1. Number of pages 306
2. Date of repair. 26-7-37
3. Initials of Repairer

M.R.O. 1—82 400—21-11-30

MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

Cons. 24-11-57

G.O. No. 2148 Press Mis.

80-118

Dated 23—11—1857.

Not to be folded or roughly handled

Read the following Reports from Colonel C. E. FABER, Chief Engineer; to H. FORBES, Esq., Acting Secretary to Government, dated 30th October 1857, No. 4821.

No. 80. Report on an estimate, amounting to Rupees (1,520) one thousand, five hundred and twenty, for the construction of a second class Traveller's Bungalow, with out offices, at Aska.

1 Letter from the Acting Collector Ganjam, dated 28th August 1857, No. 385, with one enclosure vide No. 4822.

The above estimate is submitted in obedience to the orders contained in Extract from the Minutes of Consultation No. 693, dated 16th April 1857.

The Bungalow is to contain four rooms, viz.

1 Room, 20 feet long, by 17 feet broad.
1 Room 28′ 9″ by 8′ 3″
1 Room 17 feet by 9 feet.
1 Room 9 feet by 8′ 3″

but if a Native Corps of full strength be continued at each terminus of this short road between Berhampore and Russelcondah, with Aska midway, it may well admit of doubts, whether a 1st Class bungalow would not have been of more appropriate dimensions and accommodation.

The estimate also provides for the construction of a Godown, a Cookroom, and a Privy.

The Godown measures 12 feet by 12 feet.

The Cookroom also measures 12 feet by 12 feet.

The buildings are suitable. The estimate is prepared on moderate but sufficient data, and is recommended for entry in the Budget for 1858-59, its amount is Rupees (1,520) one thousand five hundred and twenty.

Read the following Report from Colonel C. E. FABER, Chief Engineer; to H. FORBES, Esq., Acting Secretary to Government, dated 30th October 1857, No. 4822.

No. 81. Report on an estimate, amounting to Rupees (3,980) three thousand, nine hundred and eighty, for constructing 1st Class Traveller's Bungalows, with out Offices, at Chicacole, and Nursinapettah, one at each place.

The above estimates are submitted in obedience to the orders contained in Extract from the Minutes of Consultation, No. 693, dated 16th April 1857.

Each of these buildings, is to contain 6 rooms viz.

2 Rooms each, 20 feet in length, by 17 feet in breadth.
2 Rooms each, 20 feet by 8 feet.
1 Room, 17 feet by 8 feet.
1 Room 17′ 6″ by 8 feet.

The out houses attached to each are, a Godown, two Cookrooms, and a Privy.

The two Cookroms, and the Godown, together with a front Verandah, form one building, the Godown is 14 feet in length by 12 feet in breadth, the Cookrooms are placed one in each side of the Godown, and are each 12 feet by 12 feet.

The estimates are prepared on moderate but sufficient data, they are recommended by the Chief Engineer for entry in the Budget for 1858-59, they together amount to Rupees (3,980) three thousand, nine hundred, and eighty.

Letter from W. KNOX. Esq., Acting Collector of Ganjam; to Colonel C. E. FABER, Chief Engineer, dated Chetterpoor, 28th August 1857, No. 385.

SIR,

I have the honor to forward herewith an original letter with its enclosures received from the District Engineer Ganjam for constructing 3 first Class Bunglows at Chicacole, Nursina-

pettah and Berhampoor and a second Class one at Aska at a total estimated cost of Rupees 6,860 and request that you will be pleased to obtain the sanction of Government for the construction of the above Bungalows as I concur with Mr. Blagrave in considering them necessary works.

Letter from Lieutenant E. R. Blagrave, District Engineer Ganjam; to Colonel C. E. FABER, Chief Engineer, dated Camp Chetterpoor, 26th August 1857, No. 868.

SIR,

With reference to Extract Minutes Consultation No. 693 dated 16th April last, conveyed in Extract from your Proceedings No. 12079 25th April 1857, I have the honor to forward revised estimates* and Plans, prepared agreeably to the standard plan, for 1st Class Bungalows at Chicacole, Nursinapettah, and Berhampore on Trunk road No. 6 and for a 2nd Class one at Aska, on the road from Berhampore to Russelcondah, amounting respectively to Rupees† (5,340) five thousand three hundred and forty and Rupees‡ (1,520) one thousand five hundred and twenty.

* 2 Plans.
3 Detailed estimates.
3 Abstracts do.
3 Reports.

† 3 1st Class.
‡ 1 2nd Class.

Read the following Report from Colonel C. E. FABER, Chief Engineer; to H. FORBES, Esquire, Acting Secretary to Government, Ganjam District, dated 30th October 1857, No. 4823.

No. 82 Report on an estimate amounting to Rupees [2,180.] two thousand, one hundred and eighty, for constructing a 1st Class Traveller's Bungalow, with Out-houses at Berhampore.

1 Letter from the Acting Collector of Ganjam, dated 28th August 1857, No. 385 with one enclosure, vide No. 4822.

The above estimate is submitted, in accordance with Extract from the Minutes of Consultation, No. 693, dated 16th April 1857.

It provides for the construction of a Bungalow, containing 6 rooms, and a Verandah, which extends along the front, and partly along each side of it.

The rooms are in two sets similar to one another, and divided by a Centre wall, each set is intended for one or two Travellers, and contains:—

1 Room 20 feet by 17 feet.
1 do. 20 „ by 8 „
1 do. 17½ „ by 8 „

The estimate also provides for the construction of a Godown, two Cookrooms, and a privy, the Godown is 14 feet by 12 feet, the Cookrooms each, 12 feet by 12 feet, the Godowns, Cookrooms, and a Verandah in front, form one building.

The estimate has been framed on sufficient but moderate data.

The work is recommended for entry in the Budget for 1858-59; the amount of the estimate being Rupees [2,180.] two thousand, one hundred and eighty.

Read the following Report from Colonel C. E. FABER, Chief Engineer; to H. FORBES, Esquire, Acting Secretary to Government, dated 3rd August 1857, No. 2615.

No. 83 Report M, on an estimate prepared by Lieutenant Farewell for restoring the Bobellapaudoo Tank, in the Nundegaum Talook of the Masulipatam District.

Amount of estimate Rupees (786) seven hundred and eighty-six, comprising the items shown in the accompanying Abstract.

1. The expected increase of Revenue to be derived by restoring the above tank is Rupees (200) two hundred, or nearly 25½ per cent on the proposed outlay, as follows:—

	Rs.
Poonjah land 10 Cuttees, Assessed at Rupees 10 per cutty, Revenue.....	100
The same to be converted into Nunjah, and Assessed at Rupees 30 per cutty.....	300
Expected increase.....	200

2. The assessment is fixed at a low rate for the first year, to enable the Ryots to cover the outlay in forming Rice fields, small irrigation channels, &c.

3. The tank is of the 1st Class and Government property, its area is 27,16,714 superficial feet, and when full, it is capable of containing 5,87,548 cubic yards. Its source of supply is from 2 hill streams, as shewn in the accompanying survey, from the drainage of the country above it

4. A further report marked A. on this tank prepared by Lieutenant Farewell, is herewith submitted. The project promises to be a remunerative one, and the estimate which has been prepared on moderate and sufficient data, is recommended by the Chief Engineer for entry in the Budget of 1858-59.

Letter from Captain C. A. ORR, District Engineer in charge Kistnah Division; to Colonel C. E. FABER, Chief Engineer, dated Bezoarah, 2nd July 1857, No. 42.

SIR,

1. I have the honor herewith to submit, for insertion in the Budget of 1858-59, a project, prepared by Lieutenant Farewell, for the restoration of the Bobbellapaudoo tank in the Nundegaum Talook of the Masulipatam District, amounting to Rupees 786.

A

Bobbellapaudoo Tank.

This work appears to have been destroyed during the Zemindary management of this purganah some 30 years ago. The villagers state in consequence of its not having been repaired for many years. The situation of the tank across a valley formed by the undulations of the ground appears to be good and to have a fair source of supply from the drainage of the country above it. In the survey accompanying the estimate the ground with the exception of the small patch of Enam land shown as cultivated under this tank is at present waste land paying sist of 1 Rupee, per cutty—10 cutties of which is available for irrigation. It is overgrown with Tonunah trees and bushes and will require much labor to render it fit for wet cultivation. The sist has therefore been noted at a low rate the first year, viz. 30 Rupees per cuttie, which the Ryots engage to increase to 50 Rupees per cutty the second year to be increased hereafter by the Revenue Authorities.

Estimates, plans &c., are herewith forwarded.

Masulipatam District,
Camp Bezoarah,
7th May 1857.

(Signed) W. FAREWELL, Lieut.,
Executive Engineer 3rd Class Kistnah Division.

No. 84. Read the following letter from Colonel C. E. FABER, Chief Engineer; to H. FORBES, Esq., Acting Secretary to Government, dated 9th November 1857, No. 5070.

SIR,

1. Under clause 2, of Extract Minutes of Consultation of the 18th October 1855, No. 696 and with the permission accorded in para. 6 of Extract Minutes of Consultation of the 19th October 1857, No. 1958, I have the honor to forward for sanction in the Budget of 1858-59 an estimate for the construction of ten (10) Cargo boats at a cost of Rupees (10,000) ten thousand, for the use of the works in the delta of the Kistnah.

1 Letter from Executive Engineer in charge Kistnah Division, dated 26th October 1857, No. 107 with one subjd.
1 Estimate.

2. The proposal to build these boats was made about two years ago by the District Engineer lately in charge of the Kistnah Division, who foresaw the difficulty and delay that would arise in carrying on the numerous works in the delta, without a large addition to his boats as none could be obtained for hire as at the Godavery; but it not having been deemed expedient at that time to lay his estimate before Government, it was returned to him.

