(1) பக்கங்களின் எண்ணிக்கை 40

(2) புதுக்கித் திருப்பிய நாள் ஜனவரி 1989

(3) ஆதாரங்குறிப்பவர் சுருக்கொப்பம்

தமிழ்நாடு ஆவணக் காப்பகம்.

(30)

தமிழ்நாடு அரசு

P.W.D துறை

அரசாணை எண். 811

மு. கோப்புத் தாள் எண்.

அச்சகம்

பலவகை

நாள் : 16-3-1889 ~~198 .~~

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மடிக்கவோ கண்டபடி கையாளவோ கூடாது

20 Sheets

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16th March 1889, No. 811 W., Public Works.

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GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

Read—the following paper:—

Proceedings of the Board of Revenue (Separate Revenue), dated 5th February 1889, Mis. No. 397.

Read—the following papers:—

From Lieutenant-Colonel R. R. E. DRAKE-BROCKMAN, R.E., Superintending Engineer, I Circle, to the Chief Engineer for Irrigation, dated Dowlaishweram, 10th October 1888, No. 1887 G.D.

With reference to para. 33 of your inspection notes printed with G.O., No. 580 I., dated 29th September 1887, I have the honor to forward, for the sanction of Government and for an appropriation of funds, a revised estimate, amounting to Rs. 7,500, for "constructing an aqueduct over Chollangy Salt creek," "Kovur-Munjair Junction Canal project," "Canal and Ferry Funds," in the Godávari Eastern division.

2. The original estimate for the canal (Rs. 1,45,525) was sanctioned in G.O., No. 336 I., dated 30th March 1885. The officers of the Salt department now wish to have the aqueduct work carried out, although they formerly objected to it.

3. The above estimate was prepared by Mr. I. C. Larminie, the then Executive Engineer, in October 1882, and the present Executive Engineer reports that the rates allowed in it are now applicable.

From the Acting Chief Engineer for Irrigation, to the Commissioner of Salt and Abkári Revenue, dated Chepâk, 24th October 1888, No. 276 M.

In submitting, for sanction, a revised estimate, amounting to Rs. 7,500, for constructing, from Canal and Ferry Funds, an aqueduct over the Chollangy Salt creek, Kovur-Munjair Junction canal, in the Godávari Eastern division, the Superintending Engineer, I Circle, states, in his letter No. 1887 G.D., dated 10th instant, that "the officers of the Salt department now wish to have the aqueduct work carried out, although they formerly objected to it."

2. Before recommending the estimate for the sanction of Government, I have the honor to request, with reference to your predecessor's letter No. 14014, dated 15th December 1882, to the Secretary to the Board of Revenue and the correspondence connected therewith, that you will be so good as to inform me whether you concur in the opinion now expressed by the local Salt officers as to the desirability of constructing the aqueduct. They now consider, and doubtless rightly, that cutting off the land waters from the Chollangy creek has encouraged its silting up, and that by taking the drainage into it again the former more satisfactory state of affairs will be restored.

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3. This department considers it absolutely essential that this work should be built to admit of the land above it being properly drained.

4. The manufacture of salt is all over by June and as but little drainage has to be passed before that month, that small quantity can, if wished, be prevented from passing into the creek by means of shutters at the upper end of the proposed work.

Reference thereon, dated 14th November 1888, Reference on General Register No. 9937 of 1888.

The file of the papers connected with the construction of Kovur-Munjair canal will be forwarded to the Assistant Commissioner, Masulipatam, for very *early* report, through the Deputy Commissioner, Northern Division. The original papers are sent to save delay; they should be returned with the reply.

2. So far as the Board are aware, there has been no correspondence on the subject, which could have led the Salt department to change the opinion, which the Commissioner (Mr. Bliss) held as regards the needlessness of the aqueduct in the interests of Salt revenue. The statement in the letter under reference that "the officers of the Salt department now wish to have the aqueduct carried out, although they formerly objected to it," therefore requires explanation.

(Signed) HERBERT BRADLEY,
Secretary.

Read—also endorsement of the Deputy Commissioner of Salt and Abkári Revenue, Northern Division, dated 11th January 1889, No. 70.

Abstract.—Submitting a report from the Assistant Commissioner, Masulipatam Division, on the necessity of constructing an aqueduct and an under-tunnel so as to allow free passage of flood-water through the salt-creek for keeping it clear of the silt.

Resolution—dated 5th February 1889, Mis. No. 397.

From the second of the papers read above, it is clear that the construction of the aqueduct over the Chollangy Salt creek and the diversion of the drainage of the country to the west of the Katipolly road into the creek will improve, rather than injure, the prospects of the Penuguduru factory, and that the opinion which the Commissioner was led to form on the subject in 1882 was due to a misapprehension on the part of the local officers. The Chief Engineer for Irrigation will, therefore, be informed that the Board have no objection to the work referred to in his letter No. 276 M., dated 24th October 1888, being carried out.

(True Extract.)

(Signed) HERBERT BRADLEY,
Secretary.

No. 10 E.W.

Forwarded to the Chief Engineer, Public Works Department, with a recommendation that the estimate for constructing the aqueduct over the Chollangy Salt creek may be sanctioned, and that the funds required for its execution may be provided at an early date.

