M R O, 1—1,002—16 9-48.

(1) Number of pages_____

(2) Date of repair_____

(3) Initials of the Referencer_____

MADRAS RECORD OFFICE

Government of Madras

Public (W) DEPARTMENT

G.O. No. 857 (W) Press
B.P. No. —Mis.—

Dated 3/-3- 1871.

Not to be folded or roughly handled

Read the following papers :—

No. 618. From W. S HARINGTON, Esq, District Engineer, Malabar, to Colonel G. W. WALKER, R E., Chief Engineer, Public Works Department, dated Calicut, 1st February 1875, No. 205.

I HAVE the honor to forward papers connected with the project of opening up the Kotiaddy Ghaut, and to state that on the 23th March last they were forwarded by me to the ex-Inspecting Engineer for Ports and Communications, but were returned by that Officer on the 2nd May last, with instructions to furnish the following information, which is embodied in Lieutenant Dobson's replies noted in the margin :—

1 Sketch of the Kotiaddy Ghaut Trace
2 Plan of bridges for the Kotiaddy Ghaut
3 Estimate for widening the Kotiaddy Ghaut Trace into an 18 feet bandy road, Rupees 28,760 with specification and abstract
4 Estimate of the probable expense of widening the Kotiaddy Ghaut Trace to 12 feet to make it into a Bullock Ghaut for Rupees 31,390, with specification and abstract.
5 Copy of Captain Bailey's letter, No. 25, dated 18th March 1874, to the District Engineer, Malabar.
6. Colonel Farewell's Memorandum, No ——, dated 11th April 1874
7. Captain Bailey's dem official letter to Colonel Farewell, dated 9th April 1874.

Information required by the ex-Inspecting Engineer.	*Lieutenant Dobson's reply*
2 In the Survey the zigzags should be numbered, and the distance between each zigzag noted, the total distance agreeing with that entered in the estimate.	Returns the Survey, &c, with the corrections and additions noted in paragraph 2 carried out
3. The dimensions of the following bridges are entered as noted below :—	

	In the Plan and Estimate	In the Survey	In the Ghaut Estimate
Bridge No. 6,	10′ × 8′	15′ × 8′	15′ × 8′
,, ,, 11,	10′ × 6′	10′ × 8′	10′ × 8′
,, ,, 16,	10′ × 5′	10′ × 7½′	10′ × 7′

If the plans and estimates are correct, the entries in the Survey and Ghaut Estimate should be altered accordingly. The number of each bridge should be entered in the Survey also

The estimate is correct, the survey being incorrect; the estimate was made out by Captain Bailey himself, and also the drainage of the various bridges, the numbers of the bridges are added.

4 The District Engineer's attention is drawn to G. O, No. 625, dated 27th February 1873, and he is requested to state if he is satisfied with the sort and durability of the timber to be used for bridges, a clear report should be submitted on the subject.

With regard to the G O, No. 625, of 27th February 1873, I am little acquainted with the timber Wynony mentioned therein, but I have heard Captain Bailey say, whilst I was on the ghaut with him, that it is a particularly hard and durable wood, and sometimes goes by the name of iron-wood; by the specification either that or Goroopoo is to be used, and they are the best that can be obtained here in the jungle; but from my experience of the wooden bridges on the old Kotiaddy Ghaut the timber that is intended to be used for the new ghaut should be kept and seasoned some time.

No. 649. CHIEF ENGINEER'S MEMORANDUM.

I AM quite satisfied that Captain Bailey has made a good job of the new trace of the Kotiaddy Ghaut; the head of which coincides with that of the old

ghaut, while its foot is thrown about a mile further forward into the low country, the maximum gradient of 1 in 16 being very seldom resorted to. It is not stated what the whole increase of distance by the new over the old line will be, but it will not exceed 3 miles, apparently, which is very little.