3. The experience of the two years that have since elapsed having shown the correctness of the District Engineers prognostication, and proved that, without more boats, no sufficiently rapid progress can be made with the masonry so as to keep pace with the earth works, and that consequently very injurious delay occurs in opening the channels for navigation as well as irrigation, the executive Engineer, in temporary charge of the Division has re-submitted the estimate, but without giving any other reasons for its necessity than those contained in the original Letter* from Captain Orr, while he quotes having had the personal assurance of the latter Officer, that the boats are absolutely necessary to enable the Kistnah irrigation and navigation scheme being carried into effect with such vigor and despatch as are essential, I recommend the estimate which seems moderate, for sanction.

* Letter dated 11th December 1855, No. 357.

Letter from Lieutenant W. FAREWELL, Executive Engineer in charge Kistnah Division; to Colonel C. E. FABER, Chief Engineer, dated Bezoarah, 26th October 1857, No. 107.

SIR,

1. I have the honor to forward, for insertion in the Budget of 1858-59, an estimate amounting to Rupees 10,000 for the construction of ten boats for the use of the Kistnah Works, and, in explanation of the necessity of the same, I beg to annex, for your information, copy of an extract from a letter No. 357, of the 11th December 1855, from the District Engineer lately in charge of this Division to your address, on the subject.

Extract from a letter dated 11th December 1855, No. 357 from the Civil Engineer in charge of the Kistnah Division to the Chief Engineer in the D. P. Works.

4. With respect to the provision of additional boats for the use of the Kistnah Works, at an estimated cost of Rupees 10,000, I have the honor to state that, as no boats are procurable for hire in this neighbourhood, Government under date the 8th December 1853, sanctioned ten boats at an estimated cost of Rupees 14,300-15-10 for the conveyance of materials from Bezoarah to the various minor works to be erected throughout the Delta, in connection with the annicut. These averaging a burden of from 50 to 60 tons, have been completed, and with five flats built under the annicut estimate from the sole transport we possess, amounting in the aggregate to about 800 tons. This amount of tonnage has hitherto been found barely adequate for the carriage of the large quantities of materials of all descriptions requiring to be conveyed for these and the minor works, and will therefore be utterly insufficient to keep up the supplies when the latter are extended, and are situated at a greater distance. Most of our fuel is now brought down the River some 10 or 12 miles, and, being bulky, occupies a considerable tonnage. Our lime stone is carried by water five miles to this, and when burnt is again put on boats for its destination in the Delta, and the stone used throughout the works is all taken from the vicinity of the annicut. More tonnage than we now have is absolutely indispensable, and I accordingly recommend the estimate, now given in detail amounting to Rupees 10,000, for sanction.

Bezoarah, 11th Decr. 1855.

(Signed) C. A. ORR, Captain,
Civil Engineer in charge Kistnah Division.

(True Copy)

(Signed) W. FAREWELL, Lieut,
Executive Engineer in charge Kistnah Division.

Read the following Report from Colonel C. E. FABER, Chief Engineer; to H. FORBES, Esq., Acting Secretary to Government, dated 2nd July 1857, No. 1716.

No. 85. Report G, upon an estimate for completing the west approach of the bridge across the Mooluvankah stream in the Cuddapah District, and for a road dam across it in the direction of line of road.

Amount of estimate Rupees (1,160) one thousand one hundred and sixty.

In Minutes of Consultation No. 248, under date the 3rd February 1857, the Government called for an estimate for a new bridge to be built in the true direction of the road over the Moolavunkah stream upon Trunk road No. 11, instead of the bridge built there in an awkward position and at about right angles with the direction of the road.

2. The District Engineer has submitted a plan and estimate for a bridge of 3 arches each of 45 feet span, the probable cost of which is Rupees (5,820) five thousand eight hundred and twenty. He at the same time submits an estimate for completing the western approach of the existing bridge and metalling the road, amounting to Rupees (818-0-10) eight hundred and eighteen and pice ten, and for a road dam in the direction of the road, amounting to Rupees (341-15-2) three hundred and forty one, annas fifteen and pice two.

3. The District Engineer recommends the latter plan, as being one likely to answer all the purposes, for it is very seldom that the stream is impassable and then only for a few hours in which case the existing bridge will be used. The distance by using the bridge instead of the direct route is increased by 2 Furlongs and 28 yards.

4. The estimate is on moderate and sufficient data, and I recommend it for sanction, and taking into consideration the present unfinished state of the bridge approaches, and the damage done by rain. And the advisability of completing the work, I would suggest that the money be allowed to be taken from the sum apportioned to Cuddapah for ordinary works in statement 3 of the Budget of 1857-58, or if this be not approved, that it be entered in the Budget for 1858-59.

Letter from Lieutenant E. HEMERY, District Engineer of Cuddapah; to Colonel C. E. FABER, Chief Engineer, dated Camp Goolcherroo 10th April 1857, No. 1190.

SIR,

I have the honor with reference to Extract No. 248, from Minutes of Consultation under date the 3rd February 1857, to forward two estimates, one amounting to Rupees 5,840 for a bridge to be constructed over the Moolavunkah, on a line with the road from Cuddapah to Baukrapett and the other amounting to Rupees 1,158 for a road dam with approaches to be constructed across the same stream also in the direction of the old road.

In forwarding these estimates I would beg to suggest that the smaller amount for a road dam, be recommended for sanction, as a considerable sum has already been expended on this road, and that not very judiciously. The Moolavunkah, is seldom impassable for many hours at a time and a road Dam by equalising the depth of the Stream would greatly facilitate the passage of carts at almost any period of the monsoon.

The difference between the old road and the proposed new one by the present bridge is 2 furlongs, 28 yards.

Letter from Lieutenant E. HEMERY, District Engineer of Cuddapah; to Colonel C. E. FABER, Chief Engineer, dated Camp Mudnapully 5th May 1857, No. 14.

SIR,

With reference to Para. 2, Extract No. 12,035 from your Proceedings under date the 24th Ultimo I have the honor to re-submit the explanation afforded in my letter No. 87[illegible] of the 24th January last regarding the disposal of the balance (Rupees 800-10-2,) remaining unaccounted for from the amount (Rupees 9000) sanctioned for preliminary works on the direct road from Madras to Cuddapah.

2nd. Out of this balance the sum of Rupees 272-14-8, was long since returned to the General Treasury of this District, but it took me some little time to discover what had become of the remaining amount Rupees 527-11-6.

3rd. It appears however that in July 1855, Captain Johnston then Superintendent of roads forwarded a receipt for Rupees 527-11-6, to the Collector of Cuddapah requesting him to hold that amount at the disposal of the Civil Engineer 2nd Division.

4th. Major Boileau happened at that time to be at Cumbum and one day a bag containing Rupees 527-11-6, was brought to him from the Tahsildar who said that the Collector had ordered him to pay that amount to the Civil Engineer 2nd Division, but as Major Boileau had not the slightest idea what this money was intended for he sent it back to the Talook treasury; the Tahsildar now says that Major Baileau ordered him to add this sum to the balance of the Kistnumchetty Pully and Ongole road funds but Major Boileau says that it is impossible he could have given a verbal message to that effect, however that may be, it seems very certain that the money (Rupees 527-11-6) was expended on the Northern line instead of on the direct Madras road.

Report to accompany the estimate for a Bridge over the Moolavunkah river.

1. Estimate of Rupees (5840) five thousand, eight hundred and forty, for constructing a bridge of three elliptical arches of 45 feet span across the Moolavunkah river on the road from Chittoor to Cuddapah.

2. The river bed is partly of Sand partly Shingle.

3. The foundation of the bridge are to be of brick in chunam 6 feet deep resting on Shingle.

4. The cutwaters of the piers are to be connected with each other and with those of the abutments by retaining walls in front and rear, built of brick in chunam 3 feet deep, and the floorings under the arches are to be of rough stone 2 feet in thickness.

5. The Piers are to be 6 feet thick and the abutments 8 feet raised to an uniform height of 2 feet, the versed sine of the arches to be 11½ feet giving a total height of 13½ feet to their soffits and allowing a clear height of six feet above the highest floods for the passage of trees or other floating bodies; the bridge will provide 1488 square feet of water way the section of the river during the heighest floods being 976 square feet.

6. The Superstructure of the Bridge is to be of brick in chunam plastered.

7. The Parapets are to have no interior cornices and the roadway over the Bridge is to be made horizontal and the approaches nearly so. Over the arches its clear width between parapets will be 18 feet and between the wing walls 24 feet.

(Signed) JOHN GEORGE,
Assistant Engineer.

Read the following Reports from Colonel C. E. FABER, Chief Engineer; to H. FORBES, Esq., Acting Secretary to Government, dated 3rd August 1857, No. 2615.

No. 86. Proposed E, second Class Bungalow for Travellers to be built at Peelair on the road between Cuddapah and Chittoor on the standard plan.

Amount of estimate Rupees (2,020) two thousand, and twenty.

1. This Bungalow has been proposed and estimated for under the instructions of Government in Extract Minutes Consultation No. 50 under date 12th January 1857. It was at one time under consideration,* whether it would be advisable to build a complete set of Bungalows on this line, but finally it was determined that the Travellers were too few to justify the outlay.

* Extract Proceedings Board of Revenue 26th July 1856, No. 2348 in Minutes Consultation 12th August 1856, No. 856.

2. With reference however to the great distance between Royachoty and Chittoor, the Governor in Council approved of the erection of a Bungalow at Peelair.

3. The Board of Revenue in their proceedings of the 22nd June 1857, approved of the plan submitted but suggested that a second bath room should be added to the building.

4. The plan (herewith forwarded) has two bath rooms, but from its not having been written upon the plan, the Board was unaware of the fact of there being a second. It is on the usual standard plan, and the estimate has been constructed on moderate data. I recommend it for sanction and insertion in the Budget of 1858-59.

Letter from Lieutenant E. HEMERY, District Engineer of Cuddapah; to Colonel C. E. FABER, Chief Engineer, dated Cuddapah, 23rd March 1857, No. 1102.

SIR,

I have the honor, with reference to Extract No. 9496, from your Proceedings under date the 15th January 1857, to forward a plan and estimate for building a 2nd Class Bungalow on the standard plan at Peelair on the road from Cuddapah to Chittoor.