Chepâk,
18th February 1889.

(Signed) G. T. WALCH,
Ag. Chief Engineer for Irrigation.

To the Chief Engineer, Public Works Department.

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Order—dated 16th March 1889, No. 811 W., Public Works.

The estimate, amounting to Rs. 7,500, for constructing an aqueduct over the Chollangy drain, in the Godávari district, is sanctioned.

2. A sum of Rs. 4,000 has been provided for the work in the preliminary issue of the Incorporated Local Funds budget for 1889-90.

3. The Superintending Engineer will furnish the Examiner of Public Works Accounts with a copy of the abstract estimate for the work.

4. The sanction accorded in para. 1 of these proceedings has been registered as Local No. 23 W. of 1888-89, and classified as Communications, Original Works.

(True Extract.)

Captain, R.E.,
Under-Secy. to Govt., P.W.D.

To the Superintending Engineer, I Circle, with three enclosures.
" Examiner, Public Works Accounts.
" Chief Engineer for Irrigation.
" Revenue Department.

Exd. J. Henricus.
Spare Copies

BUILDINGS AND ROADS. 9
CIVIL WORKS.

Govt. of {1889} Madras.

PUBLIC WORKS.

Dated March, 16th.

Recd.
Encl.

G.O., 16th March 1889, No. 811 W.

MARCH.

Aqueduct over the Chollangy Drain

Estimate for an — in the Godávari district, sanctioned.

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30th March 1885, No. 336 I., Public Works.

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GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.
Account.

Read—the following papers :—

Proceedings of Madras Government, Public Works Dept., dated 1st July 1884, No. 621 I.
" " " Financial Department, " 6th March 1885, " 473.

Order—dated 30th March 1885, No. 336 I., Public Works.

The revised estimates, amounting to Rs. 1,45,525 or Rs. 1,82,074 including establishment and tools and plant charges for the Kovur-Munjair canal, approved of in proceedings of Madras Government, No. 621 I., dated 1st July 1884, are sanctioned and the works will be resumed at once. The expenditure on the canal will, pending settlement of the contributions from salt and local funds, continue to be debited to canal and ferry funds.

2. This sanction has been registered as No. 248 I. of 1884-85.

(True Extract.)

(Signed) J. O. HASTED, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, I Circle.
" Chief Engineer for Irrigation.
" Examiner, Public Works Accounts.
" Revenue Department.

Exd. A. Grubert.
Spare Copies

IRRIGATION.
ACCOUNT.

Govt. of (1885) Madras.

PUBLIC WORKS.

Dated March, 30th.

Recd. *Encl.*

G.O., 30th March 1885, No. 336 I.

MARCH.

Kovur-Munjair Canal

Revised estimate for the —, sanctioned.

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29th September 1887, No. 580 I., Public Works.

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GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Irrigation.

Notes of inspection by the Chief Engineer for Irrigation, Godávari Delta (August 1887), I Circle.

Godávari left bank above Rajahmundry.—This bank has no connection with the delta works, and the land that it protects is high and only flooded during heavy floods in the river.

The land drainage, for which provision has to be made in the bank, is large and, at $5\frac{5}{8}$ miles above Rajahmundry, the Thoregedda river passes through the bank; it drains about 375 square miles and to prevent the Godávari river, when in high flood, from backing up this river valley, a sluice, with only 267 square feet of waterway, was built, it is believed, about 1872. It was destroyed in November 1878, the cause being insufficient waterway and failure of foundations. In G.O., No. 856 I., dated 24th October 1882, a new sluice, with 900 square feet of waterway, was sanctioned, and it was completed in 1885; it had 15 vents of 5 feet each in width, 12 feet high, closed by double self-acting shutters, and cost Rs. 34,925.

This work, during the high flood of August 1886, had all the arches, sluice vents, &c., between the wings destroyed, and only the wings and floor remain, the former one cracked, but not badly, and the latter is reported to be not very seriously injured. The work evidently was thrown over by the pressure of the water on the river side; the head against it was, it is believed, nearly 13 feet, and the work was unable to stand it.

2. There would be no difficulty in restoring this work on a design strong enough to withstand the strain it is liable to, and I consider the wings and the greater portion of the apron and floorings could be utilised; the probable cost would be about Rs. 25,000, but I see no necessity for the work, and am of opinion that it was a mistake even attempting to close the Thoregedda river mouth. It is only in high floods that the Godávari water floods the land, and it is only when there are standing crops on it that any serious damage is done. I would propose, therefore, that this work should not be restored. In order to prevent the Godávari water from piling up against the rear of the bank below the mouth of the Thoregedda river (the site of the destroyed sluice), that the bank be cut down in two or more suitable places and so given vent back into the Godávari; the reduced level of the bank at these places should be at the equivalent level of the Godávari water at which it overtops the left water-shed of the Thoregedda valley, and this is believed to be the equivalent of about 11 feet on the crest of the anicut.

3. Below the mouth of the river there are four surplus sluices with self-acting shutters—

No. 1 of 1 vent.
No. 2 of 1 do.
No. 3 of 3 vents.
No. 4 of 3 do.

