Public Works (1898) Department.

G.O., No. 1945 W

DATED 4 August 98

~~4/8/98~~

[Despatch Abstract.]

Road: Estimate of Rs 38,280 for a bridle path from Dallapalayam, Coimbatore Dt, to the Chinnar river, the boundary of Travancore territory, sanctioned with remarks.

110

Indexed 5/8

BACK PAPERS.

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

FURTHER PAPERS.

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

BUILDINGS AND ROADS.
CIVIL WORKS.

Government (1898) of Madras.
PUBLIC WORKS.

Recd. } 1898. *Enclosures*
Regd. *Spare copies*

G.O., No. 1945 W., 4th August 1898.

AUGUST.

Road

Estimate of Rs. 38,280 for a — and bridle-path from Pallapalayam, Coimbatore district, to the Chinnar river, the boundary of Travancore territory, sanctioned with remarks.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

Read—the following papers:—

From A. H. GARRETT, Esq., Superintending Engineer, IV Circle, to the Chief Engineer, Public Works Department, dated Coimbatore, 27th February 1898, No. 123/W.

With reference to G.O., No. 1359 W., dated 29th April 1896, I have the honour to submit herewith plans and estimates, amounting to Rs. 29,000, for constructing a road and bridle-path from Pallapalayam, Coimbatore district, to the Chinnar river, the boundary of Travancore territory.

A home indent in duplicate for the European stores required for the above work received from the Executive Engineer is also forwarded with a request that you will be good enough to take steps to get the stores at an early date if the estimate is sanctioned.

From A. H. SHARP, Esq., Honorary Secretary, Kanan Devan Planters' Association, Devikulam, to the Executive Engineer, Coimbatore division, dated 11th March 1898.

I have the honour to acknowledge receipt of your No. 665 of 15th February 1898, giving cover to a copy of the report of the estimate for a road and bridle-path from Pallapalayam to the Chinnar river and to thank you for the same. I have, at the same time, to thank the Board for having had the report made.

I must, however, call your attention to paragraph 5 in the report which states that 5,000 feet of the road is to be at a gradient of 1 in 12. After careful consideration we are strongly of opinion that this would be a mistake and that a gradient suitable for a cart-road should be maintained throughout.

To the west of Chinnar the road is at a bandy road trace the whole way across the hills and down to the west coast, and we hope in time that this road will be open to wheeled traffic.

Such being the case, I believe that you will agree with us that it would be a mistake to make any part of the trace at a gradient of 1 in 12.

I shall be obliged by your placing this letter before the Board.

No. 1199.

Copy forwarded to the Superintending Engineer, IV Circle, in continuation of this office No. 665, dated 16th February 1898.

The trace could be easily run so as to give a 1 in 15 gradient everywhere, and the extra cost would be very slight.

(Signed) A. A. G. MALET,
Executive Engineer.

21st March 1898.

No. 181/W.

Copy submitted to the Chief Engineer, Public Works Department, in continuation of this office No. 123/W., dated 27th February 1898.

(Signed) A. H. GARRETT,
Superintending Engineer, IV Circle.

Calicut,
25th March 1898.

Memo. No. 2046 C.

With reference to endorsement from the Superintending Engineer, IV Circle, No. 181/W., dated 25th March 1898, the undersigned has the honour to return the plans * and estimates for the Talliar-Chinnar road, and to request that they may be revised so as to provide for a 1 in 15 grade.

* Received with the Superintending Engineer's letter, No. 123 W., dated 27th Feb. 1898.

2. The Acting Chief Engineer is of opinion that a 12 feet width of formation will on the plains be found too narrow; that width of metalling may, as estimated for, be retained; but the small side banks which restrict the surface width to that of the metalling should be omitted so that the breadth of the whole surface may be about 18 feet. Even up the ghât the width of roadway should not be less than 12 feet.

3. The indent for rolled steel girders will be forwarded to the General Superintendent, Public Works Stores, in view to its being prepared in triplicate and serial number and values entered. It should be returned through the Examiner, for certificate as to provision of funds.

4. Provision for a bridge across the Chinnar river should be included in the estimate which should come back as quickly as possible.

(Signed) W. B. deWINTON,
Chief Engineer.

2nd April 1898.

From C. H. B. BURLTON, Esq., Executive Engineer, Coimbatore Division, to the Superintending Engineer, IV Circle, dated 8th June 1898, No. 2321.

With reference to your No. 208/C.I., dated 12th April 1898, I have the honour to return the estimate for the Talliar-Chinnar road revised in accordance with the Chief Engineer's instructions.

2. It will take a little time to collect data for preparing an estimate for the bridge over the Chinnar, and as the estimate can be sent in later on, my predecessor thought it advisable not to delay the road estimate on that account.

3. The small side banks shown on the typical section for the road on the plains have been eliminated and the quantities in the estimate altered accordingly. The side banks being removed gives a top width of 18 feet, and the quantities represented by these side banks are very small.

