M.R.O. 1—22 500—21-11-30

MADRAS RECORD OFFICE.

Government of Madras.

DEPARTMENT.

G.O. No. 225 Press Mis.

Dated 3—2 18 .

Not to be folded or roughly handled

Fort Saint George, Public Works Consultation of 7th December 1858.

No. 58. Read the following Extract from the Minutes of Consultation in the Financial Railway Department, dated 18th November 1858, No. 622.

Communicating to this Department a letter from the Officiating Consulting Engineer in view to the District Engineers of the four Districts therein mentioned being requested to prepare and furnish an Analysis of the cost of the Government works similar to those prepared by the Chief Engineer of the Railway Company. (Vide Financial Railway Consultation, 23rd November 1858, Nos. 3-4.)

No. 59. ORDER THEREON, No. 2606; dated 3rd December 1858.

Ordered to be communicated to the Officiating Chief Engineer with a request that he will furnish at an early date the Analysis called for in the above Minutes of Consultation.

(Signed) W. H. BAYLEY,

Acting Secretary to Government.

No. 622.

Extract from the Minutes of Consultation under date the 18th November 1858.

Read the following observations by Captain C. C. JOHNSTON, Officiating Consulting Engineer for Railways, on a letter from the Agent and Manager of the Madras Railway Company, dated 26th October 1858, No. 275.

With this letter the Agent and Manager submits the Analysis of the actual cost of constructing Masonry Works in the several Districts through which the South West Line of Railway passes, as called for in Extract Minutes of Consultation, No. 184, dated 14th April 1858.

2. The Chief Engineer's letter, and Statements, explain the system on which the Analysis has been made, and I would suggest that copies of them be forwarded to the Public Works Department, in order that the District Engineers of North Arcot, Salem, Coimbatore, and Malabar, may prepare a similar Analysis of the Government Works.

3. This arrangement would, I consider, be more satisfactory than comparing, as I originally proposed, the cost of the Railway Works with Bills in the Central Office, for it is evident from the letter of the Acting District Engineer of Coimbatore, embodied in Extract Minutes of Consultation, No. 2017, dated 29th Ultimo, that the rates for work in that District are much higher than would appear from the data in the Central Office.

Department Public Works.

From N. B. ACWORTH, Esq., Agent and Manager; to Captain C. C. JOHNSTON, Officiating Consulting Engineer for Railways, dated 23rd October 1858, No. 735.

SIR,

1. With reference to para: 3 of your letter to me, No. 319 of 21st April last, requesting me to furnish a strict Analysis of the actual cost which has been incurred in constructing Works of Brick in Chunam in the several Districts throughout the line, I have the honor to send you for your information a Table No. 1 being an Analysis of expenditure on Brickwork and Masonry, together with sub-siding Tables Nos. 2 and 3, and also a copy of a letter to my address from the Chief Engineer explanatory of the principles upon which these Tables have been framed.

No. 784, dated 20th October 1858.

2. You will observe that Mr. Heppel is unable, for the reasons stated, to give separately the cost of Brick-work and Stone-work, and that District 7 is left out from inability to get as yet the requisite returns from that District, while on District 12 the Masonry up to the date of the present return had been too insignificant to be taken to account.

From J. M. HEPPEL, Esq., Chief Engineer; to N. B. ACWORTH, Esq., Agent and Manager of the Madras Railway Company, dated 20th October 1858, No. 784.

DEAR SIR,

With reference to the letter of the Officiating Consulting Engineer, No. 319, April 31st, forwarded to me "with special attention to 3rd para: and early report," I beg to forward herewith

a Table No. 1, shewing the cost per cubic yard of Brick-work and Masonry on each District, my instructions to the Districts were to make up their returns to the end of June, but some of them have been made up to the end of July. This is noted in each case, but its effect on the results must evidently be extremely inconsiderable.

2. The form consists in the dissection of the total expenditure incurred up to the given date into the following heads.

1. *Material, Brick and Stone.*

The quantity of Stone expended is the total delivered, minus the stock in hand, and the cost placed against it, is the total expenditure on Stone delivered, minus the estimated value of the Stock in hand. The Stock in hand being generally small as compared with the quantities expended, any error in estimating the value of the former is productive of every little error in the result.

3. The expenditure in Bricks is taken from the Brick-making accounts, and the cost against it is taken at the rate per 1000, as ascertained from the total expenditure on Brick-making, minus the estimated value of moulded Bricks in Store, and the quantity of serviceable Bricks expended, and in Stores. In Districts, where a large number have yet to be made, a portion of the expenditure, on plant, and buildings, and miscellaneous, has been deducted, as not fairly chargeable in the present out-turn. In this way the rates per 1000 given in Abstract in Table No. 2, have been ascertained. I may remark with reference to Districts 9, 12 and 16, that the quantities made have been too small, to allow of any reliable inference as to their ultimate cost.