These are about 1, $1\frac{1}{2}$, $1\frac{3}{4}$ and $2\frac{1}{2}$ miles, respectively, above the town of Rajahmundry, and should be put in order and strengthened, so that during ordinary freshes the Godávari water may be kept off the land and vent given for the ordinary drainage.

No. 4 sluice was seriously injured in 1886; this year it was temporarily repaired, and acted well during this year's floods; with a new retaining wall and apron in front and rear and some repair the work should last for years and be efficient.

No. 3 was seriously injured in the flood of July 1887; the bank above it washed away, portion of the front gone, and the wings all destroyed; the barrels of the vents are, however, good and the work, at comparatively a small expense, can be made efficient.

No. 2 is cracked but in fair order; with new retaining walls and aprons in front and rear it will be stronger than it ever was.

No. 1 is in fair order but should be treated in the same manner.

4. Between Nos. 3 and 4 sluices, with the consent of the Superintending Engineer, a cross bank has been put up by the inhabitants of a new settlement west of the town of Rajahmundry, built on low ground just inside the bank of the river, and this effectually protected the houses newly built during the high flood of this year; this bank will be of course maintained by the owners of this property, but as the river bank here protects new valuable house property, it should be specially attended to and kept in thorough good order.

5. With regard to the above proposals, I have requested the Superintending Engineer to have inquiries made and the subject thoroughly investigated. I believe the result will be that we shall find no thorough protection has been given to this piece of land before 1872, and that the Godávari high floods have always gone over it, and this also was the case from 1878 to 1885; that little or no damage is done to the crops, &c., during these floods, and that it is best for all that no attempt should be made to close the mouth of the Thoregedda in the future; and it will be found, if the bank is levelled down, as proposed, and free vent given for the Godávari flood-water that in high floods enters the open mouth of Thoregedda river and collects behind the Godávari bank west of Rajahmundry, the extent of land flooded will be much reduced.

6. *Godávari right bank above Dowlaishweram anicut.*—This bank has to be maintained for the protection of the Western delta irrigation. At about 25 miles above the anicut a surplus is passed through the bank by a self-acting sluice; this work failed during the flood of 1886, and the Godávari flood water backing up this surplus overflowed the right water-shed of this valley, and, passing down the inside of the Godávari right bank, caused much damage to the Western delta. A new sluice was sanctioned and commenced, but not completed; the old sluice was repaired and considered strong enough to withstand any ordinary flood; unfortunately the flood of July 1887 was an extraordinary one (only 1 foot below the maximum flood on record, in August 1886) and it failed; the result was the Godávari water again caused much damage in the Western delta.

7. The new sluice will be completed next season; but the Superintending Engineer proposes, if found practicable, to throw a cross bank on the right bank of the surplus, and I agree with him that this should be done if possible; the effect of this will be that the Western delta will be safe from any accident to this sluice or the bank above; at present it is in danger when the river rises to about 13 feet on the crest of the anicut.

8. The approach to the lock head-sluices has always given much trouble, and the floods of this year appear to have carried away portions of the planting and stone revetments that had been put down to align the channel; when the river falls, it will be seen what is required; as far as can be judged now, the best thing will be to hold on to the alignment that has been laid down and work to it as far as possible.

9. *Head-sluice.*—A good work, nicely kept; the revetment at the left rear wing has fallen; this is from leakage through the bank. I have requested the Superintending Engineer to try a few roughstone drains put in this bank behind the revetment before it is rebuilt; probably they will drain the bank and prevent slips.

10. *Lock.*—This lock was believed to be in good order and therefore no provision was made for rebuilding it in the Central delta completion estimates. In Colonel Hasted's notes printed in G.O., No. 187 I., dated 20th February 1885, paragraph 16, he remarked that some of the old cracks had extended, but considered them of no consequence; since that, they have increased much and they are now serious, and evidently the old lock has been shaken by the high floods of the last two years.

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11. There is no doubt but that shortly we shall have to rebuild this lock, and, I think, in order to avoid all fear of an accident similar to the destruction of the head-sluice in the Central delta and the failure of the Dowlaishweram lock last year, that it is advisable that this lock should be rebuilt as soon as practicable. I would urge, if possible, it should be done next season.

12. With the Superintending Engineer the following was decided as the best arrangement for the new lock, and he has been requested to have the necessary plans and estimates prepared.

The lock should be a double lock as it is a head lock liable to a head of 17 feet of water (23 feet on sill less 6 feet in channel). As all the locks in the Central delta are second class (105 feet × 15 feet) there is no necessity for this lock to be larger than a double second-class lock, and when the river is not in high fresh, its chamber, upwards of 200 feet in length, will be capable of passing quickly all the traffic that will come to it.

The site for the lock must be determined when the plans are made, but it will be built as near the old lock as practicable, parallel to it and probably with its lower chamber opposite the present lock.

The probable cost will be Rs. 35,000, and, if funds can be given early this year, Rs. 20,000 could be with advantage expended this official year.

13. In the great flood of this year there were five serious breaches in the left bank of the Vasista-Godávari, the water from which swept across the Central delta; although it went over the Ralli head works and breached the canals, the damage done was not very serious, but of course banks were breached and some crops destroyed.

