No. 2806.

Govt. of {1869} Madras.

PUBLIC WORKS.

To

THE SUPERINTENDING ENGINEER,

4TH DIVISION

&c., &c., &c.

Dated August, 17th.

Recd. 20th Encl.

G. O., 17th August 1869, No. 2,793.

AUGUST.

Nos. 369-371

Madras Water Works Scheme.—Passing orders on papers relative to the progress on the Madras Water Works Scheme.

With Order

Read the following papers:—

No. 167.

No. 369. State of Progress of the Madras Water Works on the 30th June 1869:—

Anicut on the Cortilliar river.

THE anicut is raised 3 feet 3 inches above the bed of the river, and is to remain at that level during the ensuing monsoon. The wing walls are completed, as also the retaining wall connecting the work with the head-sluice. The sand vents are completed. The rough-stone apron was completed last year to the extent designed, but an extension in front of the sand vents to a width of 60 feet and in other parts to 30 feet, is in progress.

Head-sluice to supply channel.

The wing walls are completed. The vents are arched. The face wall over the arches on the channel side is carried up to the level of the roadway. The haunches of the arches are filled up with concrete. The laying of the cross stones closing the heads of arches is in progress. The granite work in the shape of groove stones and face work is dressed. The rough-stone revetment to the channel near the sluice is completed on one side. The communication with the channel is open.

Channel from the Cortilliar river to Cholaveram tank.

The supply channel to the Cholaveram lake is completed from end to end.

Katankal bund.

The dam across the Katankal river is completed.

Boosykal diversion channel and dam.

The channel for the diversion of the Boosykal river is completed, as well as the upper and lower dams.

Masonry works on the supply channel.

These consist of five cart bridges, ten inlets, one aqueduct, one calingulah, of 150 feet. All the bridges are completed up to floor level; on these the timber platforms are laid. The parapet walls are in progress, four inlets are completed entirely, four completed except the brick retaining walls to the spoil bank.

Two are in progress.

The aqueduct is completed.

The calingulah is completed.

Cholaveram bund.

The earth-work of the bund is raised to a uniform level 16 feet above the level of the old calingulah crest, or four feet below the level of proposed full supply.

The stone revetment is at an average level 10 feet about the old calingulah crest.

Half of the back slope of the present bund is turfed.

Masonry works of Cholaveram bund.

The crest of the new calingulah of 20 vents is raised to a level two yards above the old calingulah crest, or to the level of the proposed supply to be retained next monsoon. The irrigation sluice foundation and granite flooring is completed, and the wing walls raised to the old calingulah crest level.

Head Sluice to supply channel.

THE foundations and apron of the work are laid, the granite flooring to the vents is completed. The wing walls are raised 9 feet above the floor. The

granite piers and facing to abutments are raised 2 feet above floor level. The irrigation sluice-tunnel behind the north wing wall is completed, as also the well and groove stones for shutters.

Channel between lakes.

The channel between lakes is cut to full depth and width throughout.

The bund on the lower side for half a mile requires to be raised 5 feet on an average to admit full depth of water.

Masonry works on channel between lakes.

These consist of one bridge, one inlet, one under-tunnel. The bridge is completed except the timber flooring. The inlet and under-tunnel are completed.

Red Hill bund.

The earth-work of the bund is raised throughout to a level of 19 feet above the crest of the old calingulah, or 4 feet above the level of the water at proposed full supply. The revetment has reached an average level four yards above the crest of the old calingulah, or one yard below the level of the proposed full supply of water. The masonry dam is raised 6 feet above the crest of the old calingulah, and the old calingulahs are built up to a height of 5 feet.

Irrigation Sluices of the Red Hill Lake.

The tunnels of the two irrigation sluices are completed. The front parts are at a level of 2 feet above the crest of the old calingulah.

They will be raised to 10 feet above that level before the monsoon. It is proposed to retain the water at a level two yards above the old calingulah this year. The progress of all the sluices has been much delayed by the difficulty met in obtaining labour and materials for the granite work.

No. I.

The following tabular statement shows, in an abstract form, the quantity of work executed and labour employed during the month of June 1869.

No. II.

The relative quantities of work of each class executed to the 30th June 1869, and the total for the project with a decimal indicating the proportion, the former bears to whole.

STATEMENT No. I.

Labour.		Days of one man.	Work executed.		Quantity.
Quarry-men	No.	5,997	Stone quarried... ...	C. feet.	59,805
Carts	,,	5,317	.....		.....
Revetment builders ...	,,	1,815	Revetment built ...	do.	44,658
Puddlers	,,	3,758	Puddling	do.	60,048
Gravellers	,,	1,332	Gravelling	do.	27,999
Coolies for earth-work ...	,,	21,132	Earth-work	do.	411,507
Stone dressers	,,	944	Concrete	do.	10,935
Brick-moulders	,,	41	Bricks moulded ...	No.	30,360
Granite-cutters	,,	467	Granite stone dressed ...	C. feet.	403
Bricklayers or Masons ...	,,	1,142	Laterite masonry ...	do.	17,442
			Granite masonry ...	do.	760
			Arch-work	do.	870
			Pointing	Squares.	4½
					227

STATEMENT No. II.

