M.R O. 1—4,002—16 9-48

(1) Number of pages_____

(2) Date of repair_____

(3) Initials of the Referencer_____

MADRAS RECORD OFFICE

Government of Madras

Public Works DEPARTMENT

G.O. No. 2572 (9) Press
B.P. No. Mis.

Dated 8.9. 1875.

Not to be folded or roughly handled

Proceedings of the Madras Government, Public Works Department,
8th September 1875.

Read the following papers —

No 178 From Captain A C Smith, R.E, Executive Engineer, Mount Range, to Colonel F J MOBERLY, R E, Superintending Engineer, Chingleput, dated Mount Range, 24th June 1875, No 697.

I HAVE the honor to report that I visited the Thamarapakam Anicut on the 18th instant

2 This work is one of the most troublesome I have had to do with

3 In addition to the disadvantage of meeting with the debris of the old foundations as reported in my No 281 of 6th ultimo, I now find that clay is met with at various depths, and that it is impossible to sink the wells in consequence to their proper level

4 The state of the new line of wells is as follows, commencing from the north end —

Nos	1 to 7 sunk only	2 feet, obstructed by clay	
No	8	3 do	
Nos	9 to 11	4½ do	
No	12	3¼ do	
No	13	5 do	
No	14	4½ do	debris
Nos	15 & 16	3 do	
No	17	5 do	
Nos	18 to 21 sunk only	6 feet	
No	22	5½ feet, obstructed by clay	
No	23	3 do	debris
Nos	24 & 25 sunk only	6 feet	
No	26	3½ feet, obstructed by clay	
No	27	3 do	

Thus you will see that sixteen out of the twenty-seven wells are stopped by clay and five by rubbish of old foundations, and only six have been sunk and filled with good concrete to their proper depth

5 Of the clay I have no hopes, as it is very stiff and unworkable, and I see nothing for it but to leave the wells and fill in in rear with concrete, which will be only 2 feet thick instead of 4 as originally allowed

6 I have some hopes of removing the debris which obstructs the others, but it renders the works slow and naturally costly

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From the same Officer, dated Camp at Kaseveram, 25th June 1875, No 711.

WITH reference to G O, No 1,560, of 3rd instant, forwarded with your No 1,072, of 18th instant,* I have the honor to report that it is impossible to carry out that part of the suggestion by the Chief Engineer relating to the sinking of the wells in sand 21 feet below anicut crest

* Received on evening of 19th at Trivellore

2 Had the memorandum been a fortnight earlier, it would have been in time; as it is I have now sunk the wells as reported in my letter, No 697, dated 24th instant, and those which are sunk to the originally proposed depth have already been filled with hydraulic concrete, which is by this time like rock. I was obliged to push on this work, if it was to be done at all this season

3 Those wells on clay have sunk into the clay a little, and the Supervisor was very energetic in urging the maistry and coolies to further efforts, but the wells cannot be sunk much lower.

4 I may say that it would have been impossible to have sunk wells in this river to the depth required without machinery for baling, and perhaps for well sinking, and it would have taken a long time to procure these, as I imagine all Mr Grainger's pumps are employed by the District Engineer, Presidency, and elsewhere

5 Notwithstanding the Chief Engineer's paragraph 2, I still adhere to my views on the cause of subsidence; I had already reported the cracking of the apron in front and subsidence in rear in former letters, and the remainder being undisturbed is to me no proof of no under current, but simply shows the tenacity of the mortar when employed above water The foundation of the rest of the wall will, as far as practicable, be examined without baling, the cost of which is very great owing to perpetual springs

6. The apron along the front is provided for in the estimate

7. I am afraid there will be no time for underpinning this year should any be required unless we go to an enormous expense for bunding and baling

No 1,268

SUBMITTED to the Chief Engineer for Irrigation with reference to G O, No 1,360, dated 3rd June 1875 A copy of Captain Smith's letter, No 697, dated 24th June, is also forwarded for information

2. An estimate for restoring damages of Thamarapakam Anicut, amounting to Rupees 6,000, was sanctioned as "Repair," and the work is under execution

GUINDY, 5*th July* 1875. (Signed) F J MOBERLY, Colonel, R E, *Superintending Engineer, Chingleput*

No 743.