2 Rupees 6,500 have been spent from Provincial Funds on opening the trace to a width of 3 yards, and Captain Bailey's estimate for completing it as a cart road 18 feet wide is as follows, *viz.* :—

	Rs	A.	P.
76,781 cubic yards of earthwork including removal of boulders at 4 Annas	19,195	4	0
11,198 cubic yards blasting, Rupees 2	22,396	0	0
814 cubic yards revetment, Rupees 2	1,628	0	0
10¼ miles removing trees, at Rupees 150 per mile	1,612	8	0
Superintendence and sundries, 10 per cent.	4,631	4	0
Bridges and drains	10,665	0	0
Total ...	60,159	0	0

3 The total is moderate in amount, but may suffice with good superintendence I would advocate the work being laid out for execution to the full width at once, as it would be very troublesome to widen it after it had been opened to traffic. The rate for earthwork and boulders may be a good general rate all over; but care must be taken not to give large contracts for opening at that rate, as it would lead to endless quarrels as to what are to be considered boulders. The rate for revetment of rough stone is high, but is hardly worth noticing from there being so little of it. I should be inclined to substitute laterite arches for timber platforms throughout, as the spans are all small, and Captain Bailey says he has overrated the waterways, and I would build the three drains of rough stone without chunam, and save on the cost of covering stones, for which Rupees 1¼ per square foot is a very high rate.

12*th March* 1875.

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

No. 650. ORDER THEREON, 31st March 1875, No. 851.

CIVIL WORKS, No. 38.

The estimate, passed for Rupees 60,000, for opening the new Kotiaddy Ghaut in Malabar as a cart road will be forwarded to the President of the Local Fund Boards, through the Financial Department, with the Chief Engineer's Memorandum. His Excellency the Governor in Council is not in a position to add to the contribution already made from Provincial Funds for this ghaut, which when completed for cart traffic and tolled will be a very remunerative work.

(True Extract.)

Colonel, R E,
Secretary to Government.

To the Financial Department.
,, District Engineer, Malabar.

Exd S T. Austin.
Spare Copies

Estimate of the probable expense for Constructing Bridges on the Kotiaddy Ghaut
Malabar District

Amount of work — *Rate* — *Details of work*

Petty Contract

Cutting Roads in Cleaning ground for Bridges

| Measurements | | |

				Brought forward			239 10 10
				Sundries and Superintendence		10 .. per ct	23 5 2
				Total for Covered Drain No 1			268 .. ..
				Covered Drain No 2 - 4'x4'			
67	9	2	846	Foundations and floor			
12	2	2	48	Flooring between sloping wingwalls			
6	3/4	4	612	Abutments			
24	3/4	2 3/4	128.3	Wingwalls			
			1634.3	Cft of Rubble Stone in Chunam		@ 30 .. per cft	490 4 5
34	7	1/2	238	Sqft of Granite Covering Stones		1 8 . ft	337 ..
				Excavating foundations &c			8 ..
				Total			857 4 5
				Sundries and Superintendence		10 .. per ct	85 14
				Total for Covered Drain No 2			943 .. ..
				Covered Drain No 3 - 3'x3'			
28	7	1/2	294	Foundations and floor			
10	2	1/2	30	Flooring between sloping wingwalls			
36	1/2	3	162	Abutments			
20	1/2	2/4	67.6	Wingwalls			
12	1/2	3/4	13.6	Roadway			
			567	Cft of Rubble stone in Chunam		30 .. per cft	170 1 7
18	5	3/4	90	Sqft of granite covering stones		1 8 . ft	135 .. ..
				Excavating foundations &c			8 ..
				Total			313 17
				Sundries and Superintendence		10 per cent	31 4 6
				Total for Covered Drain No 3			345 .. ..
				Bridge No 4 - 15'x8'			
36	4 1/2	3	513	Foundations & abutments			
40	3 3/4	3	453	wingwalls			
31	2 5/8	2	256	Abutments			
46	2 1/2	4 1/2	405	Sloping wingwalls			
36	1/2	1	54	Filling between Beams			
			2178	Cft of Rubble stone in Chunam		30 .. per cft	653 1 4
				Carried forward			653 1 4 1551 .. ..