No. 87. Report K, on an estimate prepared by supervisor Porter, for constructing a 2nd Class branch road from the Cowl Bazaar in the Cantonment of Bellary, to the road from Bruce Pettah in Bellary to Bangalore, a distance of 1 mile-0-141⅓ square feet.

Amount of estimate, Rupees (2,050) two thousand and fifty, comprising the Items shown in the accompanying abstract.

1. The top surface of the road is to be 8 feet in width covered with 9 inches of gravel, the side slopes are to be generally 2 to 1, and are to be turfed near the site of the bridge.

2. The bridge across the surplus channel shown in the survey, is to consist of one elliptical arch of 30 feet span.

3. The foundations of the bridge are to be 3 feet deep resting on rock.

4. The Cutwaters of the abutments in front are to be connected by a retaining wall, and the rough stone flooring under the arches is to be extended to a retaining wall, placed 2 yards in rear of the bridge, thus forming an apron to prevent scour.

5. The abutments are to be 5 feet thick, and 5 feet high, the versed sine of the arch is to be 7'-6" giving a total height of 12-6 to its soffiit, and allowing a clear height of 6 feet above the highest water mark in the channel.

6. The bridge is to be of stone in chunam, excepting the arch and Parapet walls, which are to be of brick in chunam.

7. The parapets are to have no interior cornices, and the road way over the bridge is to be made horizontal, the approaches to it having a slight slope. The clear width of road way between the parapet walls will be 18 feet.

8. The Collector in the accompanying letter No. 9, dated 22nd June 1857, concurs in opinion, that the proposed road is necessary, and will be very useful as communicating direct with the western part of the Town of Bellary, which is distant, and quite distinct from the Eastern part.

9. The estimate is framed on moderate and sufficient data, and is recommended by the Chief Engineer for entry in the Budget of 1858-59.

Letter from C. PELLY, Esq., Collector of Bellary; to Lieutenant Colonel C. E. FABER, Chief Engineer, dated Bellary, 22nd June 1857, No. 9.

SIR,

At the request of Lieutenant Fisher, the District Engineer I have the honor to forward herewith an estimate amounting to Rupees 2,050, together with its enclosures, for a road branching from the Bellary and Bangalore road to the Coul Bazar.

Without adopting entirely the reasons given in the 5th para. of the Supervisor's estimate, I quite concur in opinion that is not only a very useful but necessary branch, communicating direct with the Western part of the town of Bellary, which is distant and quite distinct from the Eastern part, I have the honor therefore to request you will be so good as to obtain sanction for the same.

Read the following Reports from Colonel C. E. FABER, Chief Engineer; to H. FORBES, Esq., Acting Secretary to Government, dated 6th December 1856, No. 8662.

No. 88. Report X. upon the line of road from the annicut across the river Palaur to, and through the town of old Arcot situated on the South bank of the Palaur.

Length of road 4 miles 1 furlong 53 yards.

Amount of estimate Rupees (8,160) eight thousand one hundred and sixty.

This is a revised plan and estimate prepared by order of Government in Para. 3 of Extract Minutes Consultation No. 1622 of the 10th September 1856, and is for taking the road through the town instead of through fields, as originally proposed.

2. The present line is represented by the District Engineer as more direct and less expensive than the former line, and he recommends its adoption. It will be necessary to remove a few houses, and the corner of the Cutcherry compound wall, and in this there is no difficulty; he doubts being able to remove the corner of the wall surrounding Tippoo Sahib's tomb, or the Tombs in the street, (see plan) and this is the only obstacle to the road, I do not however consider it sufficiently so, to negative the road as now proposed, and I recommend that it should be taken through the Bazar.

3. The road will be 7 yards broad, and will be gravelled throughout, and is to be provided with all necessary tunnels. Compensation has been allowed for the houses which will have to be removed, and it is included in the estimate.

4. The rates are moderate but sufficient for the work, and I recommend it for sanction and insertion in the Budget of 1857-58.

Letter from Lieutenant J. O. MAYNE, Acting District Engineer; to Colonel C. E. FABER, Chief Engineer, dated Arcot 11th November 1856, No. 1656.

SIR,

I have the honor agreeably to instruction in Circular No. 6525, regarding Para. 3, of Minutes of Consultation No. 1622, dated 10th September 1856 to forward a plan of the Town of old Arcot showing the line of road proposed by Mr. Huddleston and the line running through the Town of old Arcot and would recommend the latter as being more direct and cheaper.

The bazar is a good width and with the exception of few small sheds and a large house belonging to one Moodin sahib a merchant no interruption whatever. The corners of the Cutcherry wall can easily be moved but there may be some difficult in gaining consent to remove the wall round Tippoo sahibs Tomb.

The compensation I have allowed in the estimate are the actual value of the houses.

No. 89. Report AAA, upon a proposal for repairing a piece of road from Vencatagherry Cottah, westward to the Mysore Limits (from whence there is a good road to Bangalore.)

Length of road mile 1 furlongs 5 yards 130.

Amount of estimate Rupees (740-0-0) Rupees seven hundred and forty.

The object of restoring this piece of road, is to enable persons from Vencatagherry or from Palmenair and Byreddipully from which places a new road is under construction to Vencatagherry, proceeding to villages upon, and the country adjacent to the road from Bangalore, which is in good order within the Mysore limits.

2. The traffic by carts may at present be considered as very small, it is returned as ¾ of a cart a day, while that of bullocks and other beasts of burden and coolies is very considerable and may be stated as 500 of the former, and 29 of the latter.

3. The very small traffic in carts must be attributed to the fact of the Reddanaick droog pass being too steep for loaded wheeled conveyances, as well as being altogether out of repair.

4. The estimate provides for putting the road in thorough repair, and is calculated on reasonable but sufficient rates, and as I believe that much traffic which now finds its way from Vencatagherry round by Palmenair, a distance of 23 miles will thus at once go direct to Bangalore, I recommend its insertion in the Budget of 1857-58 for the sanction of Government.

Return of Traffic which passed on the road from Mysore to Madras via Vencatagherry Cottah Naikanary and Goriatum between the 17th and 24th September 1856.

Item.		17th.	18th.	19th.	20th.	21st.	22nd.	23rd.	24th.	Total.	Average.
1		2	3	4	5	6	7	8	9	10	11
Country carts.	Empty...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Travelling.	.....	.....	.....	.....	6	.....	.....	.....	6	¾
	Loaded..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oodder carts..	Empty.	.....	.....	1	10	.....	.....	.....	.....	11	1⅜
	Travelling....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Loaded.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Bullocks.....	Empty...	.....	.....	100	.....	.....	.....	.....	132	232	29
	Travelling.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
	Loaded.	34	100	40	795	775	660	270	1,155	3,829	478⅝
Asses.....	Empty.	.....	.....	.....	20	.....	.....	.....	.....	20	2½
	Loaded..	.....	.....	.....	.....	20	50	.....	80	150	18¾
Passengers.....	Empty.	.....	.....	.....	37	7	90	50	50	234	29¼
	Coolies..	.....	.....	.....	.....	.....	.....	5	.....	5	⅝
Horses.....	Empty.	.....	.....	.....	20	.....	.....	.....	.....	20	2½
	Travelling	.....	.....	.....	13	8	29	8	31	89	11⅛
	Loaded.	.....	.....	.....	11	2	.....	.....	.....	13	1⅝
	Total.....	34	100	141	906	818	829	333	1,448	4,609	.....

North Arcot, Collector's Cutcherry, Chittoor, 6th November 1856.

(Signed) C. WHITTINGHAM,
Collector.

No. 90. Report PP, on an estimate for metalling with gravel part of the road from Cuddalore to Chillumbrum forming part of the Southern Coast road, South Arcot District Rupees (8,580) eight thousand five hundred and eighty.

In letter to the Chief Engineer No. 22nd dated 10th November 1856.

This estimate is submitted by the Civil Engineer for improving part of the recently formed road leading to the large new bridge now under construction across the Coleroon (which is not metalled) lying five miles South of Cuddalore.

2. The traffic on the road is not stated but is known to be very considerable, and the soil being very light the metal will greatly relieve the heavy draught.

3. The rates appear moderate and sufficient, and the being approved by the Collector is strongly recommended for entry in the Budget of 1857-58.

Letter from Lieutenant E. A. FOORD, Acting Civil Engineer South Arcot; to Colonel C. E. FABER, Chief Engineer, dated Cuddalore, 10th November 1856, No. 212.

SIR,

I have the honor to forward an estimate amounting to Rupees 8,580, for metalling the new road from Cuddalore to Chellumbrum between the 4th and 9th milestones.

2. I consider both works urgently required and feel satisfied that a very large return will be made by the increased sales of Salt at Mercanum, which will assuredly follow the improvement of the road leading to this Depôt.

Letter from Lieutenant E. A. FOORD, District Engineer South Arcot; to Colonel C. E. FABER, Chief Engineer, dated Cuddalore, 10th July 1857, No. 207.

SIR,

I have the honor to forward an Estimate of Rupees 4,500 for metalling the road from the Mercanum lattice bridge to the Salt platforms, a distance of 2½ miles. This road has during the last two years been formed, and tunnels have been built on it, but the light soil of which the embankment is made will not stand the traffic, and it is equally necessary that this piece of road should be metalled, as that from Mercanum to Tindevanum, for which an Estimate has been submitted. Excellent materials can be obtained at an average distance of 5 miles.

Letter from Lieutenant E. A. FOORD, District Engineer, South Arcot; to Colonel C. E. FABER, Chief Engineer, dated Cuddalore, 10th July 1857, No. 208.

SIR,

I have the honor to forward an estimate of Rupees 18,300 for metalling the road from Tindevanum and Mercanum. The estimate has been made in accordance with the orders of Government of the 10th March 1857, No. 449 from careful measurements taken by Mr. Wright. The building of the lattice bridge over the back water at Mercanum, and the formation of the road from that place to Tindevanum, have already rendered the salt pans much more accessible than they were, but the greater part of the road, being an embankment formed of bad soil, is scarcely passable in wet weather, and it will be impossible to keep it in a proper state at all seasons, unless the surface is metalled. The great and increasing trade in salt that there is, I consider will fully justify the expenditure, and it will be seen from the copy of his letter which accompanies the estimate, that the Collector anticipates a considerable return for the outlay.