14. *Ralli head works.*—These works are completed and in good order. The head-quarters and office of the Central delta division has lately been moved to Ralli; there is no doubt but that it is the proper place for the head-quarters; the buildings, with a little improvement, will do well; these improvements should be completed as soon as practicable as the office, in its present state, is not what it should be.

15. There are two bad sets in the Godávari, at the 14th and 23rd miles of the canal; they are old sets that have caused anxiety for years; they are slowly but surely encroaching on the canal bank, and, no doubt, before long, diversions will be necessary. Land for the diversion of the canal in the 23rd mile has been taken up and probably it will have to be carried out next season.

16. In the Delta Project provision is made for a new surplus weir (to discharge surplus canal water) in the left bank at the 14th mile, and a lock and weir in the canal at the 15th mile.

In the report on the completion estimates, paragraph 17, it is remarked that the set just above the proposed site of this lock had much improved, and that, probably, no alteration will be necessary in the line of the canal. I regret to say that now, five years later, we find the set again dangerous, and, as this is the case, it is proposed to change the site of the lock and weir to the 16th mile, one mile lower down, so that it may be safe, should, as now probably will be the case, a diversion of the canal be necessary. The lock weir at the 15th mile has been built, but not the surplus weir at the 14th mile; the former will therefore be utilised as the surplus weir; this can be done as the designs for the works are similar.

The alteration of the site of the lock is advantageous in another way—it will be 8 miles below the lock at Ralli and 12 miles above that at Moondipulunka lock, instead of 13 miles; this will enable the second reach of the canal to be better regulated. The Superintending Engineer has been requested to send in the necessary revised estimates.

17. There was a bad breach in the 21st mile; this was on the site of last year's breach; the breach has been ring-bunded, but care must be taken that the bank is made strong and good before next year's floods.

18. *Gunnaram aqueduct.*—The trough tow-paths, &c., of this work have been placed in good order, and it is believed this portion of the work is in a thoroughly safe condition; but the aprons, &c., require constant attention and are not in a satisfactory condition.

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The roughstone apron, especially on the upstream side of the work and at the cut-waters, is yearly attended to, but often serious holes are found. Last year, at one of these holes, in front of a pier, an opening was found between the top of a well and the basement into which a rod, 8 feet in length, could be thrust. I consider it absolutely necessary that the work should have permanent protection given to it on the upstream side, and in this the Superintending Engineer agrees with me.

19. The following is proposed:—

A retaining wall to be put down in front of the work not less than 15 feet from the ends of the cut-waters or as near as the existing roughstone apron will allow; that, between this and the work, a concrete apron 1½ feet thick be placed; that the floorings of the arches be made thoroughly good with concrete and stone.

The retaining wall to be of masonry, about 2½ feet average breadth and 4 feet depth, resting on square wells, say, 4 × 5 outside and 2½ × 3½ inside, sunk 5 or 6 feet deep and filled with concrete.

With this addition and care and attention paid to the lower apron, there should be no fear for the work; but as it is at present, it is certainly in a dangerous state. The work should be commenced next season, as early as practicable, beginning at the northern end, which is the most exposed, and the work carried on, year by year, as opportunity and funds allow; probably, as it proceeds, modifications in the plan proposed will be found advisable, but what is required is a permanent front retaining wall and apron; the probable cost of this is about Rs. 17,000, and it is hoped it may be completed in three years.

20. The new lock at Moondipulunka and weir have been completed, and are good, sound works; the weir crest was cut down, after the accident at Gunnaram, so as to lower the water at that work. This will be restored next season.

21. At the 36th and 37th miles of this canal there is a bad set on the canal right bank, which is also the river bank; this is called the Bazole set and has caused trouble for years. The upper part of this set has much improved, but the river now is attacking the bank lower down, and below the bridge across the canal the bank is in a dangerous state. All that can be done is to throw in stone so as to form a good toe to the bank, and this is being done. It is hoped that by this the river may be kept off as has been done in the upper portion of the set with success.

22. At Sivakodu the new lock and weir are almost completed; all that has to be done is coping, establishment huts, and completing approaches, &c.

For the Vepachettu new aqueduct, materials are being collected and the work will be carried out next year.

The new tidal lock and sluice at Sakinetipalli are almost completed; the Superintending Engineer is going to raise the coping of this lock as the extraordinary flood of last year shows it is advisable to do so.

23. The new works in this delta sanctioned under the completion project are now approaching completion, but there are many small works, sluices, &c., not commenced which will be completed as soon as practicable; there remain also to be done the widening, &c., of the main canal from the head to the Ralli head works, which will, it is hoped, be completed next season, and the Bendamur canal works.

With regard to this canal, the sanctioned proposal was to retain the Indupalli weir but to build a new lock to carry the navigable canal on to a new tidal lock to be built at the 44th mile (see paragraph 34 of the report). For the last 9 miles of this canal it was to be carried on the line of the existing irrigation channel close under the left bank of the Vainteyam Godávari. This line must be given up as the river has in many places cut in and necessitated diversions of the canal, and experience here and elsewhere show that it is not advisable to have important navigation lines close to river banks which have constantly to be thrown back in consequence of river sets.