Nature of work.		Work done up to 30th June 1869.	Total for project.	Decimal of progress.
Earth excavation for bunds, channel for foundation, &c.	Cubic yards.	16,22,319¾	18,47,230¼	·88
	do.	4,353½	7,791¾	·56
Concrete	L. feet.	1,627¼	1,902¼	·86
Well-work	Cubic yards.	16,987	20,639	·83
Laterite masonry in chunam	Cubic feet.	6,293½	12,390¼	·51
Granite do. do.	Cubic yards.	198¾	419	·47
Arch-work	do.	300¼	3,997¾	0·7
Brick-work in chunam	do.	2,942	4,882¾	·60
Rough stone in apron	Squares.	955¼	2,584	·37
Pointing	do.	.....	1,319¾	·00
Plastering	Running yards.	180	180	·00
Cornice-work	Cubic feet.	1,764⅓	3,342½	·53
Wood-work	Rupees.	3,383-6-1	10,052-2-5	·34
Iron-work	Cubic yards.	21,855¾	55,179¼	·40
Revetment	do.	56,333	1,16,683¼	·49
Puddling	do.	17,404½	37,292	·47
Gravelling	Square.	42,781	1,25,769½	·35
Turfing				

RED HILLS,
17th July 1869.

(Signed) A. SCOTT, Captain, R. E.,
Executive-Engineer, Madras Water Works.

No. 370. Minute by the Right Honourable the President.

(Here enter 9th August 1869.)

No. 371. ORDER THEREON, 17th August 1869, No. 2,708.

IRRIGATION, No. 19.

FROM the detailed statement of progress on the Madras Water Works Scheme read at the head of these Proceedings, and from the observations which His Lordship the President has recorded after a personal inspection of the whole of the works connected with the enlargement of the Red Hill and Cholaveram tanks, as well as with their supply from the Cortilliar, the Government are glad to learn that those works have reached a stage which admits of some practical advantages being derived, and affords the prospect of greater results at no distant date.

2. Already the waters of a small fresh, which came down the Cortilliar on the 31st ultimo, have been diverted by the anicut through the completed channel into the Cholaveram tank, which has been filled to nearly its former full supply level, and nearly to the height of the sills of the sluices at the head of the channel to the Red Hill tank. The large supply thus thrown into the Cholaveram tank at this early date will probably be at once taken advantage of by the ryots to begin and extend their cultivation, and if, as is very likely, there should be another fresh in the Cortilliar shortly, there is nothing but the unfinished state of the head-sluice to prevent water being passed on to the Red Hill tank. Owing to

the difficulty of obtaining a sufficient number of stone-cutters the construction of this sluice is very backward. The executive officer is confident of having it ready for use by October, but if another fall of rain should bring down a freshin the Cortilliar, it is of much importance that the water so available should not be profitless to the Red Hill tank, and the Government are therefore of opinion that some expedient should be adopted by which, without much inconvenience or interruption to building operations at the sluice, water may be passed on to the Red Hill tank. This, it is understood, can be effected by an arrangement which the Executive-Engineer considers simple, and which the Government therefore trust he will use every exertion to have carried out in time to utilize the next fresh to the utmost, applying to the Workshops at Chepauk for such assistance as can be there afforded in making up shutters or other articles that may be needed.

3. Although attention has hitherto been directed almost solely to the use of the flood waters of the Cortilliar for the supply of the two reservoirs and, through them, of Madras, the Government fully concur in the view which His Excellency the President has taken of the feasibility of drawing, even in the height of the driest seasons, a very considerable supplemental supply from the subterranean stream which experience has shown percolates slowly through the sands of which the beds of all such rivers as the Cortilliar in this Presidency are composed, and which supply may be collected into a continuous flow by the excavation of a trench in a suitable direction. It is possible that a quantity of water equal to the consumption of the city may be in this manner obtained from the bed of the Cortilliar throughout the dry weather, but whether it could be led into the channel by natural flow or would require to be raised some few feet by mechanical means, appears to be doubtful. The acquisition of the very considerable additional supply of pure water which the Government believe may be secured from this source is of much importance, and His Excellency the Governor in Council accordingly directs that the executive officer in charge of the works be instructed to take measures for carefully ascertaining the amount of water obtainable from the bed of the Cortilliar throughout the dry season in the manner above indicated, and to state his opinion of the means by which that water may be rendered most available for the supply of the tanks and of Madras, that is to say, whether it can be made to flow naturally down the bed of the supply channel, or in a cutting in the bed of that channel, or whether it will require to be artificially raised.

(True Extract.)

Colonel, R.E.,
Secretary to Government.

To the Superintending Engineer, 4th Division.
,, General Superintendent Public Works Stores and Workshops.
,, Revenue Department.

No. 112
Comm. to the
Revenue Board

Exd. F. R. Bantleman.