3

				Brought forward		655 44	1537 ..
5	18	9"	1	67 6' Beams			
	18	18	3"	81 " Planking			
2	18	12	4	48 4 Wall plates			
2	18	12	4"	6 " Sidewalk over planking			
				168 Cft of sawn Timber wrought and put up	1 8 Cft	252 ..	
				Excavating Foundations and forming approaches		15 ..	
				Total		920 44	
				Sundries and Superintendence	10 .. per ct	92 98	
				Total for Bridge No 4			1013 ..
				Bridge No 5 16'x 4'			
	62	12	3	697 1 Foundations			
	36	9/4	4	324 " Abutments			
	54	5/4	5/4	135 " Wing walls			
	36	18	1	54 " Filling between Beams			
				1210 Cft of Rubble stone in Chunam	30 .. per Cft	363 ..	
5	9	9	1	33 9 Beams			
	18	9	3	40 4 Planking			
2	9	6	4	6 " Sidewalk over Planks			
2	18	9	6	73 6 Wall plates			
				902 9 Cft of sawn Timber wrought and put up	1 8 Cft	136 2	
				Excavating Foundations &c		10 ..	
				Total		509 45	
				Sundries and Superintendence	10 per cent	50 97	
				Total for Bridge No 5			560 ..
				Bridge No 6 10'x 8'			
	24	24	5	405 " Abutments			
	28	24	4/2	283 6 Wing walls			
	6	24	1/2	20 3 " "			
	36	12	1	54 " Filling between Beams			
				782 9 Cft of Rubble stone in Chunam	30 .. per Cft	228 12	
6	2/3	9	1	48 9 Beams			
	12	18	3	58 6 Planking			
2	12	3	4	4 4 Sidewalk over planks			
2	18	9	6	13 6 Wall plates			
				125 Cft of sawn Timber wrought and put up	1 8 Cft	187 10	
				Forming Roadway &c		5 ..	
	20	3/4	1	16 2/3 Cft of Blasting a Channel for water	2 .. Cft	133 54	
				Total		554 46	
				Carried forward		6[illegible] 26 2124 ..	

Brought forward ——— 5344 ..

Sundries and Superintendence ——— 10 per cent 534 4

Total for Bridge No 6 ——— 610 ..

Bridge No 7 – 10'x6'

38	2½	1	488	Abutments		
12	2¾	2¾	74-3	Wing walls		
32	2½	4½	324	"		
36	1½	1	54	Filling between Beams		
			938-3	Cft of Rubble stone in Chunam	30 ..	M cft 281 77
			125-1	Cft of coarse Timber as per No 6	1 8 ..	Cft 187 5
				Forming Roadway &c		5 ..
				Total		473 17
				Sundries and Superintendence	10	per cent 47 3
				Total for Bridge No 7		522 ..

Bridge No 8 – 9'x6'

38	4½	3	513	Foundation & Abutments		
52	3¾	3	585	Wing walls		
38	2½	2½	361	Abutments		
52	2¼	5½	643	Wing walls		
38	1½	1	54	Filling between Beams		
			2740-6	Cft of Rubble stone in Chunam	30 ..	M cft 822 25
6	12	9"	1	45	Beams	
	12	18	3"	54	Planking	
2	12	6	2	4	Side rails over plank	
2	18	9"	6	12	Wall plates	
			116-2	Cft of Coarse Timber wrought and put up	1 8 ..	Cft 174 12
				Excavating Foundations and forming Roadway		15 ..
				Total		1011 14 6
				Sundries and Superintendence	10	per cent 101 17
				Total for Bridge No 8		1113 ..