4. On the ghât portion a width of roadway of 12 feet, instead of the original 6 feet, has been provided.

5. The total length of the ghât portion in which the gradient fell in places below 1 in 15 is 4,732 feet.

The rise in length is 388 — 78 = 310 feet.

The total length of bridging in this length may be taken (including abutment) at 570 feet.

The total length required for a gradient of 1 in15 is 310 × 15 + 570 = 5,220 feet.

The existing length being 4,732 feet, an additional length of 488, or say 500 feet, is required.

It not being worthwhile to go to the expense and waste of time required to retrace the ghât for this small additional length, an item of 500 feet of road at the average rate for constructing the 4,732 feet including cost of bridging in this length has been entered in the estimate. The gradient can be accurately traced at 1 in 15 with due allowance for bridges when the work is put in hand.

6. The report has been re-written so as to include these alterations.

7. Instructions have been issued to the Sub-division officer, Coimbatore, to at once collect necessary data for preparing an estimate for a bridge over the Chinnar river.

P.S.—For the single 20-feet span bridge I find that a 12″ × 5″ girder weighing 32 lb. per foot run, as shown by the accompanying calculations, will suit; but I have not thought it worthwhile to alter the dimensions of the 12″ × 6″, 39 lb. per foot run section allowed for by Mr. Malet.

No. 344/W.

Copy submitted to the Chief Engineer, Public Works Department, with reference to his memo., No. 2046 C., dated 2nd April 1898.

(Signed) A. H. GARRETT,
Superintending Engineer, IV Circle.

27th June 1898.

Note by the Chief Engineer, Public Works Department.

The rate for earthwork has been increased from Rs. 3 to Rs. 3-8-0 to allow for ramming and watering.

2. The section of abutment in the 2-span bridge has been altered as shown in tracing, the cubic content being the same as the original section. The joists should be 4″ × 6″, instead of 4″ × 4″ as provided for 2 span and 1 span 20′ bridges.

3. The bridle-path of the ghât has been made 12 feet wide to enable it to be used as a cart-track whenever the track in Travancore is converted into one.

4. The amount of estimate has been raised to Rs. 38,280, owing to the alteration suggested in the first and second paragraphs.

(Signed) W. B. DEWINTON,
Chief Engineer.

20th July 1898.

ORDER—No. 1945 W., dated 4th August 1898.

The estimate amounting to Rs. 38,280, as altered by the Chief Engineer, for a road and bridle-path from Pallapalayam, Coimbatore district, to the Chinnar river, the boundary of Travancore territory, is sanctioned.

2. An allotment of Rs. 20,000 has been made for the work in the current year's Provincial Civil Works budget.

3. Attention is drawn to the Chief Engineer's note read above.

4. The sanction accorded in paragraph 1 has been registered as Provincial No. 43 W. of 1898-99, and classified as Communications—Original Works.

(True Extract.)

(Signed) W. B. DEWINTON,
Secretary to Government.

To the Superintending Engineer, IV Circle,
with 41 enclosures.
„ Examiner, Public Works Accounts.
„ Local and Municipal Department.

Exd. T. K. Narayana Aiyangar.

A

P.W.6 copy

P.W. DEPARTMENT.

B & Railways

Papers to be read in Proceedings:—

Issue LHW 29.7.98 print

Again G.O., dated 189 , No.

Again G.O., dated 189 , No.

Current No. 1992 of 1898, dated 27th Feby 1898, from The S. E. IV circle

„ „ 2816 „ 1898, „ 25 march 1898 „ — do —

„ „ ~~5488~~ „ 1898, „ 27th June 1898, „ — do —

Memo No. 2046 C d/ 2.4.98.

„ „ „ 189 , „ Note by the Chief Engineer, P.W.D. d/

Circulated to Hon. Mr. H. Bliss. It is proposed to issue the draft in accordance with the views of the majority. The Chinnar is most feverish in the monsoon, as I know to my cost, & it is better to do the work well [illegible]

LHW 26.7.98

HB 27/7/98

A.S.K. 27.7.98

It seems to me that, considering the extremely expensive nature of the work on the ghaut portion of the road and the fact that it is not at present required for cart traffic, though of a fairly suitable gradient for the purpose, it will be a great waste of money to cut it out at once to the full width of 12 feet. The estimate may be sanctioned for future execution in its entirety; but I am strongly of opinion that it will suffice for the present to cut the path out to 6 or 8 feet wide — when there is any chance of its being needed for cart traffic, that is, when the road on the Trav. side is made fit for wheeled traffic, it will be easy to widen it; & the work will then be done at probably ~~[illegible]~~ much cheaper rates than it could be done now, for the bridle path will facilitate access & the fear of the fever in the hills will have diminished. There should not be much fever if [illegible]

ORDER.

