantlings of sufficient size. after the Chief Engineer was not having asked the Forest Dept. for information; and while reducing lengths of beams by 3½ ft. only, must unnecessarily adds to their width and depth by diminishing the number in each span by one third. The Chief Engineer is decidedly of opinion that Annapmullay beams can be obtained of sufficient dimensions for the larger span. He knows that the Forest Dept. can deliver at Ponany for Rs. 1-6-6 per cubic foot, so that if they charged Rs 1¾ they would still have a profit of 5½ annas per foot. The Local Fund Board are interested that a prohibitive profit be not charged on Govt. timber admirably adapted for much of their works.

The Chief Engineer would remark that he is now called upon to deal with a Bridge Plan on which 2 Govt. sanctions have been passed without reference to him. He deals therefore only with the specific points now submitted for his opinion; which is not adverse to the reduction of span, but decidedly opposed to the substitution of two Beams for three in each span.

The papers submitted by the Dy. Engineer are, as he states, not very clearly or correctly made out; including his own revised specification, in which joists are called transverse beams, intermediate beams are names which

which cannot be identified; and the scantlings of the main beams are entirely omitted. Lists of scantlings should accompany specifications; and these latter should be systematically drawn up.

To conclude with some general remarks; the Chief Engineer thinks it quite sufficient that the beams should simply abut at the ends; and prefers the original corbels to the revised ones and he considers the cost of Roadway viz: Rs: 17,500 (including per centage) not of all proportion to Rs: 44,000 the total estimate of the Bridges.

Putteeamund
23rd July 1874

Lol. R.
Chief Engineer D. P. W.

To
The Chief Secretary to Govt:
with letters in original

Transferred to the
Inspecting Engineer
for Communications.

Lol. R.
Chief Engr. D.P.W.

18th May/74.
20 Read.

No: 261.

Recd 16th May 1874
Desp 16th May 1874

Pub: Works 1874 Dept
No: 2912.

From Chief Engineer
Madras
To Secy Engineer
D. P. W.
Madras

Dated 14th May 1874
Recd: 16th May 1874
Answered
No: 39
Encls: 1

Solicits sanction for altering the design of the Pudukadan Bridge.

Read 15-10-74

Financial 1874. DEPT.

From

The Chief Engineer
Public Works Dept.

No. 551

Dated 23rd July } 1874.
Received 24th "

E.

S. C. No. 1578

Memo. 1253

Offers remarks on a letter from the Dist. Engineer, Malabar, forwarding a specification with an estimate in the form of a comparative statement shewing the alterations proposed in the Koodacadavoo Bridge

Financial Department.

PROCEEDINGS of the MADRAS GOVERNMENT.

Read the following letter from the Chief Engineer, Public Works Department, dated 23rd July 1874, No 551.

Order thereon of Date 29th July 1874, No 1253.

The Chief Engineer's Memorandum on an alteration proposed by the District Engineer of Malabar in the Kudacadavoo bridge on the road from Cannanore to Tellicherry will be remitted to the Board of Revenue for communication to the Local Fund Board of the Tellicherry circle, in view to their taking the necessary action on the remarks and suggestions of the Chief Engineer.

2. The expediency of the Chief Engineer's approval being obtained to the designs

of

of all important Public
Works in Local Fund Circles
before they are undertaken,
having been recognized by
Govt., they have, it is ob-
-served, asked the Board of
Revenue in G. O. dated the
8th July 1876, No. 1,136, to
issue the necessary instruc-
-tions on the subject.

The Board of Revenue
— Public Works Dept

Govt. of {187-} Madras.

Financial

To

The Board of Revenue.

Dated July 29. }
Recd. 7 } 1874, No. 1253.

Nos. 251. 252.

Koduvoor Road. The Chief Engr's. Memorandum on an alteration proposed by the Dy. Engr. of Malabar in that road forwarded to the Bd. of Rev. for Comn. to the Local Fund Board in view to the necessary action being taken on the Remarks & Suggestions of the Chief Engr.