Bridge No 9 – 12'x5'

38	2½	6	405	Abutments		
12	2¼	2½	67-6	Wing walls		
24	2¼	5¼	202-6	"		
36	1½	1	54	Filling between Beams		
			729	Cft of Rubble stone in Chunam	30 ..	M cft 218 11 2
			125-1	Cft of coarse Timber wrought and put up as No 6	1 8 ..	Cft 187 5
				Carried forward		406 6 2 5369 ..

				Brought forward	401 52	534 ..
				Forming Roadway	5 ..	
				Total	411 52	
				Sundries and Superintendence 10 per cent	41 20	
				Total for Bridge No 9		453 ..
				Bridge No 10 – 18 x 5		
70	3	3	630	Foundations		
36	2¼	5	405	Abutments		
32	2¼	3	216	Wing walls		
36	½	1	54	Filling between Beams		
			1315	Cft of Rubble stone in Cement	30 .. mgft	394 5
			135-1	Cft of Oregon Timber wrought & put up as No 1	12 . Cft	1878
				Forming Roadway	10 ..	
				Total	589 5	
				Sundries and Superintendence 10 per cent	58 95	
				Total for Bridge No 10		648 ..
				Bridge No 11 – 18 x 8		
24	2¼	6	486	Abutments		
36	2¼	3½	283-6	Wing walls		
36	½	1	54	Filling between Beams		
			823-6	Cft of Rubble stone in Cement	30 .. mgft	247 ..
			135-1	Cft of Oregon Timber wrought & put up as No 1	12 . Cft	1878
				Forming Roadway	5 ..	
				Total	2390 ..	
				Sundries and Superintendence 10 per cent	239 ..	
				Total for Bridge No 11		4352
				Bridge No 12 – 10 x 19		483 ..
36	2¼	6	486	Abutments		
12	2¼	2½	67-6	Wing walls		
36	2¼	5	337-6			
36	½	1	54	Filling between Beams		
			945	Cft of Rubble stone in Cement	30 .. mgft	2838
			135-1	Oregon Timber wrought & put up as No 1	12 . Cft	1878
				Forming Roadway	5 ..	
				Total	4762	
				Sundries and Superintendence	10 per cent	476 ..
				Total for Bridge No 12		524 ..
				Bridge No 13 – 25 x 8		
1	12	3	547	Abutments		
	12	2¼	222-9			
			769-9			
				Carried forward		7477 ..

			789-9	Brought forward	7077--
14	2⅝	1	220-6	Wing walls	
12	2¾	5/8	173-3	———	
9	2¼	3¾	75-11	———	
7	2¼	3	47-3	———	
36	1½	1¼	67-8 (57-3)	Filling between Beams	
9	1½	4	54--	Pillars at ends of hand rails	
			1428-2	Cft of Rubble stone in Chunam ——— 30 --	25 1/2 mcft 428 7
5	28	1	175--	Beams	
	28	18	126--	Flooring	
2	18	9	18-6	Wall plates	
4	25	6	16-8	Fish and bottom rails of hand rails	
2	25	3	2-1	Centre ″ ″	
12	3	6	6--	Hand posts	
12	4½	3	4-6	Flank ″ hand rails	
12	4	1	12--	Raking ends of flank ″ last post and top of hand rails	
355-9				Cft of Timber for Planks straught and put up ——— 12. cft 531 8.	
				Forming Roadway and Approaches ——— 25 --	
				Total ——— 98 2 2	
				Sundries and Superintendence ——— 10 per cent 9 8 10	
				Total for Bridge No 13 ——— 681 --	