The best line for this canal is under consideration, and the question, which is a serious one, will take some little time to decide as much information has to be collected; and as this is the case, the Superintending Engineer has very properly not carried out any of the works of the Bendamur canal, the estimated cost of which are Rs. 66,070.

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24. The high floods of July 1887 did a considerable amount of damage to this delta by the additional Godávari water that entered it through the breach (referred to in paragraph 6 of these notes) in the Godávari south bank 20 miles west of the anicut. The water through this breach passed over the water-shed in the floods of 19th and 28th July that rose to 15·9 and 13·7, respectively, on the anicut gauge, but did not do so in the flood of 23rd August, the height of which was 12·8.

I hope that it will be found that the cross bank proposed by the Superintending Engineer can be made, and if this is done there will be no fear of damage to the delta from breaches or accident to the Godávari bank west of it.

There was no damage to any masonry works, but the Nundamur weir channel left bank was breached in a low place, and afterwards much difficulty was found in closing it. It was finally closed by putting a stone dam across the Ellore canal, which was removed after the beach was closed. Navigation was stopped for nearly twenty days.

25. The works in this delta under the completion estimates have been nearly all completed, and what is required now is careful attention to maintenance and repairs. Here, as in the other deltas, the bank canal is a constant source of anxiety, and diversions are frequently necessary in consequence of sets in the Godávari river. I inspected this canal, and the following show its present state.

At the 18th mile there has been, for the last fourteen years, a severe set on the bank, which was successfully fought against until two years ago, when a diversion about 1½ miles long was made (see paragraph 10 of the Chief Engineer for Irrigation's notes printed in G.O., No. 187 I., dated 20th February 1885).

At the 23rd mile a diversion was made about two years ago; the old canal has fallen in for about a quarter of a mile; the river is still cutting in, but probably will not do so much more.

At the 38th mile there is a very bad set for some distance, and in one place there has been a slip and more than half of the bank has fallen in for about 30 feet.

Stone has been collected and will be put down at once, but here a diversion will be necessary, probably this year. Two lines have been marked off but the final line has not been decided on. I think a modification of the two lines selected will be best, and the Local Fund bridge can be saved.

At the 40th mile of the canal mileage there is a bad set (see paragraph 9 of the Chief Engineer for Irrigation's notes) called Kodair set. This is not serious as yet, and it is hoped no diversion will be necessary; some stone has been collected for its protection.

26. *Nakkala drainage outfall.*—This work was completed in 1884, and is a good, substantial work; it has eight vents with self-acting shutters below and screw shutters above them; the latter should have gauge rods attached to them as, at present, there is nothing to show whether they are shut or open.

The cracks noticed by the Chief Engineer for Irrigation in his inspection in 1885 have not increased.

27. *The Vijesweram lock.*—Head and under sluices are in good order and well kept, but gauge rods are required for the shutters of the head and under sluices to enable the height to which the shutters of the vents are raised to be seen without difficulty; this is specially necessary when the shutters of the vents are divided into two or three leaves.

I have discussed with the Superintending Engineer several plans by which this can be done, and requested him to try some of them and adopt the one that in practice proves itself the best.

28. *New head lock at Dowlaishweram.*—This work is almost completed and a credit to all concerned; all that is required to complete it is coping, hanging the rear gates and finishing off.

The old lock opening is to be made into two additional vents to the head sluice; this work will be put in hand next season, and when this is done and the steps below the lock on the left side of the canal, the Eastern delta head works will be in thorough order.

29. *Quarries.*—There is no difficulty at present in supplying the delta with all the stone that is required, and, of course, now that the works are approaching completion, the quantity of stone required is not so great as it has been.

We have the following quarries :—

(1) *Dowlaishweram quarries.*—To these there is the tramway, but the hill is worked out and we cannot hope to get more cut or good building stone from it; but there is still a large supply of ordinary groyne stone and any amount of concrete stone; the tramway therefore is to be kept up.

(2) *Sapper hill quarry.*—The large quarry that was opened some years ago is worked out, and the tramway to it has been taken up; there is on the hill, scattered about, plenty of good building stone, and this is carted down to the quarry channel loading place; it is not thought likely that it will be advisable to lay down the tramway to this place.

(3) *Razole quarries.*—These are situated about 3 miles down the canal; access to them is by a quarry channel 2 miles long and cartage another 2 miles; the stone is good and there is a plenty available.

(4) *Yerampolliem quarries.*—Are about 2 miles from the 7th mile of the Sámalkot canal by means of a tramway; the stone brought to the canal is good and the supply should last for years. The disadvantage of the last two quarries is that, except for the Eastern delta, there is additional water carriage, and in case of accident to the Dowlaishweram head works, the stone could not be taken to the anicut head works or to the other deltas; as this is the case, it is necessary to keep the other quarries open. The Superintending Engineer is collecting, at suitable places, large quantities of stone on the lunkas above the anicut; this will be always available in case of accident, and this reserve should always be kept up.

30. *Workshops*—Are in good order. At present I am told they have sufficient woodwork in hand, but iron work is short. A large barge for the Priestman's dredger lately sanctioned will shortly be put in hand, and it is hoped that other work may be found for them.