2. *Chunam.*

4. The cost per parah is taken from the total number expended, and in Store, and the total expenditure. This rate is then applied to the quantity expended.

5. A Table No. 3 of the cost of the parah of Chunam, on each District, is given in Abstract, 3 Labor of all Classes, 4 Superintendence, 5 Leading Material, 6 Plant and Buildings, 7 Miscellaneous. These Items require no explanation.

6. The numbers in the last Column are the cost of each of these heads of expenditure per cubic yard of Masonry executed, and their sum gives the total cost per cubic yard, which agreeing with the total cost, divided by total quantity, checks the calculation.

7. I regret to be unable to give separately the cost of Brick-work, and Stone-work, but there being so many Works, consisting partly of one, and partly of the other, and no separate account having been kept of the labor, and general charges, it would not be possible to obtain a correct Statement.

8. I regret also that District 7 is left altogether out of this return, the reason being that I have not as yet been able to obtain the requisite returns from the District. I believe its cost would be found somewhat under the general average.

9. On District 12, the amount of Masonry executed up to the date of the return was too insignificant to take into account.

No. 1.

District.	4						5						6						7						3
Date of Returns.	30th June 1858.						31st July 1858.						30th June 1858.												
	Quantity.	Cost.			Per Cubic Yard		Quantity.	Cost.			Per Cubic Yard		Quantity.	Cost.			Per Cubic Yard		Quantity.	Cost.			Per Cubic Yard		Quantity.
Bricks expended	31,57,924	29,918	0	6	....	...	77,75,000	99,860	2	6	.....	...	61,00,360	33,551	15	9	.....	...							14,24,000
Stones do. ..... Cubic feet.	14,05,082	1,27,090	0	0	.....	...	1,18,622½	8,871	4	0	.....	...	15,509	33,997	8	0	.....	...							23,296
Material expended..... Brick and Stone.	.....	1,57,008	0	6	2	13	0	.....	1,08,731	6	6	4	10	4	.....	67,549	7	9	2	3	8				.....
Do. ..... Chunam Parahs.	1,22,588	27,897	0	0	0	8	0	1,34,688	36,201	5	0	1	8	9	1,45,548	28,119	6	9	0	14	10				95,521
Labor of all Classes..... Days.	9,48,244	1,35,425	10	7	2	5	10	2,90,778	61,986	15	2	2	10	4	4,51,875	93,555	7	10	3	1	4				10,61,867½
Superintendence.....	38,933	23,432	4	3	0	6	9	16,189	6,146	0	11	0	4	2	12,416	6,130	15	6	0	3	3				18,877
Leading Material.....	.....	38,703	9	8	0	11	1	.....	23,464	1	8	1	3	5	.....	.....	...	...	.....	...	...				.....
Plan and Buildings.....	.....	4,485	0	0	0	1	3	.....	3,424	11	0	0	2	4	.....	.....	...	...	.....	...	...				.....
Miscellaneous.....	.....	53,727	0	10	0	15	5	.....	10,308	2	8	0	7	0	.....	4,890	7	7	0	2	7				.....
Total Masonry executed..... Cubic Yards.	55,794	4,40,678	9	10	7	11	4	23,425	2,55,262	10	3	0	14	4	30,318	2,00,215	13	5	6	9	8				27,148

MADRAS RAILWAY,
CHIEF ENGINEER'S OFFICE,
21st *October* 1858.

M.R.O. 1—82 500—23-13-40

MADRAS RAILWAY.

Analysis of Expenditure on Brick Work and Masonry on the South West Line.