Bridge No. 14 — 10'x 5' ✓

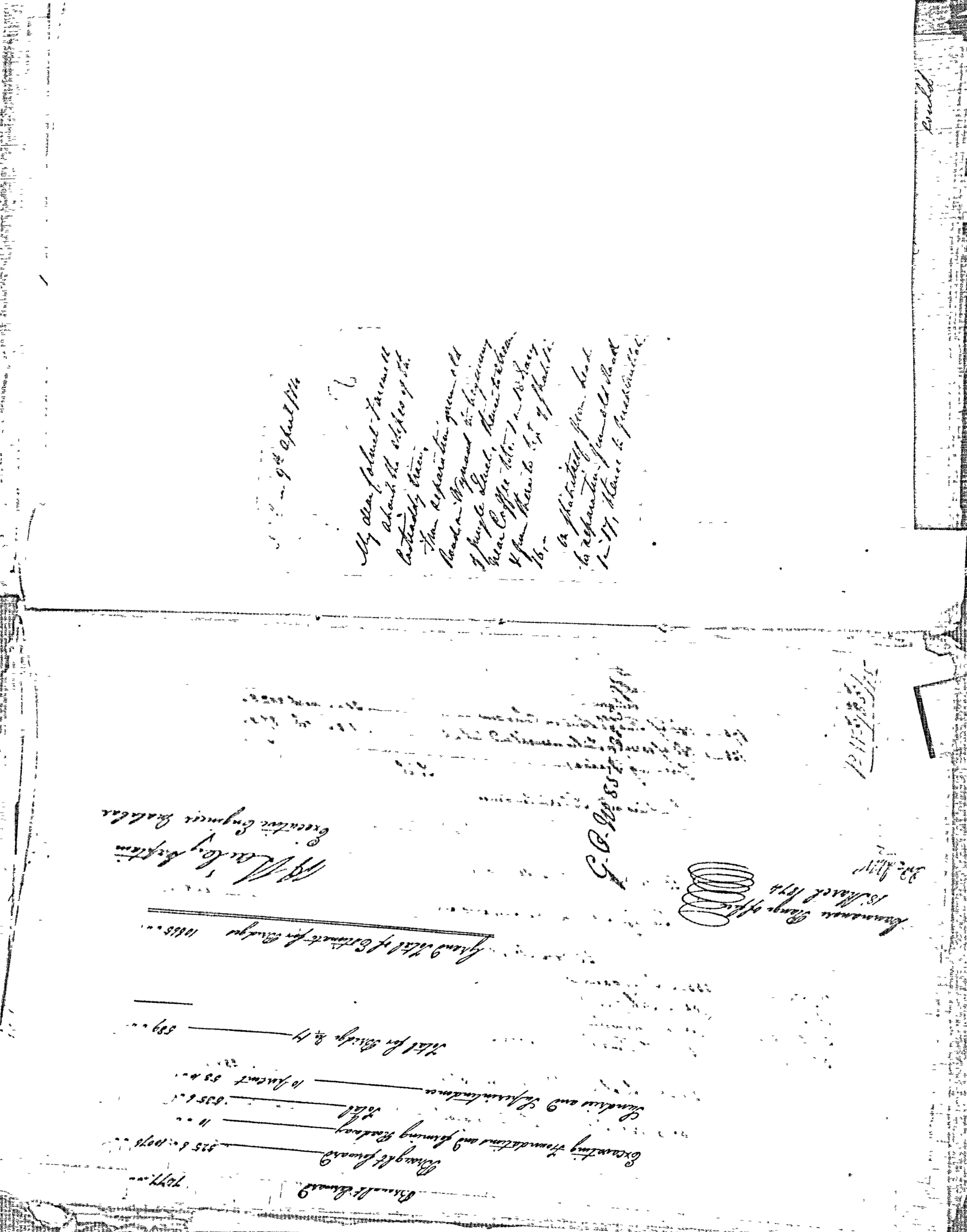
36	2¼	5	405--	Abutments	
32	2¼	3	216--	Wing walls	
36	1½	1	54--	Filling between beams	
675--				Cft of Rubble stone in Chunam ——— 30 -- mcft 2028.	
125-1				Cft of 100 cft per Timber wrought and put up ——— 12. cft 187 8.	
				Forming Roadway ——— 5 --	
				Total ——— 395 2.	
				Sundries and Superintendence ——— 10 per cent 39 4.	
				10 per cent	
				Total Estimate for Bridge No 4 ——— 435 --	