No. 94. Read the following letter from Colonel C. E. FABER, Chief Engineer; to H. FORBES, Esq., Acting Secretary to Government, dated 3rd November 1857, No. 4916.

SIR,

I have the honor to forward, for submission to Government, a Plan and estimate for re-building the Head sluice and altering the channel leading from the Vellaur annicut, at a proposed cost of Rupees (8,050) eight thousand and fifty.

2. The present sluice stands in a very unfavorable position both as regards the supply of the channel and the safety of the bank and it has long been proposed to change its site to one nearer the annicut which is shown on the sketch.

3. The important revenue that depends on these works makes their improvement a matter of the greatest consequence, and the present estimate was framed by the District Engineer under instructions from this office and at the recommendation of the Superintending Engineer Southern Circle who has long been desirous of effecting this important reform.

4. By adopting the proposed site the course of the river above the weir can be straightened and thus the safety of the annicut will be promoted while the supply of water from the surplus of the Veeranum tank hitherto of little if any, practical utility to Vellaur direct, and which has now become very considerable, will be carried directly to the channel leading to the Wallajah and Pennar tanks.

5. The rates of the estimate appearing moderate and sufficient, and the work being in my opinion actually necessary, as well as a most desirable improvement, I beg to recommend its entry in the Budget of 1858-59.

Letter from Lieutenant E. A. FOORD, District Engineer South Arcot; to Colonel C. E. FABER, Chief Engineer, Cuddalore, dated 13th July 1857, No. 212.

SIR,

I have the honor to forward an Estimate of Rupees 8,050 for building a new Head Sluice to the Rajah Voikal of the Vellaur Annicut.

2. The present head Sluice is more than half a mile above the Annicut and is a considerable distance from the bank of the river. The changes that have taken place in the bed of the river since the first construction of the Annicut, have much lessened the supply of water into the main channel, and I believe considerable expense has at different times been incurred in new cuttings and clearings to bring the water down to the head Sluice, and some of these works again appear to have had a prejudicial effect on the river.

3. It has been in contemplation for some years to change the position of the head of the channel, and to build a new Sluice. The position now selected is immediately adjoining the north end of the Annicut and the channel will be cut thence at right angles to the river and parallel to No. 9 Trunk road. The line of pits whence the earth was taken for the road embankment, will be converted into a channel, and the expense of that part of the project will therefore be much less than if an entirely new channel had to be cut. The new portion to join on to the present main channel will be 1470 yards.

4. The new head Sluice will be similar to the present one, but more space will be provided for the men to stand on when raising the shutters. The road way will be 9 feet in width as at present which will be sufficient for the small traffic there will be over it.

Letter from ARTHUR HALL, Esq., Collector of South Arcot; to Lieutenant E. A. FOORD, District Engineer South Arcot, dated Cuddalore, 10th July 1857, No. 615.

SIR,

I have the honor to return with my countersignature the Estimate which accompanied your letter of the 9th Instant, for building a new Head Sluice to the Rajah Voikal from the Vellaur annicut at an estimated outlay of Rupees 8,000.

2. I am of opinion that the work is a desirable one and that although no increase of Revenue will immediately result from it still that if executed the benefit will be indirectly felt by the steady and certain supply of water which it will be the means of throwing in to the Wallajah tank in comparison with what has been hitherto obtained by the channel in its present state.

3. It is a project which has been long in contemplation and one which I know Major Lawford views favorably.

Read the following Reports from Colonel C. E. FABER, Chief Engineer; to H. FORBES, Esq., Acting Secretary to Government, dated 6th December 1856, No. 8662.

No. 95. Report I, on an estimate for constructing a Traveller's Bungalow at Ammapettah on the road from Tanjore to Negapatam Rupees 1,750.

This building is intended to replace one which has been taken down. The plan is that of the second class standard, consisting of one large, and three verandah rooms.

2. The Civil Engineer's estimate amounts to Rupees 2,250, but he has made no allowance for old materials, which may be made available to the amount of Rupees 500, leaving the net amount requiring sanction Rupees 1,750.

3. The rates are those usual in the District and are sufficient, and moderate.

4. The work is recommended by the Chief Engineer, with reference to his letter of the 1st December 1856, No. 8509, to be entered in the Budget of 1857-58.

2. I consider both works urgently required and feel satisfied that a very large return will be made by the increased sales of Salt at Mercanum, which will assuredly follow the improvement of the road leading to this Depôt.

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2. The present sluice stands in a very unfavorable position both as regards the supply of the channel and the safety of the bank and it has long been proposed to change its site to one nearer the annicut which is shown on the sketch.

3. The important revenue that depends on these works makes their improvement a matter of the greatest consequence, and the present estimate was framed by the District Engineer under instructions from this office and at the recommendation of the Superintending Engineer Southern Circle who has long been desirous of effecting this important reform.

4. By adopting the proposed site the course of the river above the weir can be straightened and thus the safety of the annicut will be promoted while the supply of water from the surplus of the Veeranum tank hitherto of little if any, practical utility to Vellaur direct, and which has now become very considerable, will be carried directly to the channel leading to the Wallajah and Pennar tanks.

5. The rates of the estimate appearing moderate and sufficient, and the work being in my opinion actually necessary, as well as a most desirable improvement, I beg to recommend its entry in the Budget of 1858-59.

Letter from Lieutenant E. A. FOORD, District Engineer South Arcot; to Colonel C. E. FABER, Chief Engineer, Cuddalore, dated 13th July 1857, No. 212.

SIR,

I have the honor to forward an Estimate of Rupees 8,050 for building a new Head Sluice to the Rajah Voikal of the Vellaur Annicut.

2. The present head Sluice is more than half a mile above the Annicut and is a considerable distance from the bank of the river. The changes that have taken place in the bed of the river since the first construction of the Annicut, have much lessened the supply of water into the main channel, and I believe considerable expense has at different times been incurred in new cuttings and clearings to bring the water down to the head Sluice, and some of these works again appear to have had a prejudicial effect on the river.

3. It has been in contemplation for some years to change the position of the head of the channel, and to build a new Sluice. The position now selected is immediately adjoining the north end of the Annicut and the channel will be cut thence at right angles to the river and parallel to No. 9 Trunk road. The line of pits whence the earth was taken for the road embankment, will be converted into a channel, and the expense of that part of the project will therefore be much less than if an entirely new channel had to be cut. The new portion to join on to the present main channel will be 1470 yards.

4. The new head Sluice will be similar to the present one, but more space will be provided for the men to stand on when raising the shutters. The road way will be 9 feet in width as at present which will be sufficient for the small traffic there will be over it.

Letter from ARTHUR HALL, Esq., Collector of South Arcot; to Lieutenant E. A. FOORD, District Engineer South Arcot, dated Cuddalore, 10th July 1857, No. 615.

SIR,

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2. I am of opinion that the work is a desirable one and that although no increase of Revenue will immediately result from it still that if executed the benefit will be indirectly felt by the steady and certain supply of water which it will be the means of throwing in to the Wallajah tank in comparison with what has been hitherto obtained by the channel in its present state.

3. It is a project which has been long in contemplation and one which I know Major Lawford views favorably.

Read the following Reports from Colonel C. E. FABER, Chief Engineer; to H. FORBES, Esq., Acting Secretary to Government, dated 6th December 1856, No. 8662.

No. 95. Report I, on an estimate for constructing a Traveller's Bungalow at Ammapettah on the road from Tanjore to Negapatam Rupees 1,750.

This building is intended to replace one which has been taken down. The plan is that of the second class standard, consisting of one large, and three verandah rooms.

2. The Civil Engineer's estimate amounts to Rupees 2,250, but he has made no allowance for old materials, which may be made available to the amount of Rupees 500, leaving the net amount requiring sanction Rupees 1,750.

3. The rates are those usual in the District and are sufficient, and moderate.

4. The work is recommended by the Chief Engineer, with reference to his letter of the 1st December 1856, No. 8509, to be entered in the Budget of 1857-58.

Letter from Major A. BOILEAU, Civil Engineer Tanjore District; to Colonel C. E. FABER, Chief Engineer, dated Camp Tranquebar, 10th November 1856, No. 715.

SIR,

Adverting to para. 16 of Extract Minutes Consultation No. 355 dated 8th March last, and to the full additional information afforded in para. 9 of the Collector of Tanjore's letter to your address No. 130 of the 9th May last, I have the honor to forward a Plan and estimate of a Travellor's Bungalow to be constructed at Ammapettah on the high road from Tanjore to Negapatam.

2. The plan is the same which has already been approved of by Government and sanctioned for construction at the Lower Coleroon annicut.

No. 96. Report JJ, on an Estimate for re-building a bridge across the Vandayaur on the road from Tranquebar to Myaveram Rupees 1,470.

An old Danish bridge of two arches each 8 feet span crosses this river, and the waterway being insufficient it is proposed to substitute for it a single arch of 30 feet.

2. The necessity of providing free waterway to the surplus streams of Tanjore is so obvious that there can be no hesitation in recommending this estimate for sanction.

3. The rates are moderate and sufficient.

Letter from Major A. BOILEAU, Civil Engineer Tanjore District; to Colonel C. E. FABER, Chief Engineer, dated Camp Tranquebar, 11th November 1856, No. 726.

SIR,

The Vandayaur or Cuddaladyaur a surplus stream of considerable magnitude draining a large portion of the south-east corner of the Talook of Myaveram crosses the Sheally and Tranqeubar high road by a small bridge of 2 vents each 7 feet span and roadway of only 8 feet. The average section of the river is shown on the face of the accompanying plan, from which it will be seen how wholly inadequate the waterway of the present bridge is.

2. The road moreover at this point makes a great bend and requires to be straightened, which is an additional reason for re-constructing the bridge.

3. The estimate for the work amounts to Rupees 1,470 for which the sanction of Government is solicited. The work is of the ordinary character and its dimensions are so clearly set forth in the plan that no further Specification is forwarded.