8	9	10	11	12	13	14	
ne 1858.	30th June 1858.	8th July 1858.	30th June 1858.		31st July 1858	28th July 1858.	31st Ju
t.	Per Cubic Yard	Quantity. Cost. Per Cubic Yard	Quantity. Cost. Per Cubic Yard	Quantity. Cost. Per Cubic Yard	Quantity. Cost. Per Cubic Yard	Quantity. Cost. Per Cubic Yard	Quantity. Cos
2 9 4	....	2,66,365 4,701 9 10	....	....	35,23,197 22,038 5 3	12,33,800 8,987 9 0	97,794 1,022
1 4 0	....	2,04,120 5,603 6 3	4,143 5,264 11 10		7,88,238 21,713 10 2	28,365 30,466 9 9	 2,457
3 13 4	0 14 9½	....	..... 5,264 11 10	0 14 11	..... 43,751 15 5	1 2 4 ..... 39,454 2 9	 3,480
8 5 1	1 1 0	29,628 10,305 0 1	0 13 10 ..... 3,321 13 6	0 9 5	93,650 12,194 0 2	0 5 1 21,637 5,296 8 11	2,701½ 371
0 7 11	1 10 8½	14,183 4 4	0 14 6 13,548 16,421 14 4	2 14 6	9,061 62,339 3 4	1 10 2 ..... 21,808 12 9	85,315 13,668
4 10 9	0 5 4	2,07,332 22,617 5 1	1 14 3 49,311½ 2,263 1 2	0 6 5	1,904 5,292 9 1	0 2 3 ..... 14,938 13 2	1,674 795
0 1 4	0 5 6	3,871 2,212 15 11	0 2 11 3,140½ 1,07,000 ..... 1,245 0 5	0 3 6	..... 29,468 6 4	0 12 4 ..... 2 9 6	 5,772
5 11 10	0 2 7	..... 4,600 11 7	0 6 2		....	..... 2,802 9 10	....
0 0 6	0 2 2	....	....		... 3,754 5 11	0 1 7 ..... 6,206 2 4	0 4 1 6,363
		..... 815 15 8	..... 4,735 8 0				0 9 2 .....
3 5 9	4 10 1	11,947 54,735 4 8	0 13 5		38,137 1,56,800 8 3	4 1 9 10,808 93,509 11 3	
		4 9 3 4,356 16,098 9 10	5,653 33,252 1 4	5 14 2			8 10 4 6,511 30,453

(Signed) J. M. HEPPEL,

Chief Engineer.

	15			16			17			Grand Total.		
	31st July 1858.			30th June 1858.			30th June 1858.					
ubic Yard	Quantity.	Cost.	Per Cubic Yard	Quantity.	Cost.	Per Cubic Yard	Quantity.	Cost.	Per Cubic Yard	Quantity.	Cost.	Per Cubic Yard
... ...	97,794	1,022 12 2	....	.....	....	....	.....	....	....	235,78,440	2,13,423 0 4	....
... ...	.....	2,457 12 4	....	11,69,169	11,479 13 11	....	5,85,469	12,130 10 7	....	43,48,546	2,74,217 5 10	....
3 10 5	.....	3,480 8 6	0 8 6	.....	11,479 13 11	0 14 11	.....	12,130 10 7	2 2 3	.....	4,87,640 6 2	2 1 8
0 7 10	2,701½	371 12 0	0 0 10	29,819	3,882 10 11	0 5 0	23,915	6,409 14 2	1 2 1	7,21,788½	1,68,775 2 2	0 11 7
2 4 9	85,315	13,668 6 9	2 1 7	1,79,618	31,617 8 10	2 13 0	1,09,072	29,042 8 7	5 2 0	38,39,474	5,45,267 3 2	2 5 8
1 6 1	1,674	795 15 4	0 1 11	11,648	4,809 7 5	0 6 3	15,085	7,043 10 0	1 3 10½	1,33,737½	83,360 10 8	0 5 9
0 0 0	.....	5,772 11 6	0 14 2	.....	9,518 7 5	0 12 4	.....	7,143 8 11	1 4 2	.....	1,35,894 8 6	0 9 4
0 4 1	.....	....	....	.....	399 11 8	0 0 6	.....	1,816 4 0	0 5 1	.....	19,750 1 10	0 1 4
0 9 2	.....	6,363 14 9	0 15 7	.....	3,770 10 9	0 4 11	.....	303 8 9	0 0 10½	.....	98,706 6 10	0 6 9
8 10 4	6,511	30,153 4 10	4 10 7	12,323	68,508 6 11	5 8 11	5,667½	63,890 1 0	11 4 4	2,32,087¼	15,39,388 7 4	6 10 1

(Signed) N. B. ACWORTH,

Agent and Manager.

No. 2.

Analysis of the cost of 1000 Burnt Bricks. June 00th 1850.

	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Getting clay, &c.	2 7 10	2 15 2	3 6 3		7 0 4	4 3 5			6 9 2	1 7 9	5 13 0	2 5 8	0 0 0	
Stacking and burning	2 3 1	2 9 7	1 6 4		0 0 0	3 1 0			0 10 9	0 13 0	0 0 0	3 11 5	6 14 11	
Superintendence	1 1 2	0 14 4	0 11 5		0 10 8	1 11 8			3 7 5	0 4 11	1 6 3	1 6 1	1 8 9	
Firewood	1 11 11	2 7 0	3 1 11		0 0 0	5 12 9			6 2 5	3 0 5	0 0 0	1 3 2	2 13 11	
Leading Materials	1 1 2	2 6 0	0 0 0		1 8 3	1 8 3			7 7 4	0 7 8	0 0 0	1 8 4	0 0 0	
Building and Plant	0 10 2	1 4 4	0 12 2		0 1 2	1 7 2			8 10 10	0 7 0	2 4 11	0 0 0	7 11 3	
Miscellaneous	0 11 9	0 4 7	0 10 3		0 6 9	0 1 1			0 10 2	0 0 4	0 0 0	0 4 8	14 4 9	
Total cost per cent.	9 15 1	12 13 6	10 0 4		9 12 2	17 13 4			33 10 1	6 9 1	9 8 2	10 7 4	33 5 7	
Deduct cost of moulded Bricks in Store.	0 0 6	... ...	0 1 8		0 5 4	0 2 11			4 3 8	0 5 0	none	none	... ...	
	9 14 7	... ...	9 14 8		9 5 10	17 10 5			29 6 5	6 4 1	9 8 2	10 7 4	... ...	