MEMORANDUM

IN acknowledging the receipt of the papers transmitted with the endorsement, No 1,268, of the 5th instant, from the Superintending Engineer, Chingleput, the undersigned has the honor to observe that the use of wells in restoring the foundations where clay was met with within 5 or 6 feet was not at all right, and, under such circumstances, solid foundations should have been put down

2. In the Executive Engineer's letter, No. 697, of the 24th ultimo, the datum for the measurements of the depths of the wells is not mentioned. The foundations, as laid, should be plotted on a longitudinal section

3 The undersigned must express his disappointment that when clay was found so near the unknown datum as 2 to 3 feet, arrangements adopted to the circumstance were not at once made

4 There would have been no necessity for baling in sinking wells to any required and feasible depth There are several excavators or well-dredgers in use, some of them very simple, and by no means expensive to purchase, while the sinking of wells with them beyond the first yard or so is much cheaper than by well-sinkers Fifteen or twenty days would have sufficed to procure a dozen such dredgers The undersigned hopes that the Superintending Engineer and his Range Officers will keep themselves informed of the most approved way of carrying out particular descriptions of work

5 With regard to the local sanction of the estimate of Rupees 6,000 for the repair of the anicut, the Superintending Engineer is requested to report what the expenditure on repairs of the Madras Water Works during the four years up to the end of 1874-75 has been, and if, as is supposed, more than the average revenue under

these works has been expended, he should explain why the orders as to the limits of local sanction have been disregarded

(Signed) JOHN MULLINS, Lieut-Colonel, R E,
Officiating Chief Engineer

From Colonel F J MOBERLY, R E, Superintending Engineer, Chingleput, to Lieutenant-Colonel J MULLINS, R E., Chief Engineer for Irrigation, dated Guindy, 18th August 1875, No 1,954

I HAVE the honor to forward a longitudinal section showing the depths of the wells and the foundation laid down for the restoration of the Thamarapakam Anicut, called for in paragraph 2 of your memorandum, No 743, dated 7th ultimo, from it you will observe that the wells have been sunk deeper since Captain Smith's letter, No 697, dated 24th June 1875, was written

1 Section
1 Estimate, Rupees 6,000

2 I beg to submit, for the sanction of Government, the estimate of Rs 6,000 for the repairs of the anicut The work was ordered on emergency and its non-submission before was merely an oversight The entries of the revenue and expenditure entered at its head belong to the whole Madras Water Works Project.

From Captain A C SMITH, R E, Executive Engineer, Mount Range, to Colonel F J MOBERLY, R E, Superintending Engineer, Chingleput, dated Mount, 14th August 1875, No 1,232.

WITH reference to Chief Engineer's memorandum, No 743, forwarded with your No 1,586 of 24th ultimo, I have the honor to point out that the nature of the bed could not be clearly ascertained before commencing the work; the water was very excessive, and the borer certainly showed clay, but it was difficult to find out at what depth the clay became pure, to me it seemed to be always a sandy mixture, hence I decided in favor of wells all through You will see from my No 1,207 of 11th instant, that many of the wells have been got down below the sandy clay, and much further so than I thought on my last inspection of the work was possible

2 I have already submitted the information called for in this paragraph, when I talked about having 4 feet of masonry work above the wells, I naturally concluded that it would be understood that the well tops would be 4 feet below ground level, and their depths of sinking would be referred to this line

3 All arrangements were made, as far as I could tell, for the best, and I am still of opinion that my method of repair is a sound one

4. I had no well excavators in use; the work was put in hand *directly* I knew what was wanted, there was no time to get excavators, the Public Works Stores have none in stock, and they would have taken three weeks or so to make, counting the time required for obtaining sanction Besides which no well bottoms at any of the other anicuts, &c, have been placed at a greater depth than 10 feet below bed level. Sharp as has been the carrying on of the work, the river has nearly beat us owing to recent rains There was no time for a moment's delay.