No 1945 W d/ 4.8.98

The estimate amounting to Rs ~~38~~ 38,280, as altered by the Chief Engineer, for a road and bridle path from Pallapalayam, Coimbatore district, to the Chinnar river, the boundary of Travancore territory, is sanctioned.

2 An allotment of Rs 20,000 has been made for the work in the current year's Provincial Civil Works Budget.

3 Attention is drawn to the Chief Engineer's note read above.

4 The sanction accorded in para 1 has been registered as Provincial No. 43 W of 1898-99, and classified as Communications, Original Works.

ASK 16.7.98

LHW 29.7.98

To
The S. E. IV circle with 41 enclos
Exar P. W. Accts
L & M Dept

T. [illegible]

P. T. 6

P.K.S.

[P. W. 4. 500—2-12-98.]

H.S. 27.7.98 R 23.7.98 for Justn 25.7.98 Hms 23.7.98

Note. The estimate is dealt with in the accompanying technical note, and the note by the Chief Engineer.

J. Hill 20.7.98

W

P.K.S.

* if the work is carried out at a proper time of year. I have several times been shooting close to the place & to the best of my recollection there is little or no fever after the monsoon has set in. It is not heavy thereabouts but it seems to drive the fever away. The saving by cutting the width to only 6 or 8 feet shd be considerable.

~~[illegible]~~

As
23/7/98

I think it wd be a pity to reduce the width of the road so that carts will not be able to travel over it. If maintained at the estimated width ~~[illegible]~~ laden carts will be able to take their loads from Udamalpet to the Chinnar whence they can be carried by coolies or pack bullocks. I have been three times to or from Udamalpat to Travancore territory via the Chinnar up the Talias valley, and the road will be advantageous to Coimbatore as well as to the Company in Travancore. The neighbourhood of the Chinnar has a very bad reputation for fever. A horsekeeper of our party got fever there in Septr. and died of it. A.A. 25.7.98

Note by the Chief Engineer,

P.W. Department.

The rate for earthwork has been increased from Rs.3 to Rs.3-8-0 to allow for ramming and watering.

2. The section of abutment in the 2 span bridge has been altered as shown in tracing, ~~for which no provision has been made in the estimate~~ ~~was~~ ~~original~~ ~~as~~ the cubic contents bring ~~are~~ the same as the original section. The joists ~~will~~ shd be 4" x 6", instead of 4" x 4" as provided for 2 span and 1 span 20' bridges.

3. The bridle path of the Ghat has been made 12' wide to enable it to be used as a cart track whenever the track in Travancore is converted into one.

4. The amount of estimate has been raised to Rs.38,280, owing to the alteration suggested in the first and second paras.

A.K.
16.7.98.

J. Hill

E.W. 20.7.98

Ch. 5488

Submitted for perusal. Action to be taken on CE's notes.

13-7-28

Noted AR 13.7.

Orig. file has just come -

P. W. Dept

Note by the Chief Engineer, P. W

The rate for earthwork has been increased from Rs 3 to Rs 3-8-0 to allow for ramming and watering.

2 The section of abutment in 2 span bridge has been altered as shown in tracing, for which no provision has been made in the estimate as the cub contents are the same as the original section.

3. * The bridle path of the Ghat has been made 12' wide to enable it to be used as a cart track whenever the track in Travancore is converted into one.

4. The amount of estimate has been raised to Rs 38.~~[illegible]~~ 280 owing to the alteration suggested in the first & Second paras.

E. W.

Not intelligible

Add about altered scantlings of posts.

* The posts will be 4" × 6" instead of 4" × 4" as provided for 2 span & 1 span bridges.

20 ft

1945

P.K.S

J.K.W.

Wasted me to stop the issue of this memo until ascertaining whether the road up the ghat is at least 12 feet wide. Is it so?

CSBM
31.3.98.

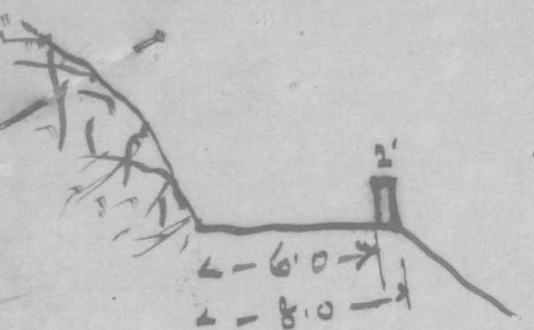
[illegible]
2-4-98

OW

Please see note by I below.

CS
1-4-98

I



Can you reply to DW's question.

CS
31/3/98

Sup/. Yes. The width of the road up the ghat is only 6 ft. wide with an outer parapet wall 2 ft. thick, vide sketch above. JKW.
1.4.98.

The width of road on the plains

---

but not timber scantlings for

supported

tre

Public Works Department.

Current No. 5488

Letter No. 344/W

Dated 27th June 1898

From the Supg Engineer IV Circle

NOTE BY TECHNICAL SECTION.

Name of work - Revised Estimate Talliar Chinnar Road Travancore.

Est amount Rs. 37,700.

Estimate was originally d for in G.O. No 1359 W d 29th April 1896.

Estimate was submitted Supg Engineer IV Circle his letter No 123 W dated Feby 1898 amounting 29,000, and reviewed chnical note dated 98. This Estimate was ned for revision by the Engineer in his No dated 2-4-98 in d to the following particul Estimate should provid Road with a 1 in 15 grade width of road on the should be 18 feet with width of metalling

1945 W

Public Works Department.

Current No. 5488

Letter No. 344/W

Dated 27th June 1898

From the Supg Engineer IV Circle

NOTE BY TECHNICAL SECTION.

Name of work - Revised Estimate for Talliar Chinnar Road Travancore -

Est amount Rs 37,700

Submit for sanction taking the rate for earthwork 3-0 taking for ramming & rolling & say the bridle path of the present has been made 12' wide to enable it to be used as a cart track whenever the track is necessary to conversion into the [illegible] per Berlie

11.7

This Estimate was originally called for in G.O. No 1359 W dated 29th April 1896.

An Estimate was submitted by the Supg Engineer IV Circle with his letter No 123 W dated 27th Feby 1898 amounting to Rs 29,000, and reviewed in Technical note dated 21-3-98. This Estimate was returned for revision by the Chief Engineer in his No 2046 dated 2-4-98 in regard to the following particulars

I. The Estimate should provide for a Road with a 1 in 15 grade

II. The width of road on the plains should be 18 feet with 12 feet width of metalling

Please calculate out scantlings for timber in accordance with my remarks overleaf, correcting the [illegible] figures in red.

2. Correct indent* in red, providing girders of section noted by me.

3. I am putting up a separate note for Mr Harding. the practice of taking 210 as divisor for teak & 37 for bru teak

ACK
8.7.98.

* Indent can be passed as it is

ACK
9.7.98.

P. W. 60
250—30-9-97.

should not be less than 12 feet.

II. Roadway over bridges and Culverts to be increased from 6 to 8 feet.

The Estimate has now been re-submitted, revised accordingly, by the Supg Engineer in his No 344 W dated 27th June 1898.

The same structural details for the masonry works have been adhered to in altering the width of roadway from 6 to 8 feet, and the girders for the double 20 feet span bridge altered to suit increased span & load from 12" × 6" to 14" × 6" weighing 46 lbs per foot run. For the single 20 feet span bridge the section of 12" × 6" weighing 39 lbs per foot run is allowed. The calculations submitted with the Estimate have been checked & found correct. In calculating timber scantlings for double 20 ft span bridge L^2 is taken as 9, L being taken as 3. half the length of joist supported by girders. This might be correct in cal.

Girders of 14" × 6" weighing 46 lbs per ft run shd be used ~~both~~ for the double and single 20 spans. ~~Mr Butler has arrived at different results by taking spans as 22' in the former case & 20' in the latter. I can see no sufficient reason for the~~ Batter of wall accounts for difference.

Mr Butler has made a mistake, & the full length between centres of bearings must of course be taken. Calculations for wooden scantlings must be corrected accordingly.

× ~~Factor~~ Figure of 210 is taken from Major Lowe, who uses a deflection $\frac{1}{20}$th of an inch per foot of span, which is not sanctioned by any recognised authority. $\frac{L}{40}$ is the proper allowance for deflection, see sheet attached

∴ In the case of 10 ft span wooden bridge the calculation is correct but the scantlings 6" × 8" allowed might be altered into 5" × 9¼", which would be a better section.

W.C.U.

but not timber scantlings for the joists - the full unsupported length from centre to centre of girder should be taken viz 6 ft. L^2 would therefore = 36 and not 9 - The formula would then be..

$$bd^3 = \frac{3200 \times 6 \times 6}{137}$$

$$= \frac{115200}{137} = 841$$

b = 4" and d = 6" instead of b = 4" and d = 4".

Similarly in single 20 feet span the scantlings of joists would be 4" × 6" and not 4" × 4".

∴ For teak 210× is formerly taken as divisor in formula but for Ven teak 137 is adopted -

The total length of the Ghât portion in which the gradient fell in places ~~below~~ below 1 in 15 is 4732 ft. The rise in length is 310 feet (388-7. The total length of bridging in this length, including abutments, may be taken at 570 feet. The total length required for a gradient of 1 in 15 is 310 × 15 + 570 = 5220 feet. the existing length 4732 feet an additional length of 488 ft or say 500 feet is required. For this reason it is not considered worthwhile to incur the expense & loss time to retrace the ghât and an item of 500 feet of road at the average rate for constructing the 4732 feet, including cost of bridging in this length has been entered in the Estimate. The gradient can be accurately traced at 1 in 15 with due allowance for bridges when the work is put in hand.

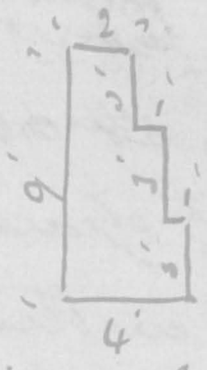
The report accompanying the Estimate has been re-written so as to include these alterations.

As it will take time to collect data for preparing an Estimate for a bridge over the Chinnar River it has been thought advisable not to delay the road Estimate on that account. Instructions have been issued to the Sub-Division Officer Coimbatore to, at once, collect necessary data for preparing an Estimate for for the bridge.

Rates Data in detail have been furnished in support of Rates allowed in Estimate.

ACK
8.7.98. $\frac{\text{H.C.}}{6.7}$

Make the section of abutments in 2 Ham bridge



Say in note that the estimate doesn't include this -

11.7.98

Note regarding Major Love's divisor of 210 for Teak

The allowance ordinarily used in England for deflection is $\frac{1}{40}$th inch per foot of span, or $D = \frac{L}{40}$

But the formula for deflection is

$$D = \frac{5}{384} \times \frac{WL^3}{EI} = \frac{5}{8} \times \frac{1}{16} \times \frac{1}{3} \times \frac{WL^3}{EI}$$

where $I = \frac{bd^3}{12}$ and $E = 1728 \times 4 \times 281$ (putting ordinary value into factors)

$$\therefore \frac{L}{40} = \frac{5}{8} \times \frac{1}{16} \times \frac{1}{3} \times \frac{WL^3 \times 12 \times 1728}{1728 \times 4 \times 281 \times bd^3}.$$

$$\therefore bd^3 = \frac{WL^2}{180}$$

180 is accordingly used in the Bombay Specifications and 175 in the Specifications of the Military Works Dept. The figure of 210, which seems to have been hitherto used in this office, is presumably taken from Major Love's work, and is deduced, as above, by allowing only $\frac{1}{30}$th inch per foot of span for deflection. I can find no recognised authority for such an allowance, with the exception of the American author, Trautwine, who does not, however, propose to use it arbitrarily, as Major Love does, but gives it as an extreme limit.

Pending further examination into the question, 210 may be taken for Teak and 137 for Venteak, but I question their correctness especially the latter.

ACK
9-7-98.

W

Road from Pallapalayam to the Chinnar River

The indent for steel rolled beams can now be passed.

2. Mr Butler's timber scantlings should be 4" x 6" for 20' span bridges, & not 4" x 4", as given by him, see corrections in red ink. His other calculations are correct.

3. I put up a note regarding 210 as divisor for teak. The want of authoritative standards & specifications in this office is very marked, & I will take up the subject as soon as I have time.

ASK
9-7-98.

Public Works (1898) Department.

CURRENT No. 5488
Current

Order

From The Supg. Engineer, 4th Circle

No. 344/W

Dated 27th June 1898
Received
Registered 1.7.98
Enclosures ~~40~~ 41 (21 plans)
Spare copies ✓

SUBJECT.

Talliar Chinnar Road.
Submits duly revised as directed plans & estes. amounting to Rs 37,700 for

J / for scrutiny
AHK
4.7.98.

o. L. S. 236

BACK PAPERS.	
No.	Date.
~~3 [illegible] C~~	30-6-98
2987C	10-6-98
2046C	2-4-98
1357W	29-4-96
480W	1-3-95
2046C	2-4-98
C. No. 1992	d/ [illegible]
1357W	29-4-96
480W	1-3-95 (SC)

FURTHER PAPERS.	
No.	Date.

Letter from C. H. B. Burlton Esq
Executive Engineer, Coimbatore Division
to the Superintending Engineer, Fourth
Circle, No 2321 dated 8th June 1898.

Enclosures 40
- 1 Report
- 1 Data statement
- 8 Abs: estimates
- 6 Detailed — do —
- 2 Home Indents (revised)
- 21 Plans
- 1 Sheet of calculations of steel sections & timber scantlings

With reference to your No $\frac{208}{C.E.}$ d/ 12th April 1898, I have the honor to return the estimate for the Talliar-Chinnar road revised in accordance with the Chief Engineer's instructions.

2 It will take a little time to collect data for preparing an estimate for the bridge over the Chinnar, and as the estimate can be sent in later on, my predecessor thought it advisable not to delay the road estimate on that account.

3 The small side banks shewn on the typical section for the road on the plans have been eliminated and the quantities in the estimate altered accordingly. The side banks being removed gives a top width of 18 feet, and the quantities represented by these side banks are very small.

4 On the ghaut portion a width of roadway of 12 feet; instead of the original 6 feet has been provided.

5 The total length of the ghaut portion in which the gradient fell in places below 1 in 15 is 4732 feet.

The rise in length is 388-78 = 310 feet.

The total length of bridging in this length may be taken (including abutment) at 570 feet.

The total length required for a gradient of 1 in 15 is 310×15+570 = 5220 feet.

The existing length being 4732 feet an additional length of 488 or say 500 feet is required.

It not being worthwhile to go to the expense and waste of time required to retrace the ghaut for this small additional length, an item of 500 feet of additional length, an item of 500 feet of road at the average rate for constructing the 4732 feet including cost of bridging in this length has been entered in the estimate. The gradient can be accurately traced at 1 in 15 with due allowance for bridges when the work is put in hand.

6 The report has been re written so as to include these alterations.

7 Instructions have been issued to the Sub-Division officer Coimbatore to at once collect necessary data for preparing an estimate for a bridge over the Chinnar river.

P.S. For the single 20 feet span bridge I find that a 12"×5" girder weighing 32lbs per foot run - as shewn by the accompanying calculations - will suit, but I have not thought it worthwhile to alter the dimensions of the 12"×6", 39 lbs per foot run section allowed for by Mr Malet.

No. 344/W dated 27th June 1898

Enclos: 40

Sent Per Parcel Post.

Copy Submitted to the Chief Engineer P.W.D. with reference to his Memorandum No. 2046C dated 2d April 1898.

Supg Engineer 4 Circle

N256/70

P.W.D.

No. 2046 C.D/2-4-98

Memo.

With reference to endorsement from the S.E. IV Circle No. 181W dated 25th March 1898, the undersigned has the honour to return the plans* & estimates for the Tallur - Chinna Road, & to request that they may be revised so as to provide for a 1 in 15 grade.

2 - The Ag. Chief Engr. is of opinion that a 12 feet width of formation ~~will be~~ will in the plains ~~will~~ be found too narrow - that a width of metalling may

1st Reminder issued 25-5-98

* Received with the S.E.'s letter No. 123W of 27 July 1898.

1359W - 29-4-96

INDEXED.

6/4/98

way, as estimated for, be retained; but the small side banks which restrict the surface width to that of the metalling should be omitted so that the breadth of the whole surface may be about 18 feet – Concur but that the width of roadway should not be less than 12 feet.

3. The indent for rolled steel girders will be ~~forwarded~~ to the Genl. Supt. P.W. Stores, in view to its being prepared in triplicate, & certain number and values entered – It should be returned through the Exr., for certificate as to provision of funds.

Cy

W

4. Provision ~~an estimate~~ for a bridge across the Chinnar river should be included in the estimate which should come back as quickly as possible

J.H.S.
30/3/98

S.S. IV Circle
write plan & estimates

S.S. V Circle. write indent –

C.W.S.
30.3.98

T. Sh
B

6/4

Public Works (1898) Department.

CURRENT No. 2816

Order

From The Supg. Engineer 4th Circle

No. 181/W

Dated 25th March 1898

Received
Registered } 28.3.98

Enclosures ✓

Spare copies ✓

SUBJECT.

Talliar Chinnar Road –

Submits copy of letter from the Exr. Engr., Coimbatore Dn. reporting upon the trace for the –

BACK PAPERS.

No.	Date.
2046C	2.4.98

FURTHER PAPERS.

No.	Date.

Kanan Devan Planters
Devikulam
11th March 1898.

To,

The Executive Engineer
Coimbatore Division.

Sir,

I have the honor to acknowledg receipt of your No. 665 of 15th Febry: 1898 giving cover to a copy of the report of the estimate for a road and bridle path from Pallapolkam to the Chinaar river and to thank you for the same. I have at the same time to thank the Board for having had the report made.

I must however call your attention to para 5 in the report which states that 5,000 feet of the road is to be at a gradient of 1 in 12. After carefull consideration we are strongly of opinion that

the

Public Works Department.

Current No. 1992

Letter No. 123 W

Dated 27th Feby 1898

From the Supdg Engineer IV Circle

NOTE BY TECHNICAL SECTION.

Name of work Constructing a road and bridle-path from Pallapalyam, Coimbatore District, to the Chinnar River the boundary of Travancore Territory

Est Rs 29,000

The Supdg Engineer IV Circle submits an estimate prepared in accordance with G.O. No 1359 W dated 29th April 1896 for a cart road and bridle-path to connect the Coimbatore system of roads with the Tallian Chinnar Road in Travancore.

The proposed road starts from opposite Pallapalayam Village, 4½ miles from Udamalpet on the Udamalpet-[illegible] road, and extends to Mi[illegible]pattai Village (vide S[illegible] N11) via Kongalakkuric[illegible] and Kurichikottai. From 0 to 3380 feet it will run in close proximity to

The Acting Chief Engineer is of opinion that a 12 feet width of formation level will be found too narrow. The width of metalling may, as estimated for, be retained; but the small side banks which restrict the surface width to that of the metalling shall be omitted so that the breadth of the whole surface may be about 18 feet.

