New No. Sectt. I (i)-1—Old No. M.R.O. 1—10,006—10-6-68.

(1) Number of pages 10

(2) Date of repair 17-4-70

(3) Initials of the Referencer

MADRAS RECORD OFFICE

GOVERNMENT OF MADRAS

Rev DEPARTMENT

G.O. No. 2751 ~~B.P. No.~~ Press / Mis.

Dated 21. 11. 1876 196 .

Not to be folded or roughly handled

2251/1

Proceedings of the Madras Government, Public Works Department,
2nd November 1876. *No.* 2,929.

Read the following letters:—

No. 11. From Major J. BEATTY, R.E., Officiating Superintending Engineer, Godavery, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Dowlaishweram, 26th September 1876, No. 1,806.

I HAVE the honor to forward revised estimates for certain canals in the Western Delta Division with reference to your memorandum No. 63 GD of 20th January 1876. I send also the report of the Divisional Officer.

1 Lieutenant Dorward's letter, No. 230 of 29th August 1876.*
4 Revised Estimates.
* To be returned.

2. Lieutenant Dorward observes that "on some of the canals on which it is next year and this intended to work, there will be excesses, and if the estimates of works on which savings occur are not sent in the vork on the canals on which there will be excesses must stop." According to your instructions "it is necessary to show a saving on one canal before an excess on another can be sanctioned."

3. The new rules regarding sanctions are seriously checking expenditure, and you will observe by the revised budget of the Western Delta for 1876-77, which I am about to forward you, that Lieutenant Dorwarl finds himself obliged to surrender a further sum of Rupees 18,640 owing to the delays now met with in obtaining sanctions to revised estimates.

4. The Divisional Officer states that the estmates now sent are "meant to give a fairly correct idea of the probable cost of the works."

5. I have only to observe further with regard to the saving, 5,100 Rupees, on the first item in the list, viz., providing the Delta head sluice with new shutters and screw gearing, that I expect the saving wil be considerably more than the sum mentioned. The new shutters and gearing f Captain Brockman's original design have been put up to five vents and work well I have called on the officer in charge Eastern Delta Division, who carried out thework already done, to furnish a revised estimate for the whole work at the Vejaishweam head sluices, which I shall send you as soon as possible.

6. I have also requested Lieutenant Dcward at his convenience to furnish the plan and estimate of a small weir above th Muddapuram lock at a cost of about Rupees 4,500, which is evidently much wantd. He has not done so now as it is not advisable to delay the submission of these revsions.

7. In the revised estimates now submited the Divisional Officer shows savings amounting to Rupees 25,954, and excesses f Rupees 4,008; so that the net saving on these four items of the project estimates wil probably be Rupees 21,946, or allowing for the cost of the small weir above the Muddapuram lock, and a greater saving on the head sluices, the net saving may be take at not less than Rupees 18,000.

From Lieutenant A. R. F. DORWARD, R.E., Assistant Engineer in charge Western Delta Division, Godavery District, to Major J. BEATTY, R.E., Officiating Superintending Engineer, Godavery District, dated Godavery, 29th August 1876, No. 230.

1 Revised Estimate for certain canals.
1 Classified Abstract of revised estimates for certain canals.
1 Abstract of the classified abstract of certain canals.
1 Revised Abstract Estimate for certain canals.

I HAVE the honor to forward herewith revised estimates for —

(1.) Head sluice, main canal.
(2.) Main canal.
(3.) Restoring navigation with Weyeru.
(4.) Venkia and Weyeru.

1. In the original estimate Rupees 19,500 were allowed for providing the Delta head sluice with shutters and screw gearing. This has been reduced to Rs. 14,400, the District Engineer having informed me that this sum will be sufficient to provide shutters and gearing of a pattern found to answer at Dowlaishweram.

Head Sluice. Main Canal.

2. From to $2\frac{3}{8}$ to 8 miles all work has been done on the main canal with a saving of Rupees 3,600. From 0 to $2\frac{3}{8}$ miles part of the work has been done. On this portion of the canal there are 245,000 cubic yards of earthwork provided for. For this the original estimate allows Rupees 29,398, the rate being Rupees 12 per 100 cubic yards. This rate is unnecessarily high. Part of the work has been done for Annas 1-7 per cubic yard, and the work will be finished off at this rate, or for Rupees 24,245. This will save Rupees 5,150. The total saving on this estimate will therefore be Rupees 9,750, including Rupees 1,000 under head "Baling."