Bridge No 15 — 10'x 5' same as for No 14 ——— 435 --

Bridge No 16 — 10'x 5' same as for No 10 ——— 648 --

Bridge No 17 — 6'x 6' ✓

74	3¾	2	555--	Foundations	
36	2¼	6	486--	Abutments	
36	2¼	2½	202-6	Wing walls	
36	1½	1	54--	Filling between Beams	
1297-6				Cft of Rubble or Laterite stone in Chunam ——— 30 -- mcft 3894.	
90-9				Cft of 100 cft per Timber wrought and put up ——— 15 -- cft 135 2.	
				Carried forward ——— 625 6.	1017 --



Speaking generally you may reckon the Road as marked out to the Gradients I have mentioned -

I find myself fairly shelling here and my head feels as if it was big enough for 2 -

Yours sincerely
W. Hanley

No. 25

From,

Captain H. Bailey

Executive Engineer Malabar

To

W. S. Harington Esqre

District Engineer of

Malabar

Sir,

I have the honor to forward herewith the following plans & estimates called for in Your No. 74 of the 12th Instant.

Sketch of the Cootiaddy trace as worked out.

Plans of Bridges required on the new Ghaut.

Estimate for opening the trace to a Bullock Ghaut amounting to Rupees 31,390 " —

Estimate for making the Bullock Ghat into a Bandy Road amounting to Rs. 28,760 — " —

2. The former amount may seem high for a Bullock Ghat but in the Estimate I have allowed for working it out to the exact gradient for the Bandy Road, so that the work on the one will be so much towards the other, and have also allowed for Bridging to the full width required for Bandies as it appears to me that it would be better, as soon as the Bullock Ghat has been made, to expend a few thousand Rupees in making sidings at which Bandies could

Brought forward ——— 325 6. 10 76 ..

could pass thus making it available as a Cart Road at once than to wait till it has been made the full Bandy Road width throughout before bringing it into use.

4 When preparing the estimate for widening the Bullock Ghat to a Bandy Road I found it so difficult to work out the calculations omitting the work already estimated for that I have allowed for the whole of the work required for opening the trace to a Bandy Road and deducted that for the Bullock Ghat.

5 Up to the end of February Rs. 5619. 8. 9 had been expended and there were Rs. 348. 6. 8 due for that month making a total of Rupees 5967. 15. 5 from the allotment of Rs: 6,500.

6 For that amount the trace had been made 10 ft wide except where there was Rock & the large Trees had been cleared off about 2 miles.

7 The balance will I believe be nearly if not quite sufficient to complete the clearing.

8 Although as stated in the last Para the trace has been made 10 ft wide I have in calculating the estimate only taken it as 9 as I expect that 1 ft of it will be washed away in the monsoon

9 The remarks on the Plan shew why the gradient has been made easier than that laid down in G. O. No 1565 of 14th June 1873 as if that had been adhered to very much more Rock cutting would have been required than there is in the present trace.

10 The only parts at which sheet Rock to any great extent has to be removed is between the top of the Ghat & it's junction with the old line and at the part marked Rocky spur in the Sketch.

11 The former could not be escaped, as if the top Zigzag on the old road had been lengthened & altered so as to escape the Rock on the present trace, there would have been quite as heavy if not heavier work before getting to the point of the zigzag.

12 At the part marked Rocky spur on the Plan there will be some heavy Rock cutting, there is however no place to be found higher up at which the Rock could be escaped, while a trial trace run back from the foot of the Cliff shewed that although the heavy work at that point was escaped the ground along which the new line would run was so stony in comparison with the upper trace that very little if any thing would be gained eventually while the zigzag would have come on a steep rocky hill side instead of being as it now is at a place with a very easy slope with no Rock on it.

13 The sweep round the Hill above Kunjamuttum would also have been lost as the

the trace would have been, too low to have crossed the saddle where marked on the plan and the Road would therefore either have to be zigzagged to get back to the present line of the River at Kunjamuttum or carried to the South of that River in which case the foot of the Ghat would be about three fourths of a mile further from Coolladdy.