5 I am not aware whether or no this report or memorandum of Chief Engineer will be forwarded to Government in the same manner as that on the two project works

was, but if it is, I request you will be good enough to forward the above explanation, which, I respectfully submit, shows that the best was done that could have been under the circumstances then known

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No 1,989

SUBMITTED to the Chief Engineer for Irrigation with reference to his memorandum, No 743, dated 10th ultimo, and in continuation of Superintending Engineer's No 1,954, dated 18th instant

21*st August* 1875

(Signed) F. J MOBERLY, Colonel, R E,
Superintending Engineer, Chingleput

No 1,001

NOTE BY THE CHIEF ENGINEER FOR IRRIGATION

Madras Water Works

SOME information regarding the state of the Thamarapakam Anicut, which sustained damage during the freshes of last monsoon, was given in paragraph 12 of the inspection notes, dated 13th April 1875, and in Proceedings, Madras Government, No 1,560, of the 3rd June last, a report by the Range Officer on the foundations and the work proposed to be done to render them secure was reviewed, and it was mentioned that the new wells should be carried down into the clay underlying the sandy bed of the river, or to 21 feet below the anicut crest level, if clay were not met with

Proceedings, Madras Government, 15th July 1875, No 2,011

2 From a letter of the 21st June from the Range Officer it appeared that the instructions reached him too late to be attended to, while from another letter, No 697, of the 24th June, it appeared that many of the wells had been sunk to an apparently very inadequate depth, while in some parts of the work, owing to clay being met with at a small depth, it was considered* by the undersigned that the use of wells instead of solid masonry foundations had been inappropriate

Superintending Engineer's endorsement No 1,268 of the 5th July

* No 743, 10th July

3 The Superintending Engineer in now transmitting an estimate, amounting to Rupees 6,000, for the repair of the anicut, has reported that the wells have been sunk somewhat deeper than was before stated to be the case, and has forwarded a rough section showing the levels of all the wells on the 29th July, from which it appears that the deepest wells have been put down to 16 feet below anicut crest, while some were only $11\frac{1}{2}$ feet below, but these it was expected would be carried down somewhat lower No 24, however, is but $12\frac{3}{4}$ feet below crest, and that has been filled with concrete and must remain as it is

4 A letter No 1,232 of the 14th instant, affords the Executive Engineer's explanations, and it will be noticed that whereas in this letter the sub-soil is referred to as a mixture of sand and clay, a material which could be penetrated, in his Nos 697 and 711 he appears to refer to a clay which prevented any further sinking of the wells.

Superintending Engineer's endorsement No 1,989 of the 21st instant

5 The undersigned is of opinion that solid foundations would have been more appropriate wherever compact clay was to be found within 8 or 9 feet of the apron, or 14 or 15 feet of the crest level, and that such might have been put down in concrete for the lower 5 or 6 feet The Cortilar is not a more difficult river to work in than the deltaic rivers of Tanjore, and there wells are not generally used in a less depth of sand than 9 feet

6 If Captain A C Smith's view that the damage to the anicut was the result of water passing through and under the old foundations be correct, the chances of stability of the restored work will be very small If, however, as the undersigned thinks, scour was the cause of the giving way of the foundations, the up-stream apron provided for, which will prevent such action, may render the anicut safe, its cost will be under Rupees 800

7 On the whole the undersigned is of opinion that the way in which the repairs of this anicut have been carried out is not satisfactory, and that there has been shown a want of resource, as well as of knowledge, of the requirements of works of this class and of the means available for putting down foundations

OOTACAMUND,
30*th August* 1875.

(Signed) JOHN MULLINS, Lieut.-Colonel, R E,
Chief Engineer for Irrigation.

No. 179. ORDER THEREON, 8th September 1875, No. 2,572.

IRRIGATION, No 18
Account

THE estimate of Rupees 6,000 for the repair of the Thamarapakam Anicut, Madras Water Works, is sanctioned as a charge against Revenue.

2 The remarks in the foregoing note and the correspondence printed in these Proceedings indicate that the details of the work done are in some respects inappropriate, and that consequently there is no satisfactory assurance of the future stability of the anicut, though it may perhaps be hoped that the action which the Chief Engineer for Irrigation considers was the cause of the damage will not recur now that an apron to prevent it has been or will shortly be constructed

(True Extract.)

Major-General, R.E,
Secretary to Government

To the Superintending Engineer, Chingleput
„ Chief Engineer for Irrigation
„ Controller of Public Works Accounts

Exd E C Shunker
Spare Copies

No. 4 Folio 1

Note by the Chief Engineer for Irrigation
Madras Water Works.