Madras Railway,
Chief Engineer's Office,
[illegible] October 1858.

(Signed) N. B. ACWORTH,
Agent and Manager.

(Signed) J. M. HEPPEL,
Chief Engineer.

No. 3.

Analysis by the cost of one Parah of Chunam, June 30th 1858.

	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Day's labor of all Classes	0 1 1		0 1 10		0 3 3	0 3 8	0 1 7 1/4			0 0 9	0 2 11		0 0 4 1/2	0 1 4
Fuel	0 0 6 1/2		0 0 9		0 0 0	0 2 3	0 0 9 1/3			0 0 9 1/2	0 0 8		0 0 4 1/4	0 1 0
Leading Materials	0 0 5 1/2		0 0 0		0 1 8 1/4	0 1 3	0 1 2 1/6			0 0 4 1/2	0 0 0		0 0 9 1/4	0 0 3 2/3
Buildings and Plant	0 0 1		0 0 4		0 0 1 1/2	0 0 7	0 1 7			0 0 2	0 0 1		0 0 5 1/2	0 0 1
Superintendence	0 0 1		0 0 2		0 0 2	0 0 2	0 0 4 1/2			0 0 0	0 0 3		0 0 1 1/2	0 0 1/3
Miscellaneous	0 0 1		0 0 1/2		0 0 1/4	0 0 0	0 0 0 3/4			0 0 0	0 0 0		0 0 0	0 0 0
Chunam stone delivered by Contract	0 0 0		0 0 4		0 0 0	0 0 0	0 0 0			0 0 0	0 0 0		0 0 0	0 0 0
Cost per parah	0 2 4		0 3 5 1/2		0 5 3	0 7 11	0 5 7			0 2 1	0 3 11		0 2 1	0 2 9
Deduct value of firewood and in store	... ...		... ...		... ...	... ...	0 0 6 1/2			... ...	... ...		... ...	... ...
	.. ..		... ...		... ...	... .	0 5 1/2			... ...	... ...		... ...	... ...

(Signed) J. M. HEPPEL,
Chief Engineer.

Madras Railway,
Chief Engineer's Office,
21*st October* 1858.

(Signed) N. B. ACWORTH,
Agent and Manager.

Order.—Ordered that the foregoing communication and its enclosures be forwarded to the Public Works Department, in view to the District Engineers of the four Districts therein mentioned, being requested to prepare and furnish an analysis of the cost of the Government Works, similar to those prepared by the Chief Engineer of the Railway Company.

(True Extract and Copies.)

Acting Secretary to Government.

To the Public Works Department.
" Consulting Engineer for Railways.

Exm. Com. Corps Topl. Engrs.

Rec'd. Wash. 15 Dec 55

Read 16 Dec 55

No. 2849

Extract from the Minutes of the Executive Committee of the Board of Canal Commissioners held at the Capitol in the City of Albany on the 24th day of November 1855.

No. 6322

From the Chief Engineer of the Chesapeake & Ohio Canal Co.

Communicating a letter from Mr. Wm. Partridge Assistant Engineer in charge of the Upper Division of the Canal, in relation to the Culvert under the Canal at Mile Run Crossing.

Resolved that the Chief Engineer be requested to furnish the Board with a plan and estimate of the Culvert under the Canal at Mile Run Crossing, referred to in the letter of Mr. Partridge, and that he also furnish the Board with a plan and estimate of the Culvert under the Canal at Mile Run Crossing, referred to in the letter of Mr. Partridge, and that he also furnish the Board with a plan and estimate of the Culvert under the Canal at Mile Run Crossing, referred to in the letter of Mr. Partridge.

A true Extract

Wm. Van Ingen

Sec'y.

Albany Nov. 27th 1855.

No. 2606

Ordered to be communicated to the Officiating Chief Engineer with a request that he will furnish at an early date the analysis called for in the above Minutes of Consultation.

Wm. B.

Ent. Dec. 3 55

3 Dec 55

Ent. Dec. 3 55

Chief Engr. C. & O. Canal Co.

Dec. 3 55

Ans. Dec. 6 55

Dec. 6 55

Ans. Dec. 6 55

Dec. 6 55

Ans. Dec. 6 55

Dec. 6