Main Canal.

3. The work has been finished with the exception of building a weir in connection with Muddapuram lock. In paragraph 4, No. 413 A, of Note by the Chief Engineer for Irrigation (see G.O., 23rd September 1870, No. 2,300,) it is stated "a weir is not required and the item may be struck out of the estimate." It was not so struck out, but is not included in the present estimate. Still, I think, experience has cleary shown that it is necessary. Below the mid level channel head the canal silts up very rapidly and has cost about Rupees 800 to clear out each year since its excavation. This silting is due to the fact that the low level channel is often closed for long periods, as it receives a good deal of drainage, at which times the water in the canal below the mid level channel head stands level. The lock has a tail race, $\frac{3}{4}$ths mile long, which also silts up though not so rapidly as the canal above. It would be well therefore to have the means of constantly maintaining a current above the lock and of creating a scour in the channel below. About the middle of September boats always begin to stick above the lock.

A small weir of one vent of 9 feet span would do all that is necessary. It will not affect the supply of water to lands under the Ellore canl, as it will only be worked to supplement the low level channel sluice. At the end of the irrigation season it will be an advantage to be able to get rid of water by the junction canal, the fall in the Ellore canal below that point being very slight.

If called upon, I will submit a plan and estimate for the weir which with its channels will cost about Rupees 4,500.

Restoring navigation with Weyeru.

Nundamur weir has been finished at a cos of Rupees 11,697.

4. This estimate provides for building seven masonry sluices above Perimella lock, Rs. 250 being allowed for each sluice. This is utterly insufficient to build safe sluices in the high banks of the Venkia. One sluice has been but for Rupees 520. Another has been estimated for and nearly finished at Rupees 530. The est of the five others will be about Rupees 3,000. I have in the present estimate, therefore, entred the probable cost of these seven sluices as Rupees 4,050. Similarly, below Perimella lok I have added Rupees 1,000 to the estimate for the eight sluices to be built there. A provision o Rupees 700 has also been made for a tunnel which it will be necessary to build under the propos Azzamur channel, and which has not been provided for in the original estimate.

Venkia and Weyeru.

5. The Venkia canal and Weyeru are both silting up, the latter so considerably that the question of taking the navigation out of it and of making the Chinnakapaveram channel navigable or of going to a large expense in deepening and [illegible]g and regulating the width of the Weyeru will soon press for settlement. The Venk[illegible]ipally for about two miles below Muddapuram lock channel. It is a great pity the junc[illegible]hal was not taken off the Ellore canal at Thadapalligudem (17 miles from Vejaishweram) and run so as to join the Venkia opposite Undi canal head.

No. 12. From Major J. BEATTY, R.E, Officiating Superintending Engineer, Godavery District, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Dowlaish[illegible]208', 26th September 1876, No. 1,808.

1 Divisional Officer's letter, No. 249, of 14th September 1876.*
1 Revised Abstract Estimate.
* To be returned.

IN continuation of my letter, No. [illegible] of 26th instant, I have now the honor to [illegible]orward the revised estimate for a 6th item [illegible] the completion project of the Western [illegible]elta, viz., that for rest-houses showing [illegible] net saving of Rupees 203.

2. Lieutenant Dorward's report which accompanies the estimate explains the causes of expected savings and excesses on these buildings.

From Lieutenant A. R. F. DORWARD, R.E., Assistant Engineer in charge, Western Delta Division, Godavery District, to Major J BEATTY, R.E., Officiating Superintending Engineer, Godavery District, dated Godavery, 14th September 1876, No. 249.

1 Revised Estimate.
1 Classified do.

I HAVE the honor to forward herewith a revised estimate for rest-houses built or to be built in this range.

2. I have now made provision for the bungalow and inspection house at Pratipad which were built when the Ellore canal formed a portion of No. IV Range. I have also allowed Rs. 896 as land compensation for rest-houses. This include Rs. 800 already paid for Peravelli rest-house grounds. Rupees 96 will be sufficient to pay for the small pieces of land taken up for the other buildings.

3. Of the eight rest-houses at Rupees 2,900 each sanctioned in the project estimates, the one at Chettipett was first built. The verandah roof was made of pan-tiles on bamboo hurdles. This, owing to the flatness of the roof, was found to leak so much that a revised estimate of Rs. 3,045 was prepared, allowing for a Cawnpore terrace roof to the verandah. This was sanctioned by the then District Engineer, and in accordance with the revised plan and estimate the Peravelli, Thadipilligudem and Koder rest-houses were built in the order named. The comparative cheapness of the Koder rest-house was owing to good brick and tile soil being obtainable close to the work.