2 About one & quarter miles below Kunjamuttum there is a very Rocky piece for ¾ths of a mile. The rock however is all Boulders on the first trace (which I marked in Green) the ground was very nearly as Rocky at this point while it had some very bad sheet Rock on it further on which is almost entirely escaped on the present line.

3 There was also the disadvantage that the foot of the Ghat was ¾ths of a mile off the valley of the Koonamky stream thus increasing the total length of Road by that amount.

4 The piece of Road from the foot of the Ghat to the old road might be made much shorter by going straight across it would however have made so very little difference in the amount of the estimate, that I thought it better to mark the line as shewn on the sketch plan to make the Road longer & save the trifling amount the other trace caused.

Jan

5 In the Plans for the Bridges I believe that I have allowed rather too much Waterway all through, this however I have done intentionally as it is impossible to tell exactly what is required & I thought it better to be on the safe side in a place where upwards of 20 Inches of Rain in three consecutive days (as there has been in last Monsoon) have to be allowed for.

6 The work has taken me rather more time than was expected this however has been owing to the number of alterations which had to be made to save heavy work.

7 Whenever the work is to be carried out I would strongly recommend that at least a separate Subordinate Establishment should be allowed for it as on the manner in which the work is superintended will entirely depend whether the estimates I have made out are sufficient or not. With good superintendence they should be ample.

8 What will be most required will be a person who understands quarrying, as the Workpeople on this coast know nothing of it & will have to be taught the proper use of even the commonest

Tools

Tools required for it.)

I have the
Cannanore
18th March 1743.

Sd/ H. Bailey Captn:
Executive Engr: Malabar

1 Jun 1/2 19/
W Garrington
Dpty: Chief Engineer Malabar

Memorandum.

These papers have reached my office so late that I am unable myself to submit them to Government, as the estimate cannot be examined in time. I would note however for the information of my successor that I visited the Coliady Ghaut in company with Captain Bailey, the Officer who traced the new line; I approved of the Wynaad approach to the Ghaut Head at a gradient between 1 in 16 and 1 in 18, I walked over the trace which was then completed to the point

Malabar Asst. Engrs Office
dated 7 Jun 1875.

marked A on the survey; the ground was easy, but in 1/4 mile the line showed that it was desirable and carefully selected, more to avoid favorable advantage of the features of the ground than to shorten the distance. From point A the next 2 miles to Captain Bailey informs me is 1 in 18 and 1 in 16. The first of the new trace runs into the old road as shown in the plan. I believe, the ghaut when completed will be a most frequented one and very favorable for the

Madras
11th April
1874.

Chief Engr. Canals
Irrigation Engineer
Public Communication

Malabar Dist^t Engr's Office
Calicut 1st Feby/75.

No 205

From

The District Engineer
Malabar

To

The Chief Engineer
Department Public Works
Madras

Sir,

I have the honor to forward papers connected with the Project of opening up the Cootiaddy Ghaut, and to state that on the 28th March last they were forwarded by me to the Ex.-Inspecting Engineer for Ports and Communications but were returned by that Officer on the 2nd May last with instructions to furnish the following information which is embodied in Lieut Dobson's replies noted in the margin.

1 Sketch of the Cootiaddy Ghaut Trace
2 Plan of Bridges for the Cootiaddy Ghaut
3. Estimate for widening the Cootiaddy Ghaut Trace into an 18 feet Bandy road – Rs. 28,760 with Specification and abstract
4 Estimate of the probable expense of widening the Cootiaddy Ghaut trace to 12 feet to make it into a Bullock Ghaut for Rs. 31,390 with Specification and abstract
5. Copy of Captain Bailey's letter No 28 dated 18th March 1874 to the District Engineer Malabar
6. Colonel Farewell's Memo: No – d/11th April 1874
7. Captain Bailey's Demi-Official letter to Col. Farewell d/9th April 1874