Encls. 8

Some information regarding the state of the Shamarapram Rum Canal, which sustained damage during the freshes of last monsoon was given in para 12 of the Inspection Note dated 13th April 1875 and in Pro. Madras Govt. No. 1560 of the 3rd June last a report by the Range officer on the foundations and the work proposed to be done to render them secure was reviewed, and it was mentioned that the new wells should be carried down into the clay underlying the sandy bed of the river, or to 21 feet below the present level, if clay were not met with.

P. Pro. G. 15th July 1875 No. 2011

Superseding endorsement No. 1368 of the 5th July.

2 - From a letter A of the 21st June from the Range officer it appeared that the instructions reached him too late to be attended to, while from another letter No. 697 B of the 24th June it appeared that many of the wells had been sunk to an

apparently very inadequate depths, which in some parts of the work, owing to clay being met with at a small depth, it was considered by the undersigned that the use of wells instead of solid masonry foundations had been inappropriate. × Do. 743-19 July

3- The Supt Engineer in now transmitting an estimate amounting to Rupees 6,000 for the repair of the Amicut has reported that the wells have been sunk somewhat deeper than was before stated to be the case, and has forwarded a rough section showing the levels of all the wells on the 29th July, from which it appears that the deepest wells have been put down to 16 feet below Amicut crest, while some were only 11½ feet below, but these it was expected would be carried down somewhat lower. No 2 however is but 12¾ feet below crest and that has been filled with concrete and must remain as it is.

4- In letter No. 1232 F. of the 16th Instant affords the Executive Engineer's explanations and it will be noticed that whereas in this letter No. 1989 - 21st Inst. the subsoil is referred to as a mixture of Supt Engr's endorsement

sand and clay, a material which could be penetrated, in his Nos. 697 and 711 he appears to refer to a clay which prevented any further sinking of the wells.

5- The undersigned is of opinion that solid foundations would have been more appropriate wherever compact clay was to be found within 8 or 9 feet of the apron, or 14, or 15 feet, of the crest level, and that such might have been put down in concrete for the lower 5 or 6 feet. The Cauvery is not as more difficult river to work in than the deltaic rivers of Tanjore, and there wells are not generally used in a less depth of sand than 7 feet.

6- If Captain A. B. Smith's view that the damage to the Amicut was the result of water passing through and under the old foundations be correct, the chances of stability of the restored work will be very small. If however, as the undersigned thinks, scour was the cause of the giving way of the foundations, the

up stream apron provided for, which will prevent such action, may render the anicut safe; its cost will be under 800 Rupees.

4- On the whole the undersigned is of opinion that the way in which the repairs of this anicut have been carried out is not satisfactory, and that there has been shown a want of reasoning, as well as of knowledge of the requirements of works of this class and of the means available for putting down foundations.

C. Cumberlege Lieut Colonel R.E.
Chief Engineer for Irrigation

Ootacamund
30th August 1875

To The Secy: to Government
P.W.D.

P W. 1875 Dept.
No: 5813

From

The Chief Engr.
for Irrigation

Dated 30 Augt. 3 1875.
Recd. 10 Septr. 3 1875.

E.S. No: 1001.

Rent Rs. Chief Engr for Irrigation
Note on Estimate
for the repair of the
Thamarapaukum
Anicut. Madras
Water Works, Chingleput.

No 2572. 8-9-75.

No 175

No. 2572 S.W.L.

Pro. of the Madras Government

Under date the 8th Septr 1875

Read the following

From the Ch. Engr for Irrign (H. E. Lee Esq 30th Augt 75)

The estimate of Rupees 6,000 for the repair of the Thamarapaukum Anicut Madras Water Works, is sanctioned as a charge against Revenue.

2nd. The remarks in the foregoing note and the correspondence printed in these Proceedings indicate that the details of the work done are in some respects inappropriate, and that consequently there is no

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an apron to prevent
it has been or will
shortly be constructed.

M. 29

SC Disp. 4-10-75

No 178-179

33/4

Subsidy Chunglepet 6
Chief Engr 5=
Contractors 5=

X with 7 Enclosures
* with 11 Abs. Bundle

Act No. of 1873 Gujarat

PUBLIC WORKS.

To

Dated

Issued

Read

G. O. No. 1573

No. 175-17

Amaravathanthurai Channel
Improvement works.
Re Estimate for the
for the repair of the
Sanctioned with remarks

* with 11 Plans & Estimate