No. 97. Report CCC, on an estimate for constructing a road from Peroovalandam to the Sea Port of Mootoopettah, in Tanjore Rupees 10,500 ten thousand and five hundred.

This work has long been called for to facilitate the export of grain from a highly cultivated, and populous part of the Tanjore Delta.

2. The estimate is for 5½ miles at about 2,000 Rupees a mile, and the rates being moderate and sufficient, and the Collector having strongly recommended the work, the Chief Engineer recommends it for entry in the Budget of 1857-58.

Letter from Major A. BOILEAU, Civil Engineer Tanjore District; to Colonel C. E. FABER, Chief Engineer, dated Camp Tanquebar, 18th November 1856, No. 755.

SIR,

It is I believe an acknowledged maxim that too many roads from the interior to the Coast in a District where the produce vastly exceeds the home consumption cannot be made, so that I

have not to labor for arguments to recommend the construction of a road from Peroovalundam to Mootoopettah, the well known port in the south of the District of Tanjore.

2. The line was first brought to my notice by the Collector of the District; it was twice carefully examined by Lieutenant Oakes and under his orders and his immediate guidance it was surveyed and estimated for by Assistant Overseer Bitton.

3. I beg to refer you to the sketch at the end of the estimate that you may see the general direction of the proposed road, and its relative bearing to other Roads you will observe it has to deal with a tract of country between the Pumanny and Coreyaur rivers in which tract are contained 41 Villages yielding 2,16,295 cullums, a produce vastly in excess of local requirements, it may be said that the people may for some months in the year at least take their spare produce to Mootoopettah in Boats, but to this the reply is, that in Tanjore the waters fail at the very time that the grain is ready to be carried so that however the rivers act as auxiliary means of communication, not flowing all the year round they can never be said to supersede the necessity of roads.

4. The amount estimated is about 2000 Rupees a mile on 5½ miles; it includes the construction of one bridge of 15 feet and another of 36 feet span with several tunnels, and I have the honor to request that sanction may be obtained for the sum Rupees 10,500 ten thousand and five hundred.

No. 98. Report EEE, on an estimate for constructing a bridge across the Moothalamooty Vairry jungle stream near Vellum on the road between Tanjore and Trichinopoly Rupees 6,400.

Enclosures 4.
One letter.
One Specification.
One Statement.
One Plan.

On this violent torrent a bridge was built in 1839 and was destroyed the same year, but no second bridge was erected, and in 1845, a simple pavement with the foundations of piers was constructed and has proved very useful though not equally efficient with a bridge as a means of communication.

2. The road being one of the great outlets to the coast, demands unquestionably perfect means of passage at all seasons and the interruption caused by this stream is doubtless inconvenient but on this point full information can best be afforded by Mr. Forbes whose opinion has been solicited.

3. The traffic amounts to nearly 100 cents, and 60 bullocks daily, and the importance of the line is obvious.

4. Major Boileau proposes a work of seven arches of 36 feet to stand partly on the existing foundations, and partly on new ones to be built beyond the present work.

5. The waterway thus afforded is certainly ample and every precaution seems to be taken for the security of the bridge by the broad flooring of laterite above and below, of which the original bridge was entirely destitute.

6. The design is perfectly suitable, the materials such as to ensure stability, and the rates are not higher, than local circumstances render necessary.

7. The Chief Engineer therefore recommends the entry of the estimate in the Budget of 1857-58, provided the opinion of Mr. Forbes is favorable.

Letter from Major A. BOILEAU, Civil Engineer Tanjore District; to Colonel C. E. FABER, Chief Engineer, dated Tranquebar, 11th November 1856, No. 718 of 1856-57.

SIR,

I have the honor to forward for the sanction of Government an Estimate Rupees 6,400 for constructing a Bridge over the Muthalaymooty Waury on the high road between Tanjore and Trichinopoly on the site where a causeway now exists.

2. I believe that not less than twice have Bridges been sanctioned for, and as often have they been destroyed by this stream, so that the necessity of a work of this character has at any rate been acknowledged, and if more evidence were required of its need it is to be found in the fact of the traffic at the spot being so great as is represented in the following numbers.

From 11th to 25th Oct.	People.	Bandies.	Bullocks.	Sheep.	Horse.	Ass.	Palanqueen Dholies &c.	Total.
14 days.	11,234	1,326	837	1,184	32	211	11	14,835

3. What you and the Government probably wish to be assured of in approving and sanctioning the work is that stability has been provided in the plan and that precautions have been taken calculated to avert as far as may be a repetition of the already twice told disaster.

4. At the time of constructing the causeway, some years ago, the foundations for piers for a future Bridge were laid. Ample time has now been given them to settle to the utmost, and in the fact of floods of years having in no way effected them there is a sufficient guarantee of their solidity and capability to receive now the superincumbent weight of the arches.

5. Foundations it is true were provided only for a work of 5 Arches, and the Bridge now proposed is one of 7 Arches, but the new Abutments and their foundations being well protected no fear need be entertained in constructing them the same year as the Arches. In addition to the ordinary flooring under the Arches, I have allowed front and Rear aprons of laterite $2\frac{1}{4}$ feet deep for 12 feet above and below the work.

6. The work is more particularly described in the accompanying specification.

7. The work will be under the immediate Superintendence of Mr. Maitland Assistant Revenue Surveyor who has designed the present bridge.

8. The amount for which sanction is solicited is Rupees (6,400) six thousand, four hundred.

Specification of a Bridge proposed to be constructed over the Vullum Mothalaymooteeaury a jungle stream on the high Road from Tanjore to Trichinopoly.

This considerable jungle stream is described by the Assistant Revenue Surveyor who has designed the Bridge to span it, as receiving the drainage of the immense plains about Vullum (from 60 to 70 square miles) and as ultimately discharging into the Vuddavaur near Tanjore. Its descent from the high country in a length of only 10 or 12 miles is necessarily abrupt and its consequent velocity is great and though the depth of water at its highest does not exceed $5\frac{1}{2}$ feet and that not for any long duration, yet the necessity for a Bridge has long been felt, a few hours heavy rain swelling it to its utmost and causing considerable delay to the traffic.

2. A causeway exists on the line proposed to be bridged and when it was constructed piers and abutment foundations were laid in for a bridge of 5 Arches.

3. The estimate now submitted provides for a work of 7 elliptical Arches of 36 feet span and 9 feet rise, so that extra abutment foundations of laterite stone in chunam 8 feet deep, 7 feet thick on the lower half of 4 feet depth, and 6 feet thick on the upper half of 4 feet and strengthened by counterpart foundations 4 feet square and 8 feet deep must be laid in. Waterway is better obtained for a Nullah of this kind in increased length than in additional height. The country round not admitting of great height for the roadway and indeed lofty embankments for approaches being objectionable on the score of affording obstruction in the event of a hitherto unheard of flood occurring.

4. The Arches (7 in number) will rise from the foundations without any intermediate piers and will be of brick in chunam 1′ 9″ at the crown and $2\frac{1}{2}$ near the haunches. They will be filled in between by spandril walls the tops of which will be on a level with about $\frac{2}{3}$d the height of the Arch. Some additional bond will be given to the points of meeting of the Arches by the guide stones of the present causeway being allowed to remain and being worked in with the masonry.

5. The Abutment Arches will be backed in the manner shown in the plan and be further strengthened on the landside by a single counterpart 4 feet every way.

6. The Wing Walls will be each 22 feet long with foundations of 8 feet deep, $5\frac{1}{2}$ and $4\frac{1}{2}$ feet thick, with a height above of $11\frac{1}{2}$ feet and an average thickness of $2\frac{3}{4}$ feet.

7. They will be entirely in laterite masonry as will be the blocking course (or facing walls) and stringing course (or Roadway) and Cornice which last will be formed in a neat moulding.

8. To protect the Arches at their point of meeting Cutwaters $3\frac{1}{2}$ feet long will project above and below stream and will be sloped off gradually on to the pilaster to the full height of the Arch.

9. The Parapets will extend the whole height of the bridge, and will be one foot thick and $2\frac{1}{2}$ feet high.

10. The Roadway over the Bridge will be formed of the laterite earth dug near the Bridge.

11. The present causeway will remain as an ordinary flooring under the Arches, but to keep off the action upon the piers of the work by scooping in front, or by a fall in rear, a Rough Apron $\frac{3}{4}$ yard deep and 4 yards broad will be laid above and below the Bridge.

12. The Laterite Stone to be made use of abounds in the vicinity, but is not to be trusted for Archwork; the Bricks have to be brought a distance of 10 miles so the rates allowed are above the ordinary rates allowed for Brickwork.

13. The whole will be under the superintendence of Mr. Maitland.

Civil Engineer's Office,
Camp Tranquebar,
11th November 1856.

(Signed) A. BOILEAU, Major,
Civil Engineer, Tanjore District.

No. 99. Report FFF, on an estimate for re-building the bridge across the river Davanuddy at the West entrance of the Town of Negapatam, Rupees 4,500.

This is an old work of dutch build, piers 12 feet thick and arches 8 feet, roadway only 12 feet wide. It is not only highly inconvenient to the active traffic on the road but it grievously obstruct the discharge of an important draining river.

2. Major Boileau proposes to give 3 arches of 30 feet and a roadway of 24 feet and both appear to be suitable dimensions for the locality.

3. The improvement is recommended, by the Chief Engineer on the ground of its necessity for the traffic and for the free discharge of floods.

4. The river it may be stated now becomes annually filled up by shoals caused by the massive Dutch piers.

5. The rates appear moderate and sufficient.

Letter from Major A. BOILEAU, Civil Engineer Tanjore District; to Colonel C. E. FABER, Chief Engineer, dated Camp Tranquebar, 11th November 1856, No. 717 of 1856-57.

SIR,

It was the intention of my predecessor to have enlarged at once the road way and the water way of the old dutch bridge across the Davanuddy river at Negapatam but circumstances hindered his submitting the estimates.

Letter from Major E. LAWFORD, Superintending Engineer Southern Circle; to Colonel C. E. FABER, Chief Engineer, dated Trichinopoly, 25th February 1857, No. 67.

