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MADRAS RECORD OFFICE

Government of Madras

Public Works DEPARTMENT

G.O. No. 1799 Press

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Dated 6-7- 1874 ~~195~~ .

Not to be folded or roughly handled

Proceedings of the Madras Government, Public Works Department, 6th July 1874.

Read the following papers :—

No. 74. From Captain J. PENNYCUICK, R.E, District Engineer, North Arcot, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Vellore, 7th May 1874, No. 340.

I HAVE the honour to forward herewith the estimates named in the accompanying statement for repairs of tanks in the Chittoor Range of this district, with the following remarks.

9 Plans.
13 Estimates.
11 Longitudinal Sections.
1 Statement.

2. *Thembully Tank, Estimate Rupees* 2,630.—The drainage area is about 2½ square miles. There are at present four calingulahs, all out of repair ; it is proposed to re-build the one at the east end, throw the two central ones into one, 120 feet long, and close the fourth at the extreme east end, so as to give a total length of 147 feet. Extensive repairs are required to the bund.

3. *Mustarasacoopum Tank, Estimate Rupees* 1,960.—This tank has a catchment basin of its own of about 2½ square miles, and in addition receives the surplus of the Bomasamoodrum and Nagamungalam tanks, making altogether about 6 square miles ; the bund has breached near the east end, and it is proposed to extend the eastern calingulah across this breach, and to re-build the western one, which is only a loose stone escape, in chunam, so as to give a total length of 200 feet of escape. The revetment is in very bad order and requires extensive repair.

4. *Bungarappah Tank, Estimate Rupees* 1,890.—Drainage area is about 4 square miles. The existing escape at the south [illegible] of the tank is in ruins, and is to be re-built with a length of 100 feet ; the [illegible] at present does not run across the hollow shown at the north end of the longitudinal section but round it. The amount of earthwork required is not very great, but a good deal of repair is necessary to the revetments. The estimate also provides for re-building a sluice which is in a state of ruin.

5. *Cadoocuntangle Tank, Estimate Rupees* 1,800.—The western channel of the Poiney Anicut passes through this tank, which has an independent catchment basin of 3 square miles. The present calingulahs, aggregating 60 feet in length, are in good order, but insufficient to discharge the surplus with the bund in its present condition, and last year the latter was cut by the ryots at the north end. As it is essential that as much water should be passed down the channel as possible, it is proposed to retain the present length of escape, and to raise the bund to 6 feet above escape crest level. Like nearly all the tanks in this part of the district, the revetment is in very bad order.

6. *Coopooreddy Tangle, Estimate Rupees* 140.—This is a small estimate for checking leakage by which the bund, which forms part of the Poiney western channel, is endangered.

7. *Goodanagaram Tank, Estimate Rupees* 1,960.—Drainage area is about 3 square miles ; at present there is a calingulah with an effective length of 48 feet, in very bad order, and a "cody" of 31 feet. The former is to be lengthened to 60 feet and the latter to 50, and to be secured by a masonry wall with wings. The sluices are in good order.

8. *Keelvelasoor Spring Channel, Estimate Rupees* 1,290.—The head of this channel is so narrow that it is difficult for the villagers to deepen it so as to keep it open properly; the estimate, which has been prepared at the request of the Revenue Authorities, provides for widening the head so as to enable it to be kept open by the villagers in future. Remission had to be granted last year to the ryots holding land under this channel. The estimate is high, but nothing has been spent on this channel for many years.

9. *Vencatasamoodrum Small Tank, Estimate Rupees* 695.—The escape and sluices are in good order and of sufficient capacity, but the bund has been simply worn away, no repairs having been executed to this tank for an unknown period. This estimate has been prepared at the request of the Revenue Authorities.

10. *Bodireddipattadai Spring Channel, Estimate Rupees* 420.—The head of this channel is silted up beyond the capacity of the villagers for clearing it, and the estimate provides for re-opening it.

11. *Pascomattoor Small Tank, Estimate Rupees* 380.—The tank has at present no escape, and a separate éstimate has been sanctioned for one 30 feet in length, the drainage area being about three-quarters of a square mile. The present estimate refers only to the bund, the condition of which will be seen from the section.

12. *Ramacooppum Tank, Estimate Rupees* 1,040.—The drainage area is 2½ square miles, and the present length of escape (45 feet) is entirely insufficient, the bund having breached at the east end. The estimate provides for extending the eastern escape so as to give a total length of 110 feet. The bund is in a very shaking condition. A portion of the cost of this work will be recovered from the "Dasabundumdar," who holds land under the tank on condition of keeping a portion of it in good order.

13. *Pengaragunta Tank, Estimate Rupees* 1,000.—The escape provision is ample as regards length, but the escape requires repair, and the sluice is in a state of entire ruin; no repair has been executed to this tank within any period of which we have records, and the revenue will probably be greatly increased if the tank be put into proper order.

14. *Athicooppum Tank, Estimate Rupees* 600.—The tank is a small one; the existing escape, 30 feet in length, is sufficient, but the sluice is out of repair, and the condition of the bund will be seen from the sections. The revenue will probably be greatly increased by the repair of the tank.

15. These last three estimates are large compared with the revenues of the tanks, but the latter have had no repairs for an indefinite period; indeed, the tanks in the Palmanair Taluq generally seem to have been a good deal neglected of late years.

16. The forms given to the sides of the escapes as shown on the plans are not altogether suitable, but this will be altered in carrying out the works.

17. The rates entered in the estimates are those which experience has shown to be necessary. Average rates have been taken throughout; on this point as well as on one or two others noticed in your Memorandum, No. 286 of 21st ultimo, I propose to write more fully when re-forwarding the estimates returned with that memorandum.

No. 334-B.

No. 75.

Note by the Chief Engineer for Irrigation.

The following estimates for the repair of tanks in the Chittoor Range of the North Arcot District submitted by the District Engineer, North Arcot, as beyond the limits of local sanction, are recommended for sanction:—

1. *Thembully Tank.*

Estimate	Rupees	2,630
Acreage	Acres	115
Ayacut Revenue	Rupees	723
Average do.	,,	729

no expenditure has been incurred in the last four years.

It is proposed to provide flush escapes having a length of crest of 147 feet, and the drainage basin is reported to be about 2½ square miles. If so, the surplus weirs will be ample, as probably a maximum discharge would not exceed 20 inches in depth.

The positions of the cross sections are denoted by letters on the longitudinal section, but no corresponding letters are attached to the cross sections. That which appears to be L, shows the bund to be below full tank level, and it may be noticed that here, if the alignment admits of it, the new earthwork should be placed inside the old bund, and then a much less quantity will suffice.

The masonry aprons of the surplus weirs and their retaining walls should be secured by an outer rough stone apron. An average rate for all the earthwork is not proper where the circumstances of different portions of the work vary so considerably; the rate should be fixed with reference to the lead and lift.

Probably turfing the bund may be omitted with advantage, and dibbling in grass, if the soil be suitable, will be cheaper and more effective.

2. *Mustarasacoopum Tank.*

Estimate	Rupees	1,960
Acreage	Acres	113
Ayacut Revenue	Rupees	619
Average do.	,,	576
Expenditure during the last four years	,,	150

The bund as regards earthworks requires but moderate repairs, the principal work provided for being the reconstruction of the old revetment, additions thereto and the extension of the waste weirs to a total length of 200 feet. The drainage basin proper of the tank is reported to be 2½ square miles, and that of tanks surplusing into it 3½ square miles; and, as a maximum flood discharge from 6 square miles would give a depth of about 2 feet on the surplus weirs, the provision is likely to be sufficient, though the capacities and dimensions of waste weirs of the tanks above should have been stated, and the sufficiency of the arrangements with reference thereto explained. The rates on average of Annas 1½ for earthworks and Rupee 1 for new stone revetment, seems to require examination. The Atlas sheet shows hills within a short distance, from which stone is probably procurable. Care must be taken that the revetments are substantially constructed, with gravel backing where necessary. The retaining walls of the weirs should be secured by rough stone outer aprons.

3. *Bungarappah Tank of Vasanthapuram.*

Estimate	Rupees	1,890
Area	Acres	112
Ayacut Revenue	Rupees	814
Average do.	,,	787

The earthworks to be executed are moderate, and with one exception, cross section A, the intended position of the new earthwork is good. There the inside rather than the outside of the old bund would seem to be better. The propriety of the average rate of Annas 1½ a cubic yard is doubtful. Rupees 292 are proposed to be spent on new, and Rupees 246 on old, revetment. Attention should be given to backing where necessary.

The drainage basin is said to be 4 square miles, and the restored waste weir is to be 100 feet in length, and in the report attached to the estimate it is said that the maximum depth passing over will be 18 inches, but this is altogether wrong, as it would be between 31 and 32 inches. The surplus weir should, therefore, be made 150 feet in length, and the maximum depth will then be about 24 inches. The weir would be very likely to be damaged if the retaining wall were left unprotected as shown in the plan; and an outer rough stone apron should be provided. The lengthening of the weir will cost about 240 Rupees, and the rough stone apron* about 75 Rupees, but 115 Rupees may be deducted from the item for turfing, leaving sufficient for dibbling in grass, and the revised amount of the estimate will then be 2,090 Rupees. The bund as shown on the sluice plan is of very irregular section, and it should be brought to the normal section and the sluice built accordingly. The length of the rear wall as designed would have been altogether insufficient, as the slopes in rear of it would have been less than 1 to 1. Small waterwigs should be allowed like those of a road tunnel. The sluice tunnel is only 1¼ feet square; it should be large enough to admit of its being examined, and 2 × 2½ are as small dimensions as will admit of this. Arches are usually preferable to flat stones, unless the latter fit very closely. The acreage under a sluice should always be marked on a plan, as also the full discharge required, and it should be likewise noted what depth of water on the cill is the minimum at which this discharge can, with the openings allowed, be passed.

* 3 yards wide and 2 feet deep.

4. *Repairing bund of Coopooreddy Tangle in Poiney Anicut, Western Channel.*

Estimate	Rupees	140
Ayacut area	Acres	24
Do. Revenue	Rupees	135
Average do.	,,	126
Expenditure in last four years	,,	315

It is quite time that all the irrigation under the Poiney Anicut were formed into a group, with sub-groups for the two banks of the river.

The work estimated for is the stoppage of leakage which endangers the tank and consequently the channel. The rate, Annas 3 a cubic yard, for removing and re-making the bank appears to be needlessly high.

5. *Goodanagaram Tank.*

Estimate	Rupees	1,960

The tank requires extensive repairs. Similar observations to those already made above are applicable to the earthwork rate, the turfing, and the outer apron required for the waste weir; 125 feet would be a proper length of waste weir crest for the drainage basin of 3 square miles, but as one escape is a simple wall on ground level, an additional 10 feet may, with advantage, be allowed, and this latter work should be made 75 feet instead of 40 feet long. The saving on turfing will, with an addition of 40 Rupees to the estimate, suffice for this alteration, and for the rough stone apron 2 yards in width required for the other waste weir. The estimate will then be Rupees 2,000.

6. *Bodireddipattadai Spring Channel.*

Estimate	Rupees	420
Ayacut area	Acres	50
Do. Revenue	Rupees	503
Average do.	,,	383
Expenditure in the last four years	,,	175

Nine feet of the width of excavation may be omitted. The only use of the two 4½ feet berms is apparently to make a place for the ryots to place their periodical clearances, which should be taken entirely out of the channel. The rate for such clearance when the depth does not average more than 2 yards should not certainly in such easy material exceed 1 Anna, the earthworks will then amount to 200 Rupees instead of 356, and the total of the estimate to Rupees 260. The villagers should do the work.

7. *Ramacoopum Tank.*

Estimate	Rupees	1,040
Ayacut area	Acres	82
Do. Revenue	Rupees	487
Average do.	,,	391

The longitudinal section shows the bund to be in an inefficient state, and the means of disposing of surplus are evidently insufficient. The rate, 2 Annas a cubic yard, allowed for earthwork is high. Rupees 145 will be payable by a Dasabundumdar, so that the Government outlay will be Rupees 895. The extension of the surplus weir to a length of 110 feet will render the tank, which has a catchment basin of 2½ square miles, secure.

8. *Pengaragunta Tank.*

Estimate	Rupees	1,000
Ayacut Area	Acres	95
Do. Revenue	Rupees	251
Average do.	,,	150

It is reported that there have been no repairs executed to this tank within the period for which there are records. Rupees 400 of the estimate are for a new sluice, a large sum for the small acreage, but the depth of water, 10 feet, is unusually great for a small tank; the rear slope of the bund will not be properly retained unless the side wall of the cistern or waterwings be lengthened a few feet. The sluice tunnel should be large enough for inspection. The District Engineer states that a considerable increase of revenue may be anticipated from rendering the tank efficient, and it will be seen that if only the Ayacut revenue be secured it will be worthwhile to spend the amount of the estimate.

Proceedings of the Madras Government, Public Works Department,
6th July 1874.

9. It will be well for Captain Pennycuick to examine the rates generally, as well as in the particular cases noticed, and items for turfing should be reduced as far as possible.

10. The other estimates received from the District Engineer have been returned for revision.

OOTACAMUND, (Signed) JOHN MULLINS, Lieut.-Colonel, R.E.,
20th May 1874. *Chief Engineer for Irrigation.*

No. 76. ORDER THEREON, 6th July 1874, No. 1,799.

IRRIGATION, No. 9.

IN accordance with the recommendation of the Chief Engineer for Irrigation the following Agricultural Repair estimates for the Chittoor Range are sanctioned :—

		RS.
Chittoor Taluq ...	Thembully Tank	2,630
	Mustarasacoopum Tank	1,960
	Bungarappah Tank of Vasanthapuram... ...	2,090
	Coopooreddy Tangle	140
Goodiattum Taluq...	Goodanagaram Tank	2,000
	Bodireddipattadai Spring Channel	260
Palmanair Taluq ...	Ramacoopum Tank	1,040
	Pengaraguntah Tank	1,000

2. The District Engineer's attention should be specially given to the remarks of the Chief Engineer for Irrigation. The use of average rates adverted to in Captain Pennycuick's 17th paragraph cannot be approved.

(True Extract.)

Lieut.-Colonel, R.E.,
Joint Secretary to Government.

To the District Engineer, North Arcot.
,, Officiating Controller of Public Works Accounts.
,, Chief Engineer for Irrigation.

Exd. S. T. Austin.
Spare Copies

No. 340.

North Arcot
District Engineer's Offi
Vellore 7th May 1874.

From,
The District Engineer,
North Arcot.

To,
The Chief Engineer,
For Irrigation,
Madras.

Sir,

Encls. = 34.
9 Plans.
13 Estimates
11 Longitudinal Sections
1 Statements
34

I have the honour to forward herewith the Estimates named in the accompanying statement, for repairs of tanks in the Chittoor Range of this District; with the following remarks.

2. Thembully tank; estimate Rupees 2630. The drainage area is about two and a half square miles. There are at present four Calingulahs all out of repair; it is proposed to rebuild the one at the east end, throw the two central ones into one, 120' long and close the fourth, at the extreme east end, so as to give a total length of 147 feet. Extensive repairs are required to the bund.

3. Mustarasacooppum tank; estimate Rs 1960. This tank has a catchment

basin of it's own of about two and a half square miles, and in addition receives the surplus of the Bomasamoodrum and Nagamungalam tanks, making altogether about six square miles; the bund has breached near the east end, and it is proposed to extend the eastern Calingulah across this breach, and to rebuild the western one which is only a loose stone escape, in chunam, so as to give a total length of two hundred feet of escape. The revetment is in very bad order and requires extensive repair.

4. Bangaruppa tank; estimate Rs 1890. Drainage area is about four square miles. The existing escape at the south end of the tank is in ruins and is to be rebuilt with a length of one hundred feet; the bund at present does not run across the hollow shown at the north end of the longitudinal section but round it. The amount of earthwork required is not very great, but a good deal of repair is necessary to the revetments. The estimate also provides for rebuilding a sluice which is in a state of ruin.

5. Cadsocuntangle tank; estimate

Rs

Rs 1800. The western Channel of the Painey Anicut passes through this tank, which has an independent catchment basin of three square miles. The present Calingulahs aggregating 60' in length are in good order but insufficient to discharge the surplus with the bund in it's present condition, and last year the latter was cut by the ryots at the north end. As it is essential that as much water should be passed down the channel as possible it is proposed to retain the present length of escape, and to raise the bund to six feet above escape crest level. Like nearly all the tanks in this part of the District, the revetment is in very bad order.

Not agreed [illegible]
bunds [illegible]
be 3' [illegible]
above normal
level

6. Coopporeddytangle; estimate Rs 140. This is a small estimate for checking leakage by which the bund (which forms part of the Painey western Channel) is endangered.

7. Goodanagaram tank; estimate Rupees 1960. Drainage area is about three square miles; at present there is a Calingulah with an effective length of 48 feet, in very bad order, and a "cody" of 31'. The former is to be lengthened to

sixty feet, and the latter to fifty, and to be secured by a masonry wall with wings. The Sluices are in good order.

+ plan [illegible]

8. Keelvelasoor spring channel; estimate Rs 1290. The head of this channel is so narrow that it is difficult for the villagers to deepen it so as to keep it open properly; the estimate, which has been prepared at the request of the Revenue Authorities provides for widening the head so as to enable it to be kept open by the villagers in future. Remission had to be granted last year to the ryots holding land under this channel. The estimate is high, but nothing has been spent on this channel for many years.

9. Vencatasamoodrum small tank; estimate Rs 695. The escape and sluices are in good order and of sufficient capacity, but the bund has been simply worn away, no repairs having been executed to this tank for an unknown period. This estimate has been prepared at the request of the Revenue Authorities.

10. Bodireddipattadai spring Channel; Estimate Rs 420. The head of this channel is silted up beyond the capacity of the villagers for clearing it and the estimate provides for reopening it.

11. Pasoomattoor small tank; estimate Rs 380. The tank has at present no escape and a separate estimate has been sanctioned for one thirty feet in length, the drainage area being about three quarters of a square mile. The present estimate refers only to the bund, the condition of which will be seen from the section.

12. Ramacooppum tank; estimate Rs 1040. The drainage area is two and a half square miles, and the present length of escape (45 feet) is entirely insufficient the bund having breached at the east end. The estimate provides for extending the eastern escape so as to give a total length of 110 feet. The bund is in a very shaking condition. A portion of the cost of this work will be recovered from the "Dasabundamdar" who holds land under the tank on condition of keeping a portion of it in good order.

Pengarauntah

13. Pengaraguntah tank, estimate Rs 1000. The escape provision is ample as regards length, but the escape requires repair, and the sluice is in a state of entire ruin; no repair has been executed to this tank within any period of which we have records, and the revenue will probably be greatly increased if the tank be put into proper order.

14. Athicoppam tank; estimate Rs 600. The tank is a small one, the existing escape thirty feet in length is sufficient, but the sluice is out of repair, and the condition of the bund will be seen from the sections. The revenue will probably be greatly increased by the repair of the tank.

15. These last three estimates are large compared with the revenues of the tanks, but the latter have had no repairs for an indefinite period; indeed the tanks in the Palmanair Talug generally seem to have been a good deal neglected of late years.

16. The forms given to the sides of

the escapes as shown on the plans are not altogether suitable, but this will be altered in carrying out the works.

[illegible]

17. The rates entered in the esti-mates are those which experience has shown to be necessary. Average rates have been taken throughout; on this point as well as on one or two others noticed in your Memo No. 286 of 21st Ultimo, I propose to write more fully when reforwarding the estimates returned with that Memorandum.

I have the honour to be,

Sir,

Your most Obedt Servant,

J. Pennycuick Captain R.E.,

District Engineer,

North Arcot.

No 7/4

Fr.
The District Engineer
North Arcot.
To
The Chief Engineer
for Irrigation
Madras.

Dated 7th } May 1874
Received 9th }

No. 340.
Enclosures 34.

Forwards for sanction estimates for the repairing of tanks in the Chittoor Range of this District with remarks ——

R. 376 6 July/74
P.W. 357/4/74

15

MEMORANDUM.

Requested for reference the under-mentioned papers :—

Enclosures sent to Govt. with note No. 334 B dated 20th May 74.

Office of the Chief Engineer
for Irrigation,
22 June 1874

D. N. Hawkins
Head Clerk.

To
The Registrar of the P.W. Sect.

No/1

No. 334 B.

170

Note by the Chief Engineer for Irrigation

The following estimates for the repair of Tanks in the Chittoor Range of the North Arcot District submitted by th Dt. Engineer North Arcot as beyond the limits of local sanction, are recommende for sanction.

1.

Thumbully Tank, Esti:	Rs:	2,630
Acreage.	acres.	115
Ayacut Revenue . . .	Rs:	723
Average — do —	"	729

no expenditure has been incurred in the last four years.

It is proposed to provide flush escapes having a length of crest of 147 feet, and the drainage basin is reported to be about 2½ square mile If so the surplus weirs will be ample, as probably a maximum discharge would not exceed 20 inches in depth.

The positions of the cross sections are denoted by letters on the longitudinal section, but no corresponding letters are attached to the cross sections. That which appears to be I, shows the bund to be below full tank level and it may be noticed that here, if the alignment admits of it, the new earthwork should be placed inside the old bund, and then a much less quantity will suffice.

The masonry aprons of the surplus weirs and their retaining walls should be secured by an outer rough stone apron.

An average rate for all the earthwork is not proper where the circumstances of different portions of the work vary so considerably: the rate should be fixed with reference to the lead and lift.

Probably turfing the bund may be omitted with advantage, and dibbling in grass, if the soil be suitable, will be cheaper and more effective.

2. Mustarisacorpum Tank Est: Rs. 1960

Acreage	113
Ayacut Revenue	619
Average do	576.

Expenditure during the last 4 years Rs. 150.

The bund as regards earthworks requires but moderate repairs, the principal work provided for being the reconstruction of the old revetment, additions thereto, and the extension of the waste weirs to a total length of 200 feet. The drainage basin proper of the tank is reported to be 2½ square miles, and that of tanks surplusing into it 3½ square miles; and, as a maximum flood discharge from 6 square miles would give a depth of about 2 feet on the surplus weirs the provision is likely to be sufficient, though the capacities and dimensions of waste weirs of the tanks above should have been stated, and the sufficiency of the arrangements with reference thereto explained.

The rates an average of 1½ Annas for earthworks and 1 Rupee for new stone revetment, seem to require examination. The atlas sheet shows hills within a short distance from which stone is probably procurable. Care must be taken that the revetments are substantially constructed with gravel backing where necessary. The retaining walls of the weirs should be secured by rough stone outer aprons.

3. Bungarappah Tank of Vasanthapuram.

Estimate - - - - Rs: 1890
Area - - - Acres: 112
Ayacut Revenue. Rs: 814
Average — do — " 787.

The earthworks to be executed are moderate, and with one exception - Cross section A. the intended position of the new Earthwork is good. There the inside rather than the outside of the old bund would seem to be better - The propriety of the average rate of 1½ Annas a cubic yd: is doubtful. Rs: 292 are proposed to be spent on new, and Rs: 246 on old revetment. Attention should be given to backing where necessary.

The drainage basin is said to be 4 square miles, and the restored waste weir is to be 100 feet in length, and in the report attached to the Estimate it is said that the maximum depth passing over will be 18 inches, but this is

altogether

21 5

altogether wrong as it would be between 31 and 32 inches. The surplus weir should therefore be made 150 feet in length, and the maximum depth will then be about 24 inches. The weir would be very likely to be damaged if the retaining wall were left unprotected as shown in the plan; and an outer rough stone apron should be provided. The lengthening of the weir will cost about 240 Rs: and the rough stone apron about 75 Rs:, but 115 Rs: may be deducted from the items for turfing leaving sufficient for dibbling in grass, and the revised amount of the estimate will then be 2090 Rupees.

3 yds: wide & 2 ft: deep.

The bund as shown on the sluice plan is of very irregular section, and it should be brought to the ~~nominal~~ normal section and the sluice built accordingly - The length of the rear wall as designed would have been altogether insufficient as the slopes in rear of it would have been less than 1 to 1. Small waterwings should be allowed like those of

a

a road tunnel. The sluice tunnel is only 1¼ ft. square, it should be large enough to admit of its being examined and 2×2½ are as small dimensions as will admit of this. Arches are usually preferable to flat stones, unless the latter fit very closely. The acreage under a sluice should always be marked on a plan, as also the full discharge required, and it should be likewise noted what depth of water on the sill is the minimum at which this discharge can, with the openings allowed, be passed.

4. Repairing bund of Cooporeddytangle in Poiney Anicut Western channel.

Estimate		Rs: 140
Ayacut area	acres	24
" Revenue		Rs: 135
Average do.		" 126
Expenditure in last 4 years		" 315

It is quite time that all the irrigation under the Poiney Anicut were formed

into

into a group, with sub groups for the two banks of the river.

The work estimated for is the stoppage of leakage which endangers the tank and consequently the channel. The rate, annas 3 a cubic yard, for removing and remaking the bank appears to be needlessly high.

5. Goodanagaram Tank. Estimate Rs: 1960. The Tank requires extensive repairs. Similar observations to those already made above are applicable to the earthwork rate, the turfing, and the outer apron required for the waste weir. 125 feet would be a proper length of waste weir crest for the drainage basin of 3 square miles, but as one escape is a simple wall on ground level an additional 10 feet may with advantage be allowed, and this latter work should be made 75 feet instead of 40 feet long. The saving on turfing will, with an addition of 40 Rs: to the estimate, suffice for this alteration, and for the rough stone apron 2 yards in width required for the other waste weir.

