M.R.O. 1—77,606—8-6-37.

(1) Number of pages 68

(2) Date of repair 18/20-12-43

(3) Initials of the Referencer

MADRAS RECORD OFFICE.

Government of Madras.

Public works **DEPARTMENT.**

G.O. No. 3028 Press / Mis.

340-41

Dated 17. 12 1862.

Not to be folded or roughly handled

16-12-43
12.12.43

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following Proceedings of the Board of Revenue, dated 4th December 1862:—

Read the following letter from Lieutenant-Colonel S. O. E. LUDLOW, R. E., Deputy Chief Engineer, Northern Circle, to W. HUDLESTON, Esq., Secretary to the Board of Revenue, dated Chepauk, 2nd December 1862, No. 360.

SIR,

1 Letter to Government No. 495, dated 2nd December 1862, with 15 enclosures.

1. I have the honor to forward for transmission to Government, with any remarks which the Board of Revenue may have to offer, a project estimated to cost 95,710 Rupees, for the improvement of the Poolairoo channel, in the Kistna District.

2. My own opinion of the scheme is set forth in my letter No. 495, dated 2nd December 1862, to the Secretary to Government, Department Public Works, and I have only to add that I think it very desirable that the work should, if possible, find a place in the next Budget (1863-64), and beg therefore that it may be forwarded with as little delay as possible.

From Lieutenant-Colonel S. O. E. LUDLOW, R. E., Deputy Chief Engineer, Northern Circle, to Colonel W. I. BIRDWOOD, R. E., Secretary to Government, Public Works Department, dated Chepauk, 2nd December 1862, No. 495:—

SIR,

1 Letter from the District Engineer, Kistna, No. 70, dated 24th September 1862.
1 Do. from do. No. 120, dated 15th November 1862, with one enclosure.
1 Do. from do. No. 110, dated 6th November 1862.
1 Estimate.
5 Specification Reports.
5 Plans.

1. I have the honor to forward an estimate amounting to 95,710 Rupees framed by the District Engineer Kistna, for the further development of the system of Navigation and Irrigation under the Kistna Anicut, by the improvement of the lower portion of the Poolairoo Channel.

2. The Poolairoo is an old Channel, used long before the construction of the Anicut; but since that construction apparently little improved (further than having its supply increased), only 6,511 Rupees having been expended in six years on its improvement, although the mere repairs of the Channel and its numerous branches have, during that period, cost ten times as much.

3. The project now submitted provides: first for the extension of the Poolairoo or [illegible] for a new branch from it between a point 7½ miles below Pamurroo and the Salt Cotar at Buntamilly.

4. The object of this branch is three-fold:—

(1st.) The formation of a navigable communication between the Salt Cotars at Buntamilly and the Masulipatam Canal, and so to Bezoarah, thus admitting of the conveyance of Salt from the Cotars to Bezoarah at all times, immediately after manufacture; whereas the Cotar is now inaccessible until December or January, and further saving the Brinjaries a journey through a Delta which yields no fodder for their cattle.

(2nd.) The drainage of the land adjacent to the Poolairoo at the lower part of its course, where, owing to the lowness of the ground and the slight fall of the channel, the want of an escape for surplus water, during heavy falls of rain, is found to be a source of the greatest inconvenience, and, from the expedients that have to be adopted to diminish the evil, of heavy expense, and, 3rdly, for the extension of irrigation in that direction.

5. The proposed Channel to Buntamilly will act most beneficially in at once relieving the lower portion of the Poolairoo from flooding, and from the manner in which it intersects the old Channel two independent Channels (one of them with two branches) are formed instead of one, and the additional capacity requisite for increased irrigation thus secured; while the regulating sluices at the head of each afford the means of controlling and distributing the supply as may by necessary.

6. Besides the excavation and embankment of 15¾ miles of a Channel 36 feet wide and costing 26,300 Rupees, this part of the scheme involves the construction of the following masonry works :—

	Rs.
Lock at Pamurroo to complete communication with Masulipatam Canal...	9,920
Do. at head of new Channel...	10,960
Calingulah at Pamurroo...	5,120
Do. at Buntamilly.....	1,810
Two do. between head and Buntamilly...	3,620
	31,430
Which added to cost of Channel...	26,300
Gives a total of....	57,730

for the cost of this part of the project.

7. The second part of the project provides for the improvement and extension of the Poolrazcodu, an existing Channel branching from the Pollaroo.

8. The Poolrazcodu at present runs into a swamp near the Colaur Lake irrigating only the lower lands, and even these (as explained by the District Engineer) very imperfectly, owing to its running on too low a level. But the country to the south of the Colaur Lake consists of a series of alternate ridges and hollows ; the former are consequently quite above the command of the Channel on its present level.

9. It is therefore proposed to raise the bed of the Poolrazcodu considerably and to embank it where it crosses the hollows, and to excavate a Channel in continuation on a higher level from the 6th mile to the village of Vijarumpaud in all 17½ miles. This Channel will be 30 feet wide at sole and have a fall of 5″ per mile.

10. It may eventually be extended to the Oopatair thus completing a navigable connection with the Godavery Delta, but this forms no part of the present project.

11. The new portion of the Poolrazcodu will receive an additional supply by a branch from Ryves' Channel.

12. The estimated cost of improving this Channel including a branch 6½ miles in length to the Coommalair is 25,390 Rupees for earthwork and 1,810 Rupees for a Calingulah, in all 27,200 Rupees.

13. The bed of the Poolairoo at the head of the Poolrazcodu will be raised 3′-9″, the silt of the lock-floor of the sluices being placed that much above the present level of the Channel bed. The bed of the Channel above will be left to silt up of itself. The fall per mile will then be 7″ for a distance of 17½ miles. The banks above will be gradually raised, the excavations made for the purpose sufficing to increase the capacity of the Channel to a width of 25 yards. The capabilities of the Channel will thus be enormously increased and the water so raised will be able to irrigate a tract of country immediately to the northward 5 or 6 miles wide, which is at present under dry cultivation, and by means of a new head to the Buttracodu (to be mentioned hereafter) much high land adjacent to the banks of that Channel will also be commanded. With the proposed capacity and fall the Pollaroo will be capable of irrigating 50,500 Acres under all its branches.

14. A new head from the Poolairoo to the Buttracodu Channel, at present branching from the Masulipatam Canal, is proposed with the double object of improving the supply and relieving the Canal from silting, a source at present of much inconvenience and expense. The cost of this new head and regulating sluice will be 2,250 Rupees.

15. Finally two Channels are to be taken from the north bank of the Poolairoo for the irrigation of 8 or 10,000 Acres at a total estimated cost of 8,530 Rupees including head sluices.

16. With respect to the returns that may be expected from the proposed works the District Engineer states that he is unable to show in detail to what extent dry cultivation can be converted into wet, but thinks that, if the project does what it promises, there can be no question that the revenue will be much increased. He shows that the profits from irrigation in the Masulipatam Delta have risen in the seven years since the Anicut was built from 6,422 to 1,14,599 Rupees, and supposes that half this profit has been derived from lands under the Poolairoo which will be improved by the works now proposed.

17. The Collector furnishes a rough estimate of the probable increase of revenue under the new works as far as they affect the Gudivada Talook. The additional income so expected is 27,725 Rupees, but the works will benefit other villages from which returns though called for have not been yet received.

18. The Collector is also of opