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Revenue (1897) Department.

MISCELLANEOUS SERIES.

G.O., No. 357

DATED 25th January 99

[Despatch Abstract.]

Communicating to the Board of Revenue G.O.
Public Works Department, sanctioning with remark
a lump sum estimate of Rs. 1,00,000 for the
construction of a road from Bodinayakkanur
to Kotagudi in the Madurai District.

BACK PAPERS.

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

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.
~~Civ~~ 3544/99 fo 2081		Rev.	9-6-99				

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18 4,000-18-10-98.

Revenue (1899) Department.

CURRENT No. 581

Mark
25-1-99

From The Public Works Department

Order No. 3577/25th Jan 9 1899.

Communicated to
the Board of Revenue.

No. 112.15.

25/1/99
S. S. S. S.

Dated 11th Jan 99
Received 24th do
Registered 24th do
Enclosures "
Spare copies. "

16 To the Board of Rev (Land Rev).
26-1-99

SUBJECT.

Sanctioning, with remarks,
a lump sum estimate of
Rs. 1,00,000 for the construction
of a road from Bodinayakanur
to Kotagudi in the
Madura to.

24-1-99
24-1-99

24
24/1/99

BACK PAPERS.

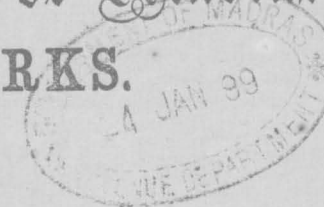
G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.

BUILDINGS AND ROADS.
CIVIL WORKS.

Government {1899} of Madras.
PUBLIC WORKS.



Recd.

Enclosures

Regd.

1899.

Spare copies

G.O., No. 112 W., 11th January 1899.

JANUARY.

Road from Bodinayakkanur to Kotagudi

Sanctioning, with remarks, a lump sum estimate of Rs. 1,00,000 for the construction of a — in the Madura district.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.

Civil Works.

Read—the following papers :—

From the Collector of Madura, dated 30th June 1898, Dis. No. 2236.
Telegram from Mr. Thorp, dated 9th August 1898.

From Lieut.-Colonel O. V. BODDY, R.E., Superintending Engineer, VI Circle,
to the Chief Engineer, Public Works Department, dated Trichinopoly, 15th
August 1898, No. 1106-M.D.

I have the honour to forward herewith, for the orders of Government, copy of a letter I have received from Mr. R. F. Thorp, the Engineer of the company holding land in the Kanan Devan Hills, North Travancore. A road is now being traced and estimated for from Bódináyakkanúr to the terminus of the aerial ropeway, which the company propose to erect.

2. I understand from Mr. Thorp that the Manager of the company has authorized him to make the requests embodied in his letter.

3. The first request is that the land required for the construction of the road above alluded to, and also the land over which the ropeway will pass, should be taken up at once. In addition to this a strip of land is required from the road to the rest-house, which the company is building at about $2\frac{1}{2}$ miles from Bódináyakkanúr.

4. The Act * only provides for the acquisition of land for a public purpose, and so it cannot be applied to the acquisition of the land over which the ropeway is to be erected, nor to the strip of land leading to the rest-house. For the construction of the road it is desirable to acquire the necessary land as soon as possible.

* No. I of 1894.

5. The second request is that the work of making the road should be entrusted to the company, and that they should be allowed to start the work at once, pending the preparation and sanction of the estimate.

6. In the event of the work being given to the company, they undertake to pay any excess that may occur over the sanctioned estimate, receiving three-fourths of the amount of estimate sanctioned.

7. I have, in my letter No. 1104-M.D., dated 15th August 1898, reported to you the present condition of progress made in tracing and estimating for the works. It is a matter of much difficulty to make a reliable estimate for a ghât road. As Mr. Thorp points out, it is only after a cutting is actually completed that the proportion of earth-rock boulders and rock blasting can be satisfactorily ascertained, and there will be, I think, a great deal of rock met on the road.

8. Then there is the metalling which requires careful prospecting for the best quarries. It is hoped, however, that all along the line of this road the rock will be found good enough to break for metal.

9. Then there is the bridging. It has not yet been decided what the width between parapets should be. In a former communication I suggested 15 feet the full width of the road. For the sake of economy this may be made 10 feet. There is one

river, the Kovalinga Aur, with banks 30 feet high, and running a maximum flood of about 6 feet only. A suspension bridge, 200 feet long, will probably be the best means of spanning it.

10. As a rough estimate, however, I think I may say that the road, bridged and metalled, will not cost more than Rs. 1,00,000.

11. Mr. Underwood in his letter printed with G.O., No. 1128 W., dated 5th May 1898, estimates the cost of the road at Rs. 53,000, but I think that this is too low a figure.

12. I do not think that there is any objection to giving the work on contract to the company. If it could be given to them as a lump sum contract, it would be well to do so. If not, it must be carried out under the ordinary rules of the department, and the Engineer of the company must submit to have his measurements checked and bills verified.

13. As regards the immediate starting of the work in anticipation of sanction to the estimate, this, if sanctioned, would commit the Government to the work whatever the amount of the estimate might be. As I said before I do not anticipate that it will exceed Rs. 1,00,000. The road will, I think, pay, if not directly, in an indirect manner. I am disposed to think that no great risk will be run in allowing the work to proceed now.

14. I am using every endeavour to get the estimate completed and I trust that it will be ready by the end of next month or earlier.

Telegram from the President, District Board, Madura, dated 26th Aug. 1898.

Letter from " " " " " 26th " " " No. 980 R.C.
" " " " " 12th Sept. " " " 992 Dis.
" " Mr. L. Davidson, General Manager, K.D.H.P. Co., dated 21st Sept. 1898.

From Lieutenant-Colonel O. V. BODDY, R.E., Superintending Engineer, VI Circle, to the Chief Engineer, Public Works Department, dated Kodaikáanal, 7th October 1898, No. 1338-M.D.

With reference to G.O., No. 1128 W., dated 5th May 1898, I have the honour to submit herewith an estimate for constructing a road from Bódináyakkanúr to the lower terminus of the aerial ropeway proposed to be constructed by Messrs. Finlay, Muir & Co., together with the necessary plans and survey.

2. I also forward copy of a letter No. 391 S.E., dated 28th September 1898, from the Executive Engineer, Madura division, together with its enclosures. The estimate has been prepared according to the instructions I received for a cart road. The length of this road is nearly 10 miles. A top width of 15 feet has been provided for, metalled throughout for a width of 9 feet. In cutting on the ghât portion of the road, a side drain 2 feet wide at bottom has been allowed. The trace has been most carefully laid out. For the $2\frac{1}{2}$ miles at top of the ghât it has been found impossible to obtain a better gradient than 1 in 25, and this grade has also been adopted for two short lengths lower down. For nearly 1 mile from 6th mile 5th furlong to 7th mile 4th furlong the ruling grade is 1 in 28, and for the rest of the ghât portion it is 1 in 30.

Further the trace has been laid out with accurate curves and the shortest curve has a radius of 100 feet.

3. It will thus be seen that besides providing for a very easy cart road, the trace is eminently adapted for the laying of a 2 feet tramway.

4. On the plains two streams are crossed which have cut out very wide waterways although the depth of water carried is small, probably not more than 3 feet as a maximum. Of these the Kovalinga Aur is 170 feet wide and 40 feet deep. It is not proposed to bridge these openings, but to construct ramps for the passage of carts. Works for crossing the smaller cross drainages have been designed, but for the large

openings, requiring iron girders, the details have not been worked out, as the conditions of load have not yet been determined on. They have however been estimated for with a near approximation to what they will actually cost.

5. The total amount of the estimate is Rs. 1,38,000 or about Rs. 3,450 per mile for the four miles on the plains and about Rs. 20,600 per mile for the six miles of ghât. An inspection of the survey and longitudinal and cross sections will show the difficulties, which attended the laying out of the curves and to these curves is largely due to the large amount of the estimate. The work in the 9th mile is also exceptionally heavy, as an inspection of the sections will show. It is impossible to obviate this. The classification of soil has been carefully considered though it is impossible to accurately proportion the quantities of earthen boulders and rock blasting.

6. The rates have also been carefully considered, and I do not see how any appreciable reduction can be made in them.

7. I have gone over the estimate with Mr. Smyth, and the utmost reduction that can be made, by allowing sleeper cuttings, diminishing width of side drains and slight reductions in rates does not exceed Rs. 5,000.

8. As, however, there must be uncertainty as to the proportion of rock in cutting, I considered it is best to have the cost of the estimate, as worked out.

9. It is a question whether thin cart road or a road 15 feet in width is really required.

10. Enquiry has been made, if it is not possible so to improve the existing track as to fit it for cart traffic until such time as Messrs. Wilson & Co. construct their tramway. I consider that this is not possible. The present track crosses the Kotagudi Aur and ascends its left slopes. The ropeway terminus is fixed on the right side of the river and the new trace is also on that side. The difficulties of ground are as great—if not greater on the left side as on the right. The present track could not be improved except by deviations and a new trace, which would make the cost almost as much as for the trace now estimated for. I think that this proposal must be given up.

11. There are two ways by which communication can be established with the ropeway terminus at a less cost than that now estimated—

(a) The first is by cutting down the width of the road to the minimum required for cart traffic and this minimum, I consider, to be 12 feet; such a road in round number and with a considerable approval to accuracy would cost Rs. 1,00,000. On this road a tramway could hereafter be laid, but referring to Mr. Crichton's letter, the trace is not suitable for such a gauge and rolling-stock as he at present proposes to use.

(b) The other way of reducing the cost is by forming the road to the minimum width required for a tramway. This width, excluding side drains, is 10 feet.

12. If it is the fact, as I am given to understand, that Messrs. Finlay Muir are prepared to lay a tramway of their own, on this road, then all that is required is a road of 10 feet width.

13. In any case, whether a cart road or tramway is adopted, the portion up the ghât will only directly benefit Messrs. Finlay, Muir & Co. and other planters on the hills.

14. There would be no local traffic up or down it. The only use that adjacent landowners could make of the road might possibly be to bring a little timber down it. I mention this as the considerations which would induce Government to give a grant for the construction of the cart road would equally apply to the construction of a tram line.

15. What I propose therefore is to construct the road for the 4 miles in the plains with a width of 21 feet. These 4 miles of road will be of use for local traffic and the increased width will permit both if a tramway being laid and of carts using the road.

16. The upper 6 miles should be formed with a width of 10 feet in which Messrs. Finlay, Muir & Co. could lay their tram line. The 4 miles on the plains should be metalled for a width of 9 feet and the remaining portion left unmetalled—

	RS.
Such a road would cost work in plains	15,500
Work on ghât	71,500
Total	87,000

17. If Government will contribute half this amount, Rs. 43,500, and the District Board Rs. 13,000, Messrs. Finlay, Muir & Co. would have to provide Rs. 30,500.

18. As regards the execution of the work, I am strongly in favour of giving it to Messrs. Finlay, Muir & Co. on a lump sum contract. I have discussed the question with Mr. Thorp, the Engineer of the company, and he informed me that the company is prepared to tender for the execution of the work on a lump sum.

19. In order to facilitate the preparation of the tender, and, to save delay, I have handed over the longitudinal and cross sections of the road to Mr. Thorp who will have copies taken of them and return the sections in a few days.

20. Mr. Thorp informed me that the company will shortly submit two lump sum tenders—one for a 15 feet road metalled throughout and the other for such a road as I have proposed.

21. Sub-Engineer Mr. Abdul Latif Sahib was specially deputed to draw up the estimate, and he himself took out the quantities which were subsequently checked by the Head Draftsman, Madura division, who was also specially deputed to the work. I have not, therefore, considered it to be necessary to have the estimate checked in my office, as this would delay its submission for probably ten days or a fortnight.

From L. DAVIDSON, Esq., General Manager, Kanan Devan Hills Produce Company (Limited), to the Private Secretary to His Excellency the Governor of Madras, dated Devikulam, 9th November 1898.

I have the honour, on behalf of the Kanan Devan Hills Produce Company, to tender for the construction of a cart-road from Bôdinayakkanûr to the lower terminus of the company's proposed ropeway above Kotagudi, a total distance of about 10 miles, the terms upon which the tender is made being as follows:—

(1) The company undertakes to construct the above mentioned road from the old travellers' bungalow at Bôdinayakkanûr, Madura district, to the spot marked out as the lower terminus of the proposed ropeway above Kotagudi according to the trace already laid out by Mr. Thorp to the satisfaction of the Executive Engineer, Madura district, for the sum of Rs. 1,00,000 (one hundred thousand only), such road to be completed within nine months from the date of the receipt of notice from Government that the land is available for commencement of work.

(2) Such road to be 15 feet wide on the plains (that is, for the first four miles from the Bôdinayakkanûr end) and on the ghât (i.e., for the last six miles) to be 12 feet wide in the solid or 15 feet wide, including embankment and side drains, the latter being 18 inches wide.

(3) The company will construct all necessary drains, culverts, revetments and bridges, including a bridge of 5 spans of 10 feet each across the river Kovalinga, where the trace passes such river.

(4) All slopes on any portion of the road on the ghât shall show a slope of not less than 6 inches to the foot.

(5) With the exceptions hereinafter mentioned, the company shall have the option of constructing all masonry work either of dry wedged rubble masonry or brickwork in mortar.

(6) The foundations of bridges, where exposed to running water, shall be built of masonry or, at the option of the company, of brickwork, either to be in hydraulic lime mortar.

(7) All brickwork in arches shall be constructed in lime mortar.

(8) All bridges shall be constructed so as to carry a safe load of one ton per foot run and may at the option of the company be either arched or girder bridges. All girder bridges shall be constructed of mild steel with teak or other approved timber flooring.

(9) Culverts and drains shall be constructed of sufficient capacity to carry off all surface water.

(10) The road shall be metalled 10 feet wide and 6 inches thick throughout, such metalling to be properly rammed or rolled.

(11) On the completion of every three miles of the work to the satisfaction of the Engineer, such portion shall be taken over by Government who shall thereupon pay the company therefor at the rate of Rs. 5,000 per mile, the balance, payable under the contract, being paid to the company immediately on the final completion of the whole work.

If the above terms commend themselves to Government, I shall be glad if any further form of document, that may be necessary, may be prepared with the utmost despatch, and I have also the honour to apply that the necessary lands may now be required on behalf of Government for such cart-road.

Description of the lands, which are so required for the works above mentioned, are herewith enclosed, and I may mention that all the lands are in the Madura district.

As it is desirable that the work should be commenced forthwith, I would ask that the necessary steps may be taken to acquire, on behalf of Government, the land required for the roadway.

Description of lands required.

LAND required for the road from Bódináyakkanúr to the lower end of proposed ropeway at Kotagudi.

(a) A strip of land 66 feet wide along the line as pegged out from the old travellers' bungalow at Bódináyakkanúr to the lower terminus of the proposed ropeway to be constructed near Kotagudi, such strip measuring approximately 80 acres.

(b) A strip of land from the new rest-house of the Kanan Devan Hills Produce Company to the strip of land last-mentioned, measuring approximately 12 chains in length and 66 feet wide (about $1\frac{1}{4}$ acres).

(c) A block of land at the junction of strip (a) with the lower end of the proposed ropeway and measuring about 4 acres in extent.

Trusting I have made myself clear.

ENCLOSURE.

Description of lands required.

Land required for the road from Bódináyakkanúr to the lower end of proposed ropeway at Kotagudi (already applied for in our tender).—(a) A strip of land 66 feet wide along the line as pegged out from the old travellers' bungalow at Bódináyakkanúr to the lower terminus of the proposed ropeway to be constructed near Kotagudi, such strip measuring approximately 80 acres.

(b) A strip of land from the new rest-house of the Kanan Devan Hills Produce Company to the strip of land last-mentioned, measuring approximately 12 chains in length and 66 feet wide.

(c) A block of land at the junction of strip (a) with the lower end of the proposed ropeway and measuring about 4 acres in extent.

2. Land required for the ropeway.—Strip of land along the trace already pegged out measuring 66 feet in width and measuring in length about 210 chains or in all about 21 acres together with an area of 3 acres at each of the points marked as proposed sites of the stations at the foot, centre and top of the ropeway.

3. Land required from the top of the ropeway to the Travancore boundary.—Strip of land measuring 66 feet in width and 120 chains approximately in length as marked out or in all an area of 12 acres.

Remarks.—About half of the first 4 miles of block I (a) is under dry cultivation, the remainder being barren soil. The remaining 6 miles is entirely scrub jungle with the exception of about 10 chains which passes through disused paddy fields.

Block I (b) passes through dry cultivation.

Block I (c) is scrub jungle.

As to block II the whole of it with the exception of about 10 chains which go through Mr. Knight's coffee clearing is scrub jungle or barren land.

Block III is jungle.

(Signed) L. DAVIDSON,
General Manager, K.D.H.P. Co. (Ld.)

From L. DAVIDSON, Esq., General Manager, Kanan Devan Hills Produce Company (Limited), to the Private Secretary to His Excellency the Governor of Madras, dated Devikulam, 9th November 1898.

With reference to the question of the construction by the Kanan Devan Hills Produce Company of a cart-road from Bódináyakkanúr to Kotagudi and of a ropeway from the end of the road at Kotagudi to the top of the ghaut, I have the honour to apply that the necessary lands may now be acquired on behalf of Government for such cart-road and on behalf of the company for such ropeway.

For the purpose of completing the connection with the Travancore roads, it will also be necessary for the land required for a road from the top of the ropeway to the Travancore boundary to be acquired by Government on behalf of the company, and I have the honour to ask that this land may be included in any proceedings that are taken in respect of land to be required for the ropeway.

Description of the lands which are so required for the three works above mentioned are herewith enclosed, and I may mention that all the lands are in the Madura district.

The ropeway and the road to the Travancore boundary will be constructed for the use of the public and as soon as the terms of the necessary agreement are settled I am prepared on behalf of the company to execute same. The terms which the company suggest are—

(1) That the company will pay for all land required for such ropeway and road when such land is made over to and vested in the company at the rate fixed upon under the Act.

(2) The company and its assigns shall be entitled to retain the land so long as the ropeway and road are maintained and worked by them.

(3) The company will at its own expense erect and equip a ropeway of sufficient power to carry loads of three cwt. each and will complete a road from the top of the ropeway to meet at the top of the Travancore boundary, the road cut by the company in Travancore. Such works to be completed within 12 months from the date when the land acquired for such purpose is made over to the company.

(4) The company will work such ropeway and maintain such road in an efficient manner.

(5) The public shall be entitled to the use of the ropeway and road so long as same are held by the company and its assigns at the rate of Rs. 7-8-0 per ton on loads not exceeding 3 cwt.

(6) The company shall be at liberty at any time to increase the carrying capacity of the ropeway to such extent as it may think proper.

As to the rate of Rs. 7-8-0 per ton I would point out that the present rate of hire for animals taking two days to travel from Bódináyakkanúr to the top of the ghât is Rs. 22 per ton whilst the rate by coolies is Rs. 34 per ton. The great saving therefore to the public by the use of the ropeway, in cost (besides damage to goods and shortage) is obvious even when the cart hire of the contemplated road to the foot of the ropeway is added.

As it is desirable that the work should be commenced forthwith I would ask that the necessary steps may be taken to acquire on behalf of Government the land required for the roadway and to vest the other land required in the company as soon as possible.

By separate letter I have the honour to address you as to the contract for the construction of the road between Bódináyakkanúr and Kotagudi.

From L. DAVIDSON, Esq., General Manager, Kanan Devan Hills Planters' Company, Limited, to the Private Secretary to His Excellency the Governor of Madras, dated 21st November 1898, No. 1450.

I have the honour to state, that in applying for the land for the ropeway I omitted to include in the application the land for the turbine, pipe, and spout; and the land the wire passed over conveying the power from the turbine to the ropeway station.

The acreage will be nominal, 6 feet wide being sufficient, and a piece 50 feet square for the turbine station.

A plan of the land will be prepared and forwarded to you or handed to the Government representative who takes over the land as you instruct me.

Telegram from Mr. L. Davidson, General Manager, K.D.H.P. Co., dated 2nd Dec. 1898.
Letter from Mr. L. Davidson, General Manager, K.D.H.P. Co., dated 2nd Dec. 1898.

Note by the Chief Engineer, Public Works Department.

I recommend the proposals contained in paragraphs 15 and 16 of the Superintending Engineer's letter No. 1338 M.D., dated 7th October 1898, viz., that the road on the plains, 4 miles, should be 21 feet wide, and the road on the ghât, 6 miles, 10 feet wide. The Superintending Engineer estimates the cost of this work at Rupees 87,000, but I consider that 1 lakh should be allowed.

2. I also recommend that the tender of Mr. Davidson, on behalf of the Kanan Devan Hills Planters' Co., Limited, be accepted at once in its entirety, with the following alterations to paragraph 11.

(a) After the words "at the rate of Rs. 5,000 per mile," place a full stop and continue thus:—"on completion of the contract to the satisfaction of the Executive Engineer of the division, Government shall pay to the contractors such sum as will bring its total payments, on account of the contract, up to Rs. 63,333.* The balance payable under the contract, viz., Rs. 36,667, shall be paid by the Kanan Devan Hills Produce Company, provided that if, and when, Messrs. Wilson & Co. or other concessionaire construct a

	RS.
* Government	50,000
District Board, Madura	13,333
	63,333

tramway along the Bódináyakkanúr-Kotagudi road, one of the conditions of the concession shall be that they shall repay to the Kanan Devan Hills Produce Company the amounts so spent on the road not exceeding Rs. 36,667."

(b) Expunge the words "the balance completion of whole work."

3. The Collector should be directed to hand over at once all Government waste land required for the road, ropeway, or tramway, and to take steps to hand over occupied land on receipt of application in proper form.

4. In consideration of the fact that the road will be an extension of the Kanan Devan Hills Produce Company's private ropeway and tramway, the grant of the proposed Rs. 50,000 from Provincial funds should only be given on the distinct

understanding that the general public shall be permitted to use the ropeway, tramway and road, in connection therewith, in Travancore territory, on the terms laid down by Mr. Davidson in paragraph 5 of his letter, dated 9th November 1898, viz., Rupees 7-8-0 per ton. This concession should be given for the whole distance from Mannar to Kotagudi.

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

17th December 1898.

Telegram from Mr. Davidson, dated 7th January 1899.

ORDER—No. 112 W., dated 11th January 1899.

The lump sum estimate of Rs. 1,00,000 suggested by the Chief Engineer, Public Works Department, for the construction of a road from Bódináyakkanúr to Kotagudi in the Madura district is sanctioned.

2. The Government will contribute Rs. 50,000 towards the road, on the condition specified in paragraph 4 of the Chief Engineer's note; and of this sum, Rs. 20,000 are allotted for expenditure in the current official year.

3. The District Board, Madura, will be requested to place at the disposal of this department, in 1899-1900, the sum of Rs. 13,333, which they have promised to contribute towards the cost of the road.

4. The tender of Mr. Davidson is accepted subject to the modifications proposed by the Chief Engineer in his note read above. The Superintending Engineer will arrange for the execution of the necessary contract agreements.

5. The Collector of Madura will hand over at once all Government waste land required for the road, ropeway, or tramway, and take steps to acquire occupied lands on receipt of applications in proper form.

6. The Superintending Engineer will apply to the Collector for the acquisition of the land required for the road.

7. Some of the lands required for the ropeway seem to be private property, and as the Government is satisfied that the ropeway is likely to be useful to the public it authorizes the acquisition of these lands under Act I of 1894. The Kanan Devan Hills Produce Company will be informed that they should make formal application to the Collector, through their Secretary or Attorney, for the land required for their ropeway. The Collector will then obtain from the Company the agreement required by section 41 of the Act and proceed to acquire at the cost of the Company, under Part VII of the Act, such of the lands as are under occupation. The agreement should embody the terms proposed in Mr. Davidson's letter of the 9th November 1898 and copy thereof should be forwarded to Government for publication in the *Gazette of India* and the *Fort St. George Gazette*.

8. The sanction accorded in paragraph 1 has been registered as Provincial No. 101 W. of 1898-99, and classified as Communications—Original Works.

(True Extract.)

Under Secretary to Government.

To the Superintending Engineer, VI Circle, with sixty-seven enclosures.
" the Examiner, Public Works Accounts.
" the Revenue Department.
" the Local and Municipal Department.
" L. Davidson, Esq., Manager, K.D.H.P. Co. (Ld.).

Exd. T. K. Narayana Aiyangar.