4. After the Koder rest-house was built I received orders from you to prepare a revised plan for the rest-houses still to be built, so as to bring the estimate down to Rupees 2,900. This was done by doing away with the bath-room behind the centre room which experience had shown to be seldom of use, while it prevented any light being got into the centre room by a window behind. This darkness in the centre rooms one of the principal faults of the old rest-houses. According to this re-revised plan and estimate the rest-houses at Attali and Bhimaveram have been nearly finished, and the one at Aceed has been put in hand.

5. The original sanction for eight rest-houses amounted to Rupees 23,200; the present estimate amounts to Rupees 22,997, showing a saving of Rupees 203.

APPENDIX I.

WESTERN DELTA, GODAVERY—REST-HOUSES—CLASS I, WORKS.

Comparative Statement showing the Original and Revised Estimates.

ORIGINAL ESTIMATE.					REVISED ESTIMATE.				Remarks.
Main-head.	Sub-head.	Items.	Amount.	Total.	——		Amount.	Total.	
			Rs.	Rs.			Rs.	Rs.	
Head Works ..	K. Buildings ..	Rest-house, Chettipett ..	2,900		10. Rest-house, Chettipetta ..	Sanctioned in G.O., No. 2,929, dated 2nd November 1876, and registered as No. 175 I (10 to 21) of 1876.	2,899		Finished.
		Do., Peravilly ..	2,900		11. Do., Peravelly ..		3,055		Do.
		Do., Chebrole ..	2,900		12. Do., Thadapulligudem.		3,027		Do.—See G.O., No. 2,416, of 14th [illegible] 1872.
		Do., Koder	2,900		13. Do., Koder		3,048		Finished.
		Do., Palkole	2,900		14. Do., Nursapur ..		700		Do.—See G.O., No. 3,617, of 20th [illegible] 1874.
		Do., Attili	2,900		15. Do., Attili		2,900		Do.—See G.O., No. 1,596, of 16th June 1874.
		Do., Peramella ..	2,900		16. Do., Bheemavaram ..		2,900		Nearly finished.
		Do., Akeed	2,900		17. Do., Akeed		2,900		In hand.
				23,200	18. Bungalow at Prattipad ..		579		*Vide* Chief Engineer's memorandum No. 506 A of 18th July 1874.
					19. Inspection house at do. ..		96	22,101	
					20. Compensation for Peravelly rest-house.		800		See G.O., No. 40, of 7th January 1873.
					21. Do. for Attili, Bheemavaram, and Akeed rest-houses.		96		
								896	
		Total ..	..	23,200	Total ..		..	22,997	

(Signed) J. BEATTY, Major, R.E.,
Offg. Suptg. Engineer, Godavery.

(Signed) A. R. F. DORWARD, Lieut., R.E.,
Assistant Engineer.

APPENDIX 2.

WESTERN DELTA, GODAVERY—MAIN CANAL—CLASS I, WORKS.

Comparative Statement showing the Original and Revised Estimates.

ORIGINAL ESTIMATE.					REVISED ESTIMATE.				Remarks.
Main Canal.	Sub-head.	Items.	Amount.	Total.	——		Amount.	Total.	
			Rs.	Rs.			Rs.	Rs.	
(2) Main Canals and Branches.	B. Land ..	Compensation	2,500	2,500	Improvements to head works ..	Sanctioned in G.O., No. 2,929, dated 2nd Nov. 1876, and registered 175 I (1 to 3) of 1876.	14,400	14,400	Masonry .. Rs. 3,465 Iron works, &c. „ 10,935 Total .. 14,400
	D. Regulators ..	Improvements to head sluice ..	19,500	19,500	Compensation		2,500	2,500	
	L. Earthworks ..	Earthworks from 0 to 2½ miles..	29,398		Earthworks from 0 to 2½ miles ..		24,245		
		Earthwork from 2½ to 8 miles ..	12,632		Earthwork from 2½ to 8 miles ..				*Actual cost.
		Gating	1,750		Gating				Rs. 750 will be sufficient.
		Contingencies	2,720		Contingencies		2,758	..	Includes an actual expenditure of Rupees 1,203.
		Total, Earthworks ..	..	46,500	Total, Earthworks ..		..	36,750	
		Total, Main Canal ..	..	68,500	Total ..		..	53,650	

(Signed) A. R. F. DORWARD, Lieut., R.E.,
Divisional Officer.