The estimate will then be Rs: 2000 -

6. Bodereddy Pattadah Spring Channel -

Estimate Rs: 420 - Ayacut area . . . acres 50
Revenue . . . Rs: 503
Average - do ——— " 383.
Expenditure in the last 4 years " 175.

Nine feet of the width of excavation may be omitted. The only use of the two 4½ ft. berms is apparently to make a place for the ryots to place their periodical clearances, which should be taken entirely out of the channel. The rate for such clearance when the depth does not average more than 2 yards should not certainly in such easy material exceed 1 anna: the earthworks will then amount to 200 Rs: instead of 356, and the total of the estimate to Rs: 260 - The villagers should do the work.

7. Ramacroopum Tank - Estimate Rs: 1,040
Ayacut area . . . acres 82
" Revenue . . . Rs: 487
Average - do - . . . " 391

The longitudinal section shows the bund to be in an inefficient state, and the means of

of disposing of surplus are evidently insufficient. The rate 2 annas a cubic yard allowed for earthwork is high - Rupees 145 will be payable by a Dasabundumdar, so that the Govt: outlay will be Rs: 895. The extension of the surplus weir to a length of 110 feet will render the tank which has a catchment basin of 2½ square miles secure -

8. Rungaragunta Tank - Estimate Rs: 1,000
Ayacut area . . . acres - 95
" Revenue . . . Rs: 257
Average do. " 150

It is reported that there have been no repairs executed to this tank within the period for which there are records - Rs: 400 of the estimate are for a new sluice, a large sum for the small acreage, but the depth of water, 10 feet, is unusually great for a small tank: the rear slope of the bund will not be properly retained unless the side wall of the cistern or water wings be lengthened a few feet - The sluice tunnel should be large enough for inspection - The

District Engineer states that a considerable increase of revenue may be anticipated from rendering the tank efficient, and it will be seen that if only the Ayacut Revenue be secured it will be worth while to spend the amount of the estimate.

9. It will be well for Capt. Pennycuick to examine the rates generally, as well as in the particular cases noticed, and items for turfing should be reduced as far as possible

10. The other estimates received from the Dt. Engineer have been returned for revision.

Ootacamund }
20th May 1874 }

Lieut. Col. R.E.
Chief Engineer for Irrigation

To
The Secretary to
Govt. P.W.D.

P. W. 1874 Depart.
Pro: of Govt for July
No. 3574.

From.

The Chief Engineer
for Irrigation.

To.

The Secretary to Govt.
P. W. Dept:
No: 334 B.

Dated 20th May } 1874.
Recd 12th June }

Enclosures. 37. 36 [illegible]
+ 20 [illegible]

Submitting for sanction estimates for the repair of tanks and other irrigation works in the North Arcot District.

G-O No 1799 - 6-7-74

No ~~74~~ 75.

Public Works Department
1799

Proceedings of the Madras Government
Read the following

From The Chief Engr for Irrigation (Here Enter No 334 B dated 26 May 1874)
Do Dt Engr North Arcot (Do No 340-D 7th May/74)

In accordance with the recommendation of the Chief Engineer for Irrigation, the following Agricultural repair estimates for the Chittor Range are sanctioned.

Chittor Taluq.	Thembully Tank	Rs 2,630
	Mustarisacoopum Tank	" 1,960
	Bungarappah Tank of Vasanthapuram	" 2,090
	Coopooreddy Tangle -	140

Goodanagaram

Goodanagaram Tank	Rs 2,000	Goodiattum Taluq
Bodareddy Pattadah spring channel	" 260	
Ramacoopum Tank . . .	" 1040	Palamanair Do
Pengaraguntah Do . . .	" 1,000	

2. The District Engineer's attention should be specially given to the remarks of the Chief Engineer for Irrigation. The use of average rates adverted to in Captn. Pennycuick's 17th para. cannot be approved

G.N.W.

Wm. 23/5/74

To. The District Engr. N. Arcot ✓
" Cont. P.W. Accts. ✓
" Chief Engr. for Irrign. ✓

S. Copies despd. to all 13/7/74.

3574

Govt. of 1874 Madras.

PUBLIC WORKS.

To

The Dist. Engr.
N. Arcot

Dated

Recd. Encl. /

G. O. 6th July 1874, No. 1799

Nos. 74-76.

Tanks – North Arcot

Estimates for the repair of tanks and other irrigation works in the North Arcot Dt. sanctioned with remarks –