Information required by the Ex. Instg Engineer

2. In the Survey the Zig-zags should be numbered, and the distance between each Zig-zag noted, the total distance agreeing with that entered in the Estimate

3. The dimensions of the following bridges are entered as noted below.

	In the Plan and Estimate	In the Survey.	In the Ghaut Estimate
Bridge No.	6. 10'x8'	15'x8'	15'x8'
"	" 11. 10'x6'	10'x8'	10'x8'
"	" 16 10'x5'	10'x7½	10'x7½

If the Plans and Estimates are correct, the entries in the Survey and Ghaut Estimate should be altered accordingly. The number of each bridge should be entered in the Survey also.

4. The District Engineers attention is drawn to G.O. No. 826 of 27th February 1873 and he is requested to state if he is satisfied with the soundness and durability of the timbers to be used for bridges, a clear report should be submitted on the subject

Lieut. Dobson's reply

Returns the Survey &c. with the corrections and additions noted in Para. 2 - carried out

The Estimate is correct, the Survey being incorrect, the Estimate was made out by Capt Bailey himself and also the drainage of the various bridges. The numbers of the bridges are added

With regard to the G.O. No. 625 of 27th February 1873, I am little acquainted with the timbers therein mentioned, but I have heard Capt. Bailey say whilst I was on the Ghaut with him, that it is a particularly hard and durable wood and sometimes goes by the name of Iron-wood, by the Specification either that, or Bonopoo is to be used, and they are the best that can be obtained here in the jungle, but from my experience of the wooden bridges on the old Cootaladay Ghaut the timber that is intended to be used for the new Ghaut should be kept and seasoned some time.

I have the honor to be
Sir,
Your most obedt Servant.

W. Pennington
District Engineer
Malabar

Office 1875 Depart.
The Dist. Engr.
Malabar.

To The Chief Engineer,
P. W. Dept:
Madras.

No. 205.
Dated 1st Feby
Read 4 " 1875.
2 Encl: Encl: 6.

Forwarding
Estimate for
Widening the
Coast Caddy Ghaut.

G.O. No. 857. 31. 3. 75.

G.O. 16. Feby 1875 No. 74
" 13. June 1873 - No. 1565

No. 648

613-3-75

The total is moderate in amount,
but may suffice with good superintendence.
I would advocate the work being laid out
for execution to the full width at once, as it
would be very troublesome to widen it after
it had been opened to traffic. The rate for
Earth work and Boulders may be a good
general rate all over; but care must be
taken not to give large Contracts for opening
at that rate, as it would lead to endless
quarrels as to what are to be considered
boulders. The rate for Revetment of Rough
stone is high, but is hardly worth noticing
from there being so little of it. I should be
inclined to substitute Latrite arches for
timber for all the points strong hints; as the
spans are all small, and Capt Bailey
says he has arranged the waterways
And I would build the 3 drains of
Rough Stone without Chunam and
save the cost of covering stones, for which
Rs 1½ per Cft is a very high rate.

Engineer's Office
Calicut, 1871

Public Works Department

PROCEEDINGS of the MADRAS GOVERNMENT.

Under date the

READ the following —

From the Dr Engr Malabar (H.L. No 205 dt 1st Feby 1875)
Memo by Chief Engineer (— " " — 12th March 1875.

The estimate passed for Rupees 60,000, for opening this new Rotiadely Chaunt in Malabar as a Cart Road, will be forwarded to the President of the Local Fund Boards, through the Sink Dept. with the Chief Engineers Memorandum. His Excellency the Governor in Council is not in a position to add to the contributions already made from Provincial Funds for this Chaunt; which when completed for Cart traffic, and tolled, will be a very remunerative work.

Govt

No. 649

60150

5139 0
2876 0
10665
15
708

Final Depth was 6565'
of Dyer Malabar-V
Comp. 1-4-75

16615-650

Genl. of U.S. Grant

PUBLIC WORKS.

Transcript file