(Signed) J. BEATTY, Major, R.E.,
Offg. Suptg. Engineer, Godavery.

275/3

APPENDIX 3.

WESTERN DELTA, GODAVERY—JUNCTION CANAL—CLASS I, WORKS.

Comparative Statement showing the Original and Revised Estimates.

ORIGINAL ESTIMATE.					REVISED ESTIMATE.			
Main-head.	Sub-head.	Items.	Amount.	Total.	—	Amount.	Total.	Remarks.
			Rs.	Rs.		Rs.	Rs.	
(2) Main Canals and Branches.	B Land	Compensation	100	100	4. Compensation	100	100	
	H Escapes ..	Surplus weir at Nundamur ..	14,000	14,000	5. Surplus weir at Nundamur ..	*11,697	11,697	* Actual expenditure.
	I Navigation Works.	Double lock, Muddapuram ..	41,000		6. Double lock, Muddapuram ..	*40,100		
		Do. weir, do. ..	3,140		7. Do. weir, do. ..	4,500		
	L Earthworks ..	Earthworks	25,120	44,140	8. Earthworks	†20,966	44,600	Ordered not to be built. † Actual expenditure.
		Closing the old Nundamur lock channel.	250		9. Closing the old Nundamur lock channel.			
				25,370			21,821	
		Total, Main Canals and Branches.	..	83,610	Total ..	..	78,218	

Sanctioned in G.O., No. 2,929, dated 2nd November 1876, and registered as 175 I (4 to 9) of 1876.

(Signed) A. R. F. DORWARD, Lieut., R.E.,
Assistant Engineer.

(Signed) J. BEATTY, Major, R.E.,
Offg. Suptg. Engineer, Godavery.

APPENDIX 4.

WESTERN DELTA—GODAVERY—VENKIAH AND WEYERU CANAL.—CLASS I, WORKS.

Comparatice Statement showing the Original and Revised Estimates.

ORIGINAL ESTIMATE.					REVISED ESTIMATE.			
Main-head.	Sub-head.	Items.	Amount.	Total.	—	Amount.	Total.	Remarks.
			Rs.	Rs.		Rs.	Rs.	
(2) Main Canal and Branches.	H Escapes ..	Chilakampad escape	1,500	1,500	22. Chilakampad escape ..	* 1,565	1,565	* Actual expenditure.
(3) Distributaries ..	C Works ..	Sluice, Kallaparru channel ..	900		23. Sluice, Kallapurru channel ..	900		
		7 feet dam below do. ..	210		24. 7 feet dam below do. ..	210		
		5 feet dam below do. ..	190		25. 5 feet dam below do. ..	190		
		Sluice, Uladivada do. ..	430		26. Sluice, Madivada channel ..	470		
		Do., Azzamur do. ..	470		27. Do., Azzamur do. ..	500		
		Do., Akeed do. ..	250		28. Tunnel, Do. do. ..	700		
		Do., Gummulur do. ..	410		29. Do., Akeed do. ..	400		
		Do., Dumpagadapa channel ..	410		30. Do., Gummulur do. ..			An aqueduct has to be built in connection with each of these 3 sluices over a drain.
		Do., Cherukumilli do. ..	990		31. Do., Dumpagadapa channel			
		Do., Yelurpad do. ..	430		32. Do., Cherukumilli do. ..			
		7 Sluices above Parimalla Lock ..	1,790	6,110	34. 7 Sluices above Parimalla Lock.	4,050	10,110	Nearly finished
	L Earthwork ..	Channel, Kallapurru	1,660		35. Channel, Kallapurru ..	1,660		
		Do., Gummulur	400		36. Do., Gummulur ..	400		
		Do., Madivada	190		37. Do., Uladivada	190		
		Do., Azzamur	540		38. Do., Azzamur	640		
		Do., Cherukumilli	960		39. Do., Cherukumilli ..	960		
		Do., Yelurpad	600		40. Do., Yelurpad	† [illegible]		† Actual expenditure.
				4,350			4,289	
		Total, Distributaries ..	..	10,460		..	14,399	
		Grand Total ..	..	11,960		..	15,964	

Sanctioned in G.O. No. 2,929, dated 2nd November 1876, and registeress No. 175 I (22 to 40) of 1876.