31. *Steamers.*—The *Shamrock* has been put in order and is now available for towing boats. This steamer is old and cannot last much longer; she is also not powerful enough to take stone boats across the river in high flood.

A new powerful tug steamer has been ordered from Calcutta, and it is hoped she may be received and in working order before next season; and with her and, occasionally, the *Shamrock*, we ought to be able to cope with any accident or emergency that may arise.

The *Victoria* is not fit for towing stone boats; but this year, owing to the *Shamrock* not being fit for work during the floods, she had to be used, and she has taken large quantity of material across the river, and this, I trust, without damage to herself.

The *Arthur Cotton* is in good order and a most useful canal steamer.

32. *Cocanada canal.*—Is in very good order; the traffic on this canal is increasing yearly. In August this year, notwithstanding that the Western delta canals were closed for nearly ten days, the number of boats that passed through Dowlaishweram lock up and down was upwards of 1,500.

33. *New Junction canal.*—This canal was open throughout this year. It joins the Cocanada and Coringa canals and is taken right across the drainage of the country. It is a still water canal and doubtless will prove a valuable line of communication.

There are two large aqueducts on it, the Tooliabaga and the Kurada; the latter has been built some time; there are some cracks in it, but the work appears sound, and I have no doubt but that, with attention, the cracks will be closed in a year or so.

The Tooliabaga is a large work across one of the main drains of the Eastern delta. It is a fine work, nearly completed, but this work, in heavy rains, backs up the drainage water to some extent. In the original project a third aqueduct was to have been built across a drainage that passes into the Cholangi creek, on which the salt factory is situated, about 5 miles south of Cocanada. This work was, however, given up for the present at the request of the Salt Department, who wished to keep out fresh water from the salt pans as much as possible. The drainage has therefore been sent into the Tooliabaga by a new channel cut for the purpose. I regret that this has been done, and think that the work will have to be built so that the land may be properly drained. The Superintending Engineer is collecting information regarding the damage done to the cultivation by closing this natural drainage. As the salt manufactory is all over by June and as drainage is not required to any extent before that month, if the work is provided with shutters there can be no damage to the salt factory, and, of course, the cultivation above the canal must be properly drained.

34. This canal, crossing the drainage of the country and being embanked in bad soil in many places, must be liable to accident during heavy rains. A breach in the canal, if not closed at once, would drain the lower reaches of the Cocanada and Coringa canals. As this is the case, the Superintending Engineer is going to have at each end of this canal a roughstone flooring with side revetments put down; this will enable the canal to be closed, with a stone dam, quickly, should, in consequence of a breach, it be necessary to do so.

BERHAMPORE,
11th September 1887.
(Signed) H. R. MEAD, Col., R.E.,
Chief Engineer for Irrigation.

No. 108 I.

Submitted for the information of Government.

BERHAMPORE,
11th September 1887.
(Signed) H. R. MEAD, Col., R.E.,
Chief Engineer for Irrigation.

To the Joint Secretary to Government,
Public Works Department, Irrigation Branch.

ORDER—dated 29th September 1887, No. 580 I., Public Works.

Communicated to the Superintending Engineer, I Circle, for information and guidance.

2. The Superintending Engineer will see that due and early attention is paid to the directions of the Chief Engineer for Irrigation in the foregoing notes.

(True Extract.)

(Signed) H. R. MEAD, Colonel, R.E.,
Joint Secy. to Govt., P.W.D.,
Irrigation Branch.

To the Superintending Engineer, I Circle.
" Chief Engineer for Irrigation.
" Examiner, Public Works Accounts.
" Revenue Department.

Exd. E. Fernandez.
Spare Copies

IRRIGATION.

Govt. of {1887} Madras.

PUBLIC WORKS.

Dated September, 29th.

Recd.

Encs.

G.O., 29th Sept. 1887, No. 580 I.

SEPTEMBER.

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17

Godavari Delta

Notes of inspection by the Chief Engineer for Irrigation on the —, communicated to the Superintending Engineer, I. Circle, with remarks.

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R.S. 28/11

Public Works Department.

Current No. 1687

Letter No. 10 E.W.

Dated 18th February 1889

From the Ag. Chief Engr. for Irrigation

Sanction

NOTE OF REMARKS.

The estimate under review amounting to Rs 7,500 provides for constructing an Aqueduct over the Chollangy Salt creek in the Godavari Eastern Division.

The object of the work is to afford a free passage for flood water through the Salt Creek to keep it clear of silt.

It is explained that under a misapprehension the local officers of the Salt Depts objected to the construction of this work when it was proposed some years ago. This work is now

found to be necessary
as the creek is getting
choked with silt -

The Chief Engineer
for Irrigation is in
favour of the work
on the grounds that
it will not only
favour the prospects
of the Salt Factory
but that it will
be the means of
draining the cultivated
lands above -

The proposed Aqueduct
and under tunnel
is of the usual
type and will be
constructed as
follows:

The piers wings & side
walls are to be constructed
of rough stone in mortar
and will be founded
on platform of concrete
3 feet in depth.