S.A.W.

The estimate may be submitted for sanction with a note as above.

C.A.W.

18.3.98

[P. W. 60
250-30-9-97.]

Existing track which cannot be utilized as a road as it forms a water-course during the rains. For the next 2250 feet the road will follow the existing track which runs along high ground. Beyond the Village Kongalakunchi the proposed road runs in a direct line across puttah land to avoid the detour made by the old track. At the end of 2112 feet it joins the old track and follows it for a distance of 2442 feet along high ground. At this point a diversion is again proposed, leaving the Village of Kurichikotai on the left an ntirely new line up to Mana-attai has been chosen, as the xisting track between these illages is in very bad order, unning the whole way along he sandy bed of water course; y the proposed diversion a ngth of nearly 2 Miles is saved the road carried on high round. The total length of oad up to Manaputtai will 3 Miles 750 feet. For this ction of road a strip of nd 66 feet wide will be quired, & on Sheet No 17 typical Section of the proed road is shown. The ad will be 12 feet wide ised to an average height 2 feet with small side banks, Earth obtained from side pits

which will act as side drains. The pavelled or metalled surface will be 6" thick. The road is intended for Cart Traffic. No culverts or bridges are necessary and all drainage will be passed across the road by means of road-dams.

The value of the land cannot be definitely ascertained but an allowance of Rs. 100 per acre has been made.

Manapatti has been selected as the terminal point of the cart road as it is a large and important Village. It is fairly healthy & will be a convenient place for pack bullocks coming down the ghât to halt, & for the transhipment of the loads to and from the carts.

From Manapattai to the foot of the ghât - a distance of 9 Miles 2603 feet - a path, in fair order, exists running through cultivated land and reserved Forest. This track is quite good enough both as to its condition and alignment for pack bullocks and will be adhered to, nothing being done to it.

The total length of the road & path will therefore be 12 Miles 3350 feet.

A 2nd Section of the Road Extends
from the foot of the Ghât up
to the left bank of the Chinnar
River, a distance of 2 Miles
1700 feet. For the first 5000
ft. the path runs up the side
of a very steep rocky hill
and for this portion a trace
of 1 in 15 has been run - the
gradients between the bridges
will be increased to 1 in 12.
a great improvement on the
existing path which is, in
places, 1-5.

In this length of 5000 ft. it
has been found necessary to
make extensive provision for
passing drainage water - as
it extends from the foot of the
Ghât up to the highest point
on the road. The hill above
the road is very ~~stiff~~ steep,
practically sheet rock, down
which there will a tremendous
rush of water in heavy rain,
and as the only possible
line for the road crosses
all the drainage courses
a large number of bridges and
culverts are necessary.

It is proposed to have:-

One large bridge of 2 spans of 20 ft. each
Twelve other bridges with one span
of 20 feet
Eleven wooden bridges of 10 feet span
Five Culverts of 6 feet span
The position of these are shown
on the Longitudinal Section

The Estimate provides for giving
the rock cutting on the upper
side of the path a slope
back of ½ to 1. The width
allowed for the path is 8 ft.
of which 2 feet on the down
hill side will be for a guard
wall. No upper catch drains
are necessary as none of the
existing drainage courses have
been closed. A sum of
Rs. 200 has, however, been
allowed in Estimate in case
it is found necessary in places.
From the Saddle down to the
Chinnar River - a distance of
1 Mile 2000 feet - a good track
with an easy gradient is
in existence, rendering little
or nothing necessary, except
removing crops of rock in
one or two places across
the path for which provision
is made.

The Estimate gives in detail
the amount of 'Cutting' (Rocky
boulders & sheet rock) and
'Filling in' when surplus Stone
is, and is not available,
according to which rates
have been allowed -

No allowance has been made
for 'blinding' the road. When
Earth is obtainable it can
be used & as the rates are
liberal it is hoped that any
'blinding' required can be do

from savings - out of a total quantity of 50,742 Cub Ft of rock Excavation it is assumed that 14,332 can be removed by Crowbars & 36409 will have to be blasted.

Bridges and Culverts. In the large bridge of 2 spans of 20 feet each the abutments & piers will be built in mortar. In all the other bridges of one span of 20 ft, or one of 10 feet span the abutments will be built of selected large dry stones, & only the top 2 feet in depth under the girders will be built in mortar - The roadway in all these bridges will consist of steel girders with wooden joists and 2 layers of 1½" planking -

The Culverts will be built entirely of dry stone.

No details have been afforded for calculating the waterway of the Bridges and Culverts; these ~~had~~ have evidently been considered on the spot, & determined from experience.

For calculations of Steel girders please see Calculation Sheet attached to note.

Rates. The rates have been carefully considered. For the 1st Section of Road up to Manapattai there will be no difficulty in getting labour or materials and ordinary district rates have been allowed.