SIR,

I have the honor to submit for entry in the Budget of 1858-59 plans and estimates of bridges proposed to be built on the road from Kotoor to Sungunthy in the Manargoody and Titrapoondy Talooks of Tanjore at an estimate cost of Rupees 14,630. The late Civil Engineer having already fully reported in the objects of this project, I need not do more now than express my full concurrence in Major Boileau's proposition and my approval of the plans.

The want of a perfect communication across the fertile but wholly irrigated tract through which this road lies has been much felt, and the Collector has strongly recommended the estimate for sanction.

Report A.

Estimate of Rupees (2,400) two thousand, and four hundred, for constructing a bridge of 3 elliptical Arches 24 feet in the centre and 18 feet each at the sides across the Moolyaur on the road between Kotoor and Sungunthy.

The river bed is of clay.

The foundation of the Bridge are to be of brick in chunam sunk 8 feet deep.

The cutwaters of the piers are to be connected with each other and with those of the abutment by retaining walls in front and rear built of brick in chunam 4½ feet deep and the floorings under the arches are to be of the same materials 1¼ feet in thickness.

The piers are to be 4 feet thick, and the abutment 4½ feet raised to a uniform height of 5 feet, the versed sine of the arches to be 6 feet giving a total height of 11 feet to their soffits, and allowing a clear height of 4 feet in the centre and 2½ at the sides above the highest floods for the passage of trees. The Bridge will provide 511½ square feet of waterway, the section of the river during the highest floods being 525 square feet.

The superstructure of the bridge is to be of brick in chunam and plastered.

The parapet wall are to have no interior cornice over the arches its clear width between parapets will be 15 feet and between the wing wall 18 feet.

(Signed) C. E. FABER, Colonel
Chief Engineer.

Report. B.

Estimate of Rupees (2,820) two thousand eight hundred and twenty, for constructing a bridge of 3 Elliptical arches with 24 feet across the Ponnoocondaun on the road between Sungunthy and Kotoor.

The river bed, is of clay.

The foundations of the Bridge are to be of brick in chunam sunk 7 feet deep.

The cutwater of the piers are to be connected with such other and with those of the abutments by retaining walls in front and rear built of brick in chunam 5½ feet deep and the flooring under the arches are to be of the same materials 1½ feet in thickness.

The piers are to be 4 feet thick and the abutment 5-9 feet, raised to a uniform height of 5 feet, the versed sine of the arches to be six feet, giving a total height of 11 feet to their soffits and allowing a clear height of 3-10 feet above the highest floods for the passage trees, the bridge will provide 684 square feet of waterway. The section of the river during the highest floods being 550 square feet.

The superstructure of the bridge is to be of brick in chunam and plastered.

The parapet walls are to have no interior cornice, over the arches its clear width between parapet will be 15 feet and between the wing walls 18 feet.

(Signed) C. E. FABER, Colonel,
Chief Engineer.

Report C.

Estimate for Rupees (2,250) two thousand, two hundred and fifty, for constructing a Bridge of 1 segmental Arch of 40 feet across the Shaloovennar on the road between Kotoor and Sungunthy.

The River bed is of clay.

The foundations of the Bridge are to be Brick in chunam sunk 8 feet deep.

The Retaining walls in front and rear built of brick in chunam 4½ feet deep—and the flooring under the arch is to be of the same materials 1½ feet in thickness.

The abutment 7⅝ feet thick, raised to a height of 4½ feet, the versed sine of the arch to be 8 feet, giving a total height of 2½ feet to the soffits and allowing a clear height of 5¾ feet above the highest flood for the passage trees. The Bridge will provide 420 square feet of waterway. The section of the river during the highest floods being 320 square feet.

The superstructure of the Bridge is to be of brick in chunam and plastered.

The parapet wall are to have no interior cornice, over the arches its clear width between parapet will be 15 feet and between the wing walls 20 feet.

Report D.

Estimate Rupees (3,360) three thousand three hundred and sixty, for Constructing a Bridge of 2 Elliptical arches of 30 feet span each with a transverse abutment wall in the centre of the Bridge across the Poodoopaundyaur and Vunganagur and channels on the road between Sungunthy and Kotoor.

The River bed, is of Clay.

The foundation of the Bridge are to be of Brick in chunam sunk 7 feet deep.

The retaining wall in front and Rear built of brick in chunam 5½ feet deep and the flooring under the arches are to be of the same materials 1½ feet in thickness.

The abutments are to be 6½ feet thick raised to a height of 4 feet. The versed sine of the arches to be 7½ feet giving a total height of 11½ feet to the soffit and allowing a clear height of 4½ feet above the highest floods for the passage of trees. The Bridge will provide 577½ square feet of waterway. The section of the river during the highest floods being 560 square feet.

The superstructure of the Bridge is to be of brick in chunam and plastered.

The parapet wall are to have no interior cornice, over the arches its clear width between parapets will be 15 feet and between the wing wall 20 feet.

(Signed) C. E. FABER, Colonel,
Chief Engineer.

Report E.

Estimate of Rupees (1,700) one thausand, and seven hundred for constructing a Bridge of 3 Elliptical arches, centre arch to be 20 feet span, the 2 side arches 15 feet each with an isolated Elliptical drain of 9 feet span between the transverse abutment walls and the northern abutment of the Bridge across the Palumpaundy on the road between Sungunthy and Kotoor in the District of Tanjore.

The River bed is of clay.

The foundations of the Bridge are to be of Brick in chunam sunk 6 feet deep.

The cutwaters of the piers are to be connected with each other and with those of the abutments by retaining walls in front and Rear built of brick in chunam 4½ feet deep and the floorings under the arches are to be of the same materials 1½ feet in thickness.

The piers are to be 3 feet thick and the abutments 4 feet raised to a uniform height of 5 feet. The versed sine of the arches to be 5 feet in centre, giving a total height of 10 feet to their soffits and allowing a clear height of 3½ feet in the centre and 2¼ at the sides above the highest floods for the passage of trees. The bridge will provide 463 square feet of waterway. The section of the river during the highest floods being 450 square feet.

The superstructure of the Bridge is to be of brick in chunam and plastered.

The parapet wall are to have no interior cornices over the arches its clear width between parapets will be 15 feet and between the wing walls 18 feet.

(Signed) C. E. FABER, Colonel,
Chief Engineer.

SPECIFICATION.

Of the bridges, proposed to be constructed across the rivers on the newly made road from Kotoor to Sungunthy in Mannargoody and Titrapoondy Talooks.

TANJORE DISTRICT.

Constructing a bridge across the Moollyaur in the limits of Teerooppattoor in Titrapoondy Talook.

The total waterway of the section of the stream is 432 feet.

The soil at the proposed site for the bridge is of clay.

The foundation is of solid masonry to 7 feet depth.

The retaining walls $2\frac{1}{2}$ feet in breadth and 4 feet in height.

The flooring $17\frac{1}{4}$ feet broad and $1\frac{1}{2}$ feet thick.

The bridge consists of 3 Elliptical arches. The centre one is 24 feet in span, and the two side arches each 18 feet.

The thickness of the abutments is one fourth of the span of the side arches.

The thickness of the piers is one sixth of the span of the centre arch.

The height of the abutments and piers up to the springing line is 5 feet.

The rise of the arches is one fourth of the span, and their thickness $1\frac{1}{2}$ feet.

The wing walls on the north side are curved and each 15 feet in length, and on the south they are straight and 13 feet each, the breadth of the walls is 3 feet above the basement, and $1\frac{3}{4}$ feet at the top of the roadway and their average height 11 feet with a slope on the outside $1\frac{1}{2}$ an inch to a foot.

The breadth of the roadway is 15 feet between the parapets and its thickness 9 inches.

The parapet walls are $1\frac{1}{8}$ feet in thick and $2\frac{1}{2}$ feet in height.

The materials for this work may be had from Kotoor or Teerooppattoor village, which is half a mile distance from the place, where the bridge is to be constructed.

The rates of this work are as usual.

Constructing a bridge across the Ponnoocondaun limits of Teerookalur, in Mannargoody Talook.

The total waterway of the section of the stream 521 square feet.

The soil at the site of the proposed bridge is clay.

The foundation is of solid masonry to a depth of 7 feet.

The retaining walls $2\frac{1}{2}$ feet in breadth and $4\frac{1}{2}$ feet in height.

The flooring is $17\frac{1}{2}$ feet broad and $1\frac{1}{2}$ feet thick.

The bridge consist of 3 Elliptical arches each 24 feet in span.

The thickness of the abutments is nearly one fourth of the span of the arch (or 6 feet $4\frac{1}{2}$ inches above the basement and at the top or springing line is 5 feet and $1\frac{1}{2}$ inch.)

The piers are one sixth of the span of the arch.

The height of the abutments and piers are 5 feet.

The rise of the arches is one fourth of the span and their thickness $1\frac{1}{2}$ feet.

The wing walls are straight and each 35 feet in length, their breadth 3 feet above the basement and at the top of the roadway $1\frac{3}{4}$ feet, and the height of the walls is $12\frac{1}{2}$ feet with a slope of $1\frac{1}{2}$ an inch to a foot on the outside.

The breadth of the roadway is 15 feet between the parapets, and its thickness 6 inches.

The parapet walls are $1\frac{1}{8}$ foot thick and $2\frac{1}{2}$ feet in height.

The materials for this work may be had from Teerookalur, which is a mile distance from the proposed site of the bridge.

The rates of this work are as usual.

Constructing a bridge across the Shaloovennaur in the limits of Teerookalur Mannargoody talook.

The total waterway of the section of the stream 269 feet.

The soil at the proposed site for the bridge is of clay.

The foundation is of solid masonry, the depth of the abutments is 8 feet and that of the wings is 4 feet.

The retaining walls are $2\frac{1}{2}$ feet in breadth and $4\frac{1}{2}$ feet in height.

The flooring is $17\frac{1}{2}$ feet broad and $1\frac{1}{2}$ feet thick.

The bridge has but one segmental arch and 40 feet in span.