The arch work will
be of brick in mortar,
the facings of the archwork,
copings to side walls,
parapets & wings
are to be of cut stone
in mortar.

Soffits of the arches are
to be plastered with

Portland Cement -
The abutments and pier
are also to be founded
Wings including
returns, parapets
and face walls are
to be of concrete work
Provision is made
for a rough stone
apron and for
revetting the side
slopes of the canal

The following rates
are in excess of
those given in the
Schedule for the
Godavari Eastern
Division -

Concrete in Surki mortar
Rs 15-9 per 100 cft against
Rs 9-12 -

Brick in chunam
Rs 25 per 100 cft against
Rs 20 -

Grout Rs 4-4-0 per
100 cft against Rs 0-11-0

A saving of Rs 1056
may be effected
in the Estimate
by adopting the
rates given in the
Schedule, but the
Supdg: Engr. in

The concluding para of the letter remarks that the Est: was prepared by Mr. Larminie in October 1882 and that the present Ex: Engr: reports that the rates allowed in it are now applicable.

The following lump-sum provisions are made in the Est:

Bailing Rs 1000
Centering " 150
Excavating foundations " 800
Contingencies 5 per cent.

The plan and Est: are signed by the Supg Engr:

24/4/89

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Prcd
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No. 1887 G.D. 18

FROM,

Lt Col. R.R.E. Drake Brockman R.E.

~~THE~~ SUPERINTENDING ENGINEER

FIRST CIRCLE.

TO,

THE CHIEF ENGINEER

FOR IRRIGATION.

DOWLAISHWARAM, 10th October 1888

Enclos 2

SIR,

With reference to para 33 of your Inspection Notes printed with G.O. No. 580 I. dated 29-9-87, I have the honor to forward for the sanction of Govt. & for an appropriation of funds a revised estimate amounting to Rs. 7,500 for "constructing an Aqueduct over Chollangy Salt creek" "Koringa-Manjair junction Canal Project" "Canal & Ferry Funds" in the Godavari Eastern Division.

2 The original estimate for the Canal (Rs. 1,45,525) was sanctioned in G.O. No. 336 I. dated 30-3-85. The Officers of the Salt Department now wish to have the Aqueduct work carried out, although they formerly objected to it.

9

3. The above estimate was prepared by Mr. I. C. Larminie the then Ex:

9

Engineer in October 1882 & the present Executive Engineer reports that the rates allowed in it are now applicable.

I have the honor to be,
Sir,
Your most obedient Sᵗ
Drake-Brockman Lᵗ Colˡ R.E.
Supᵗ Engʳ 1ˢᵗ Circle.

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FROM,
Lt Col R. R. E. Drake-Brockman R.E.
~~THE~~ SUPERINTENDING ENGINEER

FIRST CIRCLE.

TO,

THE CHIEF ENGINEER

FOR IRRIGATION.

DATED 10th
DESPTCHED 12th
RECEIVED
} October 1888

NO. 1887 G.D.

ENCLOSURES. 2

SUBJECT.

Aqueduct over Cholungy Creek -

Submits an Estimate for Constructing an - for sanction and appropriation of funds -

Register & return
16/10/88

No 276 CE 2P

811/13

Prmi/2

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To
the Commissioner
Salt & Abkarry Revn

Sir,

(1) In submitting for sanction a revised estimate, amtg to R 7500, for constructing from Canal and ferry funds, an aqueduct over the Chollangi Salt Creek, Koonnalum-jai junction Canal, in the Godavari Eastern dist, the Supg Engr, First Circle, states, in his letter, No. 1887 G.D., of 10th inst, that "the officers of the Salt dept now wish to have the aqueduct work

as they consider rightly that carried out, although they formerly objected to it." (2) Before ~~[illegible]~~, recommending the estimate for the sanction of Govt, I have the honor to request, with reference to your predecessor's letter No 14,014, of 15th Dec/82 to the Secy to the Bd of Revenue and the correspondence connected therewith, that you will be so good as to inform me whether you concur in the opinion now expressed by the local salt officers as to the desirability of constructing the aqueduct.x ~~Expe[illegible]~~

.x. They are considered, & doubtless rightly, that cutting off the land waters from the Cholavaram Creek has encouraged its silting up, and that by taking the drainage into it again the former more satisfactory state of affairs will be restored

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3V

(3) This Department considers it ~~has shown that it~~ is absolutely essential that this work should be built to admit of the land above it being properly drained.

(4) ~~As~~ The ~~salt~~ manufacturers of salt to allow, by June, but little drainage ~~and [illegible]~~ has to be passed ~~is not required~~ to ~~any extent~~ before that month, ~~if the~~ that small quantity can, if wished, be ~~[illegible]~~ prevented from passing into the Creek by means of shutters at the upper end of the work. If the work is provided with shutters there proposed can be no damage to the salt factory, and, of course, the cultivation above the canal must be properly drained.

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23/10/88

Chepauk
24-10-88

24/10/88

12

24/10 B.H.

nce on Genl Reg. No. 9937 of 1888.

In replying the above should be quoted.

REVENUE BOARD OFFICE, MADRAS.

4P

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811/15

Print/3

(Separate Revenue.)