For the 2nd Section or that portion very considerable increase is anticipated as (1) all labor will have to live at Manapattai 10 miles from the work and (2) work will have to be carried on in dense jungle of a fever reputation & (3) for a considerable portion of the year the nearest water source is more than 2 miles away. Therefore the rates have been calculated on the assumption that wages are increased 50% and only half a day's work done each day.

Detailed data for various descriptions of work is also attached to the Estimate which has been very carefully prepared, the accompanying Sheets of Survey, Levels, Plans of masonry works &c being very complete & affording all information necessary.

A Home Indent in duplic

has been forwarded for the European Stores required for the above work with a request that steps may be taken to get the Stores (Rolled steel girders) at an early date.

No provision has been made to bridge the Chinnar River as no orders were received about it.

H. C. M.
21-3.98

Calculation Sheet.

Bridge 2 Spans of ~~20~~ 22 ft. Each

Joists $6 \times 6\frac{1}{2} \times 4'' \times 4'' = 4.33$

uprights $8 \times 3\frac{1}{2} \times 4'' \times 3'' = 2.33$

Struts. $8 \times 4\frac{1}{2} \times 4'' \times 3'' = 3.00$

Top rails. $1 \times 22 \times 4'' \times 4'' = 2.45$

Centre. $1 \times 22 \times \frac{1}{3} \times \frac{1}{6} = 1.22$

Bridging piece. $7 \times 3 \times \frac{1}{3} \times \frac{1}{3} = 2.33$

Country wood planking $\} 1 \times 22 \times 3 \times \frac{1}{4} = 16.50$

Total Cub. ft. 32.16

$32.16 \times 50 = 1608$ lbs

Live load

$22 \times 3 \times 120 = 7920 =$

9528 lbs

4.2 Tons

$w = l \times W$

$= 22 \times 4.2 = 92.4$

by Dorman & Long's tables a girder 8"×5" will suffice but as the depth should not be less than $\frac{1}{20}$ the span, the girder allowed in Estimate 12"×6" may be allowed to stand.

For 1 Span 20 feet

Joists $6 \times 6 \times \frac{1}{3} \times \frac{1}{3} = 4.00$

uprights $8 \times 3\frac{1}{2} \times \frac{1}{3} \times \frac{1}{4} = 2.13$

Struts — $8 \times 4\frac{1}{2} \times \frac{1}{3} \times \frac{1}{4} = 3.00$

Top rails $1 \times 20 \times \frac{1}{3} \times \frac{1}{3} = 2.22$

Centre " $1 \times 20 \times \frac{1}{3} \times \frac{1}{6} = 1.11$

Bridging piece $7 \times 3 \times \frac{1}{3} \times \frac{1}{3} = 2.33$

planking $1 \times 20 \times 3 \times \frac{1}{4} = 15.00$

29.79

$29.79 \times 50 = 1489.5$ lbs

Live load

$20 \times 3 \times 120 = 7200$

8689.5 or 3.9 say 4 Tons

here also the girder works out to 8"×4" but for reasons stated above it may be allowed to remain 12"×6" as per Est.

H. C. M.

22
12
264
$20 \overline{) 13.4}$

Public Works (1898) Department.

CURRENT No. 1992

From The Supg. Engineer
4th Circle.

Order

No. 123/W

Dated 27th of February 1898

Received / *Registered* 24-3-98

Enclosures 31. (21 plans)

Spare copies ✓

SUBJECT.

Road and bridle path from Pallapoliyam, Coimbatore Dt. to Chinnar river the boundary of Travancore Territory.

Submits plans & estimates amounting to Rs 29000 for constructing a ditto with a request that steps being taken to get the stores early if the estimate is sanctioned.

J/ rails for scrutiny

[illegible] 5/3/98

W

O.L.5.236

BACK PAPERS.

No.	Date.

FURTHER PAPERS.

No.	Date.

Suptg. Engr's Office IV circle

No 123/W Coimbatore 27th February 1898.

From,

A. H. Garrett, Esq.,

Superintg. Engineer IV circ

To,

The Chief Engineer,

Public Works Department.

Sir,

Enclo: 31,
10 Sheets of levels.
3 Sheets of Survey.
2. -Do- of masonry works.
Report.
Data sheet.
6. Estimates.
1. Classified abstract.
1. Indent in duplicate.

With reference to G.O. No. 1359 W dated 29th April 1896 I have the honor to submit herewith plans and estimates amounti to Rs 29,000 for constructing road and bridle path from Pallapoliyam, Coimbatore Distri to the Chinnar river, the boundar of Travancore Territory.

A Home Indent duplicate for the European sto required for the above work re from the Executive Engineer is a forwarded with a request th you will be good enough to steps to get the stores at an e

BACK PAPERS.

No.

FURTHER PAPERS.

No.	Date.

date if the estimate is sanctioned.

I have the honor to be
Sir,
your most obedt. Servt

Superintg: Engr IV Circle

AH
26/2/98