The thickness of the abutment walls is nearly one fifth of the span of the arch (or 8 feet 9 inches above the basement and 6 feet 6 inches at the top or springing line) and their height $4\frac{1}{2}$ feet up to the springing line.

The rise of the arch is one-fourth of the span of it, and its thickness 2 feet at the crown.

The wing walls are straight and each 20 feet in length, their breadth above the basement $3\frac{1}{2}$ feet and at the top of the roadway 2 feet, and the height of the walls $11\frac{3}{4}$ feet at average with a slope of $1\frac{1}{2}$ an inch to a foot on the outside.

The breadth of the roadway is 15 feet between the parapets and its thickness 9 inches.

The parapets are $1\frac{1}{4}$ feet thick and $2\frac{1}{2}$ in height.

The materials for this work may be had from Teerookalar and Meenamanalloor within a mile distance from the site of the work.

The rates of this work are as usual.

Constructing a bridge of 2 arches one across the Vunganagur &c. channels and the other across the Poodoopaundy in the limits af Maunjoody and Odiattoor, Titrapoondy talook.

The total waterway of Vunganagur &c. channels 176 feet and that of Poodoopaundy 220 feet.

The soil at the proposed site of the bridge is of clay.

The foundation is of solid masonry to the depth of 7 feet.

The retaining walls are $2\frac{1}{2}$ feet in breadth and $5\frac{1}{2}$ feet in height.

The flooring is $17\frac{1}{4}$ feet broad and $1\frac{1}{2}$ feet in thick.

The bridge consists of 2 Elliptical arches each 30 feet in span.

The thickness of the abutment, is above one fifth of the span (or 7 feet above the basement and 6 feet at the top or springing line) and their height 4 feet.

The rise of the arches, is one fourth of the span of it and their thickness $1\frac{1}{2}$ feet at the crown.

The wing walls are straight and each 24 feet in length, and the centre between the abutments of the 2 arches, is 17 feet on each side. The breadth of the walls above the basement $3\frac{1}{2}$ feet and at the top of the roadway $1\frac{3}{4}$ feet and their height is 13 feet with a slope of $1\frac{1}{2}$ an inch to a foot.

The breadth of the roadway between the parapets is 15 feet and its thickness 9 inches.

The parapet walls are 1⅛ feet thick and 2½ feet in height.

The materials for this work may be had from Maroodavanum, which is 3 miles from the site of the proposed work.

The rates of this work are increased to 1 anna 5 pice instead of 1 anna 4 pice for building, and 1 anna 7 pice instead of 1 anna 6 pice for the arch work for the materials are to be brought from above 3 miles distance.

Constructing a Bridge across the Palumpaundy in the limits of Maungoody Tritapoondy Talook.

The total waterway of the section of the stream 324 feet.

The soil at the proposed site of the bridge is clay.

The foundation is of solid masonry to the depth of 6 feet.

The retaining walls are 2 feet in breadth and 4½ feet in height.

The flooring is 17¼ feet broad and 1½ feet thick.

The bridge consists of 3 elliptical arches, the centre one 20 feet in span, and the two side arches each 15 feet.

The thickness of the abutments is one fourth of the span of the side arches.

The thickness of the Piers is one sixth of the span of the centre arch.

The height of the abutments and Piers up to the springing line is 5 feet.

The rise of the arches is one fourth of the span and their thickness 1½ feet.

The wing walls are straight and each 14 feet in length, the breadth of the walls is 3 feet above the basement and 1¾ feet at the top of the roadway, and the height 10 feet, with a slope of 1½ an inch to a foot.

The breadth of the roadwuy is 15 feet between the parapets and its thickness 6 inches.

The parapet walls are 1⅛ feet thick and 2½ feet in height.

The materials for this work may be had from either Ovaricoody or Gopaulasamoodrum the former 4 miles and the latter 5½ mile distance from the proposed site of the Bridge, and therefore the rate of of this work are increased to 1 anna and 5 pice instead of 1-4 for building, and 1 anna 7 pice instead of 1-6 for arch work.

(Signed) A. BOILEAU,
Civil Engineer Tanjore District
T. P. COOPOOSAWMY,
Assistant Overseer.

Trivalore,
23rd November 1856.

Read the following Report from Colonel C. E. FABER, Chief Engineer; to H. FORBES, Esq., Acting Secretary to Government, dated 13th October 1857, No. 4133.

No. 102. Report on an estimate for constructing a Head Sluice to the Keertemanaur river in the Combaconum Talook, Rupees (2,700) two thousand and seven hundred.

Enclosures 5.

1. The Keertamanaur branches both from the Nautan Voikal and Arasalaur, a short distance below the separation of these rivers, and receives a much larger share of water than it requires, while the supply of the Nautan Voikal is often seriously deficient, as it flows on a high level and does not obtain a sufficient proportion of the water in the Arasalaur from which it is derived. Complaints have been annually made of losses under this river, and all temporary expedients have failed to remedy the evil. After much consideration and careful examination of the rivers, I decided in February last that the only effectual mode of improving the Nautan Voikal is by closing entirely the outlet from it into the Keertamanaur, and making the latter depend entirely on the Arasalaur for supply, as the latter river has abundant volume for this object.

2. The present head sluice of the Keertamanaur should therefore be removed, and re-built at the head of the cut from the Arasalaur, and that from the Nautan Voikal should be closed entirely.

3. These works will, I have no doubt, afford the greatest benefit to the Nautan Voikal and as they are insignificant in amount compared to the revenue at stake as the following statement will shew, I beg to recommend the estimate for entry in the Budget of 1858-59.

Statement of cultivation and revenue under Arasalaur, Nautan Voikal and Keertamanaur rivers.

Rivers.	Talooks.	No. of Villages.	Land.	Revenue.
		No.	Valies.	Rs.
Arasalaur	Combaconum	29	191	9,244
	Valunghyman	15	310	13,603
	Codavassel	24	613	22,331
	Nunullum	74	1,564	52,326
	Peralam	31	617	20,346
		173	3,295	1,17,850
Nattaur	Combaconum	14	209	10,277
	Coottaulum	40	705	30,380
	Mayaveram	14	275	9,601
	Perallum	58	979	34,969
		126	2,178	85,227
Keertamanaur	Combaconum	14	215	8,622
	Perallum	29	613	20,095
	Valunghyman	7	110	5,120
	Coottaulum	14	493	17,981
	Codavassel	2	23	770
		66	1,454	46,588
	Grand Total.....	365	6,927	2,49,655

4. The rates of the estimate are moderate and sufficient.

5. The project would have been referred to the District Engineer but for the risk of delay; it has received the approval of the Collector and Sub Collector, copies of whose opinions are appended.

6. The sluice is to have 4 vents each 5½ feet high and 4 feet wide, with sufficient floorings and wings. It will be built on wells, and lined with cut stone.

Extract from a letter from the Acting Collector of Tanjore; to the Chief Engineer, D. P. W. under date the 27th May 1857, No. 173.

* * *

The Head sluice for which Atchoota Naidoo, Sub Engineer, has estimated, also seems deserving of the strong recommendation which Major Lawford has made in support of its construction.

(True Extract.)

(Signed) E. LAWFORD, Major.
Supig. Engr. Southern Circle.

3. One of the first bends is in the vicinity of Samiaveram where the chord measures only one fourth of the present one of its course, and this has long been a very great cause of injury to the channel during floods.

4. The estimate of Rupees 10,700 provides for cutting through this bend on the line A. B. C. and the work is strongly recommended both by the District Engineer and Collector.

5. A sum of Rupees 14,000 is allowed for widening and deepening the Nutted Nullah, and widening and strengthening the banks of the Peroovally channel.

6. All these improvements are designed for the permanent security of this important and valuable channel, and with a view to its future extension. They are not however immediately calculated to increase the cultivation; though there is no doubt they will have that effect eventually and the safety of the banks is a much more important consideration now that their preservation is about to be made dependent on the Engineer Department.

7. On these grounds therefore and in regard to the concurrent recommendation of the Revenue and Engineer Officers the Chief Engineer, supports the proposal to expend 24,700 Rupees on the improvement of the Peroovally channel.

Letter from J. G. RYVES, District Engineer of Trichinopoly, to J. BIRD, Esquire, Collector of Trichinopoly, Perambaloor, dated 21st October 1857, No. 373.

SIR,

I do myself the honor to forward duplicate of papers noted in the margin* in relative to the improvement of the Peroovally Vaikal.

* 2 Estimates for new Cuts.
1 do. for deepening channel.
3 Abstracts of Estimates.
1 Copy of a letter to the Chief Engineer, No. 357, dated 13th October 1856.

2. These papers should have been laid before you for your opinion prior to their despatch but were by error despatched direct.

3. You are I believe already so well acquainted with my views relative to the Peroovally channel that I will not now recapitulate them.

4. If the records of your Kutcherry will throw any light on the subject by shewing that the Nunjay Cultivation has decreased within the last 20 years or that outlay on the repair of breaches and strengthening banks has increased during the same period, I trust that you will append any such information to the letter conveying your opinion of the advisability or otherwise of the large expenditure I propose.

5. You will remark that in my report I notice particularly the excessive number and size of the sluices I think it will be found that their number has increased very largely in the last 20 years at least my personal enquiries tend to impress me with this idea.

Letter from J. BIRD, Esquire, Collector of Trichinopoly; to Lieutenant J. G. RYVES, District Engineer of Trichinopoly, dated Trichinopoly, 30th October 1857, No. 246.

SIR,

I have had the honor to receive your letter No. 373 of date the 21st instant transmitting for my consideration duplicate papers relative to your project for the improvement of the Peroovally Vaikal.

2. I have given the papers my serious attention and I have no hesitation in according you my entire concurrence of the necessity of the outlay proposed by you for the improvement and safety of this great channel of irrigation.

3. Your estimate in the aggregate amounts to Rupees 44,200—of this amount Rupees 14,000 are for deepening and widening the Peroovally throughout. The remainder Rupees 30,200 are for cutting bends, and providing two distinct branches of irrigation in the neighbourhood of Samiaveram.

4. Of the necessity of the former outlay I have along been convinced from my frequent observation of the silted and choked up state of the whole Canal.