READ letter from the Acting Chief Engineer for Irrigation, dated 24th October 1888, No. 276.M.

Reference thereon, dated 14th November 1888.

The file of the papers connected with the construction of Kovvur manginu canal will be forwarded to the Assistant Commissioner, Masulipatam, for very early report, through the Deputy Commissioner, Northern Division. The original papers are sent to save delay; they should be returned with the reply.

2. So far as the Board are aware, there has been no correspondence on the subject which could have led the Salt Department to change the opinion, which the Commissioner (Mr. Bliss) held as regards the needlessness of the aqueduct in the interests of Salt Revenue. The statement in the letter under reference that "the officers of the Salt Department now wish to have the aqueduct carried out, although they formerly objected to it" therefore requires

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explanation

explanation.

Herbert Bradley

Secretary

To

The Asstt. Commissioner, Masulipatam Dn. with a file of papers to be returned

– do – Deputy – do – Northern Division

Copy to the Chief Engineer for Irrigation ✓

REVENUE BOARD OFFICE MADRAS

5-P

811/16

Revenue

Proceedings of the Board of Revenue

(Separate Revenue).

Dated 5th February 1889.

No. 397 Ab.

Read letter from the Chief Engineer for Irrigation, dated 24th October 1888, No. 276 M.

Reference thereon, dated 14th November 1888.

Abstract. Read also endorsement of the Deputy Commissioner of Salt and Abkari Revenue, Northern Division, dated 11th January 1889, No. 70 Submitting a report ~~of~~ from the Assistant Commissioner, Masulipatam Division on the necessity of Constructing an aqueduct and an under Tunnel so as to allow free passage of flood water through the Salt Creek for keeping it clear of the silt.

Resolution

From the Second of the papers

above, it is clear that the Construction of the aqueduct over the Chollanghi Salt creek and the diversion of the drainage of the Country to the west of the Kalipolly road into the creek will improve rather than injure, the prospects of the Penugudum Factory and that the opinion which the Commissioner was led to form on the Subject in 1882 was ~~done~~ due to a misapprehension on the part of the local officers. The Chief Engineer for Irrigation will therefore be informed that the Board have no objection to the work referred to in his letter, No. 276 M, dated 24th October 1888, being carried out.

(True Extract)

Herbert W [illegible]

Secretary.

To The Chief Engineer for Irrigation

Copy to the Deputy Commissioner, Northern Dn.

— Assistant — do —, Masulipatam Dn.

1889.

Board of Revenue

(Separate Revenue),

MADRAS.

CHIEF ENGINEER
FOR IRRIGATION.
8-FEB.89
No. 67 M

To

The Chief Engineer for Irrigation

Proceedings, dated 5th February 1889.
No. 397 Mis:

Subject.

Informing him that the Board have no objection to the work of constructing an aqueduct over the Cholling salt creek, Kour-Munjair junction Canal in the Godavari Eastern Division being carried out.

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From the Supg Engineer 1st Circle, No 1889 G.D. dd 10 October 1887
To the Board of Revenue —— 276 M dd 24th —— Do ——
Proceedings of —— Do —— 9937 —— dd 14th November 1888
—— Do —— Do —— 397 —— dd 5 February 1889

No 10 E.W.

Ens. 6

Forwarded to the Chief Engineer P.W.D with a recommendation that the estimate for constructing the aqueduct over the Chollangi Salt Creek may be sanctioned, and that the funds required for its execution may be provided at an early date.

Chepauk
18th February 1889

For Ag Chief Engineer for Irrign

16

To,
The Chief Engineer P.W.D

R.W.C. No 1887

G.O. 336 I d/ 30.3.85
" 580 I d/ 29.9.87

B & R
Civil works

No 811 W 811/19

PUBLIC WORKS DEPARTMENT.

E P

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the 16th March/89

811

READ the following

Print with enclos. as marked

From the Chief Engineer for Irrigation. H.E. No: 10 E.W. d/ 18th February 1889.

The estimate amounting to Rs. 7,500, for constructing an aqueduct over the Chollangi ~~creek~~ drain in the Godavari District, is sanctioned.

2. A sum of Rs. 4,000 has been provided for the work in the preliminary issue of the Incorporated Local Funds Budget for 1889-90.

3. The Supty. Engineer will furnish the Examiner of P. W. Accounts with a copy of the abstract estimate for the work.

4. The sanction accorded in para 1 of these Proceedings has been registered as Local No: 23 W of 1888-89, and classified as Communications, Original Works.

27.2.89

27/2/89

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To The Supty. Engr. I Circle with 3 enclos.
" Examiner P. W. Accounts
" Chief Engr. for Irrigation
" Revenue Department.
(To The Revenue Secretary for favor of counter-initials)

W 20/2

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~~A~~

9º 386 9 M 30.3.85
580 9 M 39 9.89

Cons?
16/3/79

S. Mus.

R.S. 28.ii.89 Xnw 14.iii.89
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Govt. of (1889) Madras.
PUBLIC WORKS.

Dated

Recd.

Enkd.

G.O., 16 Mar 1889 No. 811 W

Aqueduct over the
Challangi drain
Est for an — in
the Pedanari Dt.,
sanctioned —

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110/1