(Signed) J. BEATTY, Major, R.E.,
Offg. Suptg. Engineer, Godavery.

(Signed) A. R. F. DORWARD, Lieut., R.E.,
Assistant Engineer.

2751/4

No. 13. ORDER THEREON, 2n November 1876, No. 2,929.

IRRIGATION, N 2-A.

IN these papers probable savings on five of the estimates forming part of the completion estimates of the Western Delta, Godavery, are reported, and revised etimates have been submitted.

2. The revised estimate for the rest-houses shows a saving of Rupees 203. Some of the entries under original estimates have been corrected in the comparative statement, Appendix 1.

3. Under the classification now in force the head sluice of the main canal is a component item of that canal. The ... e statements furnished for the head sluice and main canal respectively have ... re been combined in one. The revised estimate amounts to Rupees 53,650 against the original estimate of Rupees 68,500, the difference being Rupees 14,850. The District Engineer states that the reduced amount for the head sluice improvements is likely to prove more than sufficient.

Appendix 2.

				s.
Head Sluice	...	...	...	15500
Main Canal	...	...	...	43000
				61500

4. The cost of the junction canal between the Ellore canal and the Weyeru would, as regards the works the execution of which has been approved, be Rs. 73,718 against Rupees 83,610 the amount of the sanctioned estimate, but it has been shown that a weir in connection with the Muddapuram lock is much needed, and that about Rupees 4,500 for this work will be required. The construction therefore of a weir, as was proposed in the original estimate, is approved, and Rupees 4,500 have been added to the revised estimate for this purpose. The total of the latter will then be Rupees 78,218 against Rupees 83,610 sanctioned, showing a saving of Rupees 5,392.

Appendix 3.

The items under distributaries exceed by the District Engineer in this statement have been omitted because they are only individual works of the mid and low level channels, and complete original and revised abstracts are necessary to enable the differences to be dealt with.

5. The savings reported and admitted will be therefore—

							Rs.
Rest-houses	...	...	...	...	...	...	203
Main Canal, including Head Sluice	...	...	...	...	...	...	14,850
Junction do.	...	...	...	...	...	...	5,392
						Total ...	20,445

6. On the other hand, it is shown that the allowances in the sanctioned estimates for sluices on the Venkia and Weyeru were inadequate owing to the height of the banks in which these works have to be built, and the revised estimate for this canal, as submitted by the District Engineer, mounted to Rupees 15,264, but it is mentioned in paragraph 4 of the Range Officer's No. 230, 29th August. letter that a tunnel is required under the Azzamur channel, and that provision to the extent of Rupees 700 had been made by

him for this work. As no such item was entered in the revised estimate, this sum h been added thereto, making the total R ees 15,964 against Rupees 11,960 sanctioned, the excess being Rupees 4,004.

Appendix 4.

7. The savings on the above estimates amount to ... ... Rs. 20,445
The excess to... ... ... „ 4,004
Net saving... „ 16,441

The revised estimates are sanctioned and hav registered as Nos. 175 I. (1 to 40) of 1876-77.

8. Ordered that a copy of these gs be forwarded for the information of the Government of India with reference to the sanctions No. 49 I. of 1871-72 of the completion estimates for the Godavery Western Delta.

Letters No. 376 I. of 2nd August 187.
No. 120 A.I. of 18th April 1874, printed G.O., Nos. 2,925 of 18th November 1871, and 1,344, 20th May 1874, respectively.

(True Extract.)

Major-General, R.E.,
Secretary to Government.

To the District Engineer, Godavery.
„ Collector of do.
„ Chief Engineer for Irrigation.
„ Examiner of Public Works Accounts.
„ Revenue Department.

Exd. S. T. Austin.
14 Spare Copies

Rev. Dept.

No. 5003

Govt. of Madras

PUBLIC WORKS.

To

The DISTRICT ENGINEER,
GODAVERY.

&c., &c.

Dated November 2nd.

Issued

Regd. 4 20 Encl.

G. O., 2nd November 1876, No. 2,029.

Geo. Noble

NOVEMBER.

Nos. 11-13.

No. 2751 Communicated to the Board of Revenue

21 Nov 76.

Western Delta, Godavery District.—Revised estimates for the completion of certain works in the — sanctioned with remarks.

Dated 196 .

Not to be folded or roughly handled