Of the need of the latter I do not feel so competent to give an opinion, but I cannot do otherwise than adopt your recommendations founded as they are upon personal inspection and scientific knowledge of what is absolutely necessary.

Years.	Outlay.			Revenue.			
				Fusly.	Amount.		
	Rs	A.	P.		Rs.	A.	P.
1836	58	3	3	1245	56,447	0	0
1837	67	4	9	1246	53,445	0	0
1838	86	15	1	1247	53,445	0	0
1839	55	13	3	1248	54,598	0	0
1840	7	12	6	1249	53,418	0	0
1841	77	1	8	1250	55,399	0	0
1842	106	8	4	1251	53,772	0	0
1843	86	9	3	1252	50,651	0	0
1844	93	7	4	1253	49,338	0	0
1845	1,331	7	2	1254	50,651	0	0
1846	1,867	3	9	1255	49,338	0	0
1847	1,289	2	7	1256	50,019	0	0
1848	56	0	10	1257	50,019	0	0
1849	966	8	4	1258	53,321	0	0
1850	1,020	0	9	1259	54,552	0	0
1851	274	13	2	1260	55,772	0	0
1852	537	7	3	1261	53,847	0	0
1853	1,069	15	3	1262	53,874	0	0
1854	4,266	6	7	1263	50,645	0	0
1855	2,909	1	8	1264	50,562	0	0

5. The marginal statement will afford the Revenue returns under this channel and also give the outlay annually on repairs of breaches and strengthening of the banks.

6. The revenue does not show any very marked difference one way or the other while the outlay on repairs is but trifling except in the year 1854, and then only 4,266 Rupees.

7. Your proposed present estimate may be taken as nearly ⅔rd of the Annual Revenue under the Channel. From this outlay no increase of returns are to be anticipated. The existing Revenue only will be fully maintained, and the condition of the channel itself permanently secured.

Letter from Lieutenant J. G. RYVES, District Engineer of Trichinopoly; to J. BIRD, Esq., Collector of Trichinopoly, dated Trichinopoly, 3rd November 1856, No. 419.

SIR,

With reference to your letter No. 246 returning the papers noted in the margin* remark that in the 3rd para. the estimate in the aggregate is supposed to amount to Rupees 44,200.

* Duplicate papers for the improvement of Peroovally channel.

From this it would appear that both the estimates for the new Cut near Samiaveram have been added into the aggregate amount.

2. These two estimates were prepared one for the line marked in plan A. B. C. at a cost of 10,700 which I recommend the other for the same object but by another line viz. that marked C. D. E. at a cost of 19,500 and I proposed to leave the line to be taken to be decided by the Superintending Engineer only myself recommending the first named and cheaper of the two.

3. Supposing the first line to be taken the estimate would stand thus deepening Peroovally and Nuttada Naula Rupees 14,000 new cut between Trunk road and Samiaveram Rupees 10,700 total Rupees 24,700.

4. The advantage offered by the new cut are first reducing the length by 300 yards. Secondly the fall which this part of the channel now has in 4,300 yards will be obtained by the new cut in a length of 1100 yards the Hydraulic slope being thereby quadrupled and the velocity and consequently discharge (sectional areas being supposed equal) doubled. The channel at present in the deep bend now proposed to be avoided is in high embankment with a weak bank towards the Nunjah fields it is consequently very dangerous and in fact breaches frequently do occur causing loss and expense.

5. The revenue returns given in your 5th para. appear to be for the Peroovally channel only the estimate (Rupees 14,000) provides for deepening the Nuttada Naula the revenue from which I believe is 15 or 16,000 Rupees more. I shall be obliged by your informing me whether it is probable that more land may be brought into Nunjah cultivation under the Nuttada Naula, from a tolerably good acquaintance with that part of the Laulgoody Talook, I am aware that

there are considerable areas of Poonjah and even some of waste land which are at convenient levels for irrigation from the Nuttada Naula, but for which there is in the present state of the channel no water.

6. For the Peroovally the estimate will provide for the safety of the channel as a means of irrigation and lessen the serious risk of serious loss of private property and public revenue which the present weak state of the bank and high level of the bed of the channel render of annual recurrence and the proposed outlay if combined with a careful and economical distribution of water will enable as to pour such an increased volume of water into the Nuttada Naula, that the irrigation under that channel cannot but be improved and indeed may probably be extended: even before any further extension of channel to the eastward of the Nunthayaur be carried out.

Letter from J. BIRD, Esq., Collector of Trichinopoly; to Lieutenant J. G. RYVES, District Engineer of Trichinopoly, dated Trichinopoly, 13th November 1856, No. 265.

SIR,

As the period for the despatch of estimates to the Central office for consideration is almost closed, I consider it better that I should reply to your letter No. 419, of the early part of this month (no date) than wait until I obtain the information requisite from the Tahsildar of what more land may be brought under Nunjah cultivation from the Nuttada Naula channel.

2. I regret the error I fell into in reference to the amount of your proposed estimate. I was under the impression, until I had seen the Sketch, that both cuts A. B. C. and C. D. E. across the bend at Samiaveram were to be made. Your estimate will be in the aggregate Rupees 24,700.

Years.	Outlay. Rs.	A.	P.	Fusly.	Amount. Rs.
1836	52	6	6	..... 1245	7054
1837	40	2	5	..... 1246	7054
1838	29	9	2	..... 1247	7214
1839	29	10	5	..... 1248	7100
1840	29	3	4	..... 1249	7676
1841	55	1	7	..... 1250	7050
1842	104	12	1	..... 1251	6726
1843	23	9	11	..... 1252	6743
1844	19	13	11	..... 1253	6743
1845	88	1	8	..... 1254	6446
1846	52	5	0	..... 1255	9210
1847	37	10	5	..... 1256	10771
1848	231	5	6	..... 1257	10336
1849	0	0	0	..... 1258	11004
1850	236	13	5	..... 2259	11927
1851	171	4	1	..... 1260	11719
1852	0	0	0	..... 1261	12415
1853	24	15	4	..... 1262	11719
1854	277	0	9	..... 1263	12341
1855	0	0	0	..... 1264	12653

3. The Revenue returns entered in para. 5 of my letter No. 146 of the 30th Ultimo, were for the Peroovally channel irrigation only. I now beg to give you in the Margin similar returns for the Nuttadah Naula irrigation your estimate has my full support as being absolutely necessary for the preservation of the existing Revenue, and for the safety of the channel itself, from the head to the Shevgunthay tank.

Letter from Lieutenant J. G. RYVES, District Engineer of Trichinopoly; to Colonel C. E. FABER, Chief Engineer, dated Trichinopoly, 14th November 1856, No. 469.

SIR,

With reference to your Extract Proceedings No. 7499 dated 24th October 1856, I do myself the honor to retransmit the estimates for the improvement of the Peroovally Voikal in Laulgoody Talook with copies of the correspodence noted in the margin.

* 1 Plan.
3 Estimates.
3 Abstracts for do.
1 Copy of Collector's letter No. 246 dated 30th October 1856.
1 Do. of Lieutenant Ryve's No. 373 dated 21st do.
1 Do. of Lieutenant Ryves No. 419 dated 3rd Novbr. 1856.
1 Do. of Collector No. 265 dated 13th November 1856.

No. 105. Report QQQ, on an estimate for repairing and improving the road from Combaconum to Wodiarpolliem from the right bank of the Coleroon to the latter town in the Trichinopoly District Rupees (10,420) ten thousand four hundred and twenty.

In letter to the Civil Engineer No. 286 dated 15th November 1856,

The communication between these two large towns is very much frequented by an interchange of products of daily consumption. An estimate for improving the road from Combaconum to the Coleroon was considered and postponed by Government in Extract Minutes of Consultation No. 2121, dated 13th November 1856, but the improvement of the portion north of the river, is perhaps more urgently required, and is fully supported by the Collector, who knows it well.

2. Mr. Horgan states the traffic at about 20 bandies daily, but he has known instances of carts being a whole day traversing a distance of little more than a mile.

3. The entire distance to be improved is about 9 miles 3 furlongs and the average estimated cost about Rupees (1,100) one thousand and one hundred per mile.

4. The work consists of forming the road way, covering it with river sand and building culverts and tunnels for drainage, also straightening the direction of the road.

5. As the country bordering the road is likely to become fertilized and populated by the great irrigation works now in progress, it is very desirable to improve the access to so large a market as Combaconum and the rates being moderate and sufficient the estimate is recommended for sanction and entry in the Budget of 1857-58.

Letter from Lieutenant J. G. RYVES, District Engineer Trichinopoly; to Colonel C. E. FABER, Chief Engineer, dated Trichinopoly, 14th November 1856, No. 461.

SIR,

I have the honor to forward an estimate prepared by Mr. Horgan for the repair of that part of the road from Combaconum to Wodiarpoliem which lies in the Trichinopoly District between the Coleroon and Wodiarpoliem.

2. This estimate has been prepared in compliance with the instructions contained in your letter No. 6876 dated 27th September 1856.

3. The increased rate for brick work I consider not more than sufficient judging from the very high cost of such work on the Ponairy channel.

4. I am well acquainted with this road and can support all Mr. Horgan's Statements relative to it.

5. The new line from Karacoorchi to Wodiarpoliem is in my opinion a great improvement and will add very little to the total cost of the work: probably not much more than the expence of clearing away the jungle.

Letter from J. BIRD, Esq., Collector of Trichinopoly; to Lieutenant J. G. RYVES, District Engineer of Trichinopoly, dated Trichinopoly, 15th November 1856, No. 268.

SIR,

1. I have the honor to return duly countersigned the estimate for the construction of the road from the north bank of the Coleroon in the limits of Mathanacoorcby to the town of Wodiarpolliem, being the direct route from Combaconum.

2. I am well acquainted with this part of the country, having ridden the stage frequently, and can testify to its want of repair, and extreme sandiness from end to end. In truth it is nothing but across country track. I fully support your estimate and proposal for making a new and direct road from the bank of the river to Wodiarpollium town.

3. Mr. Horgan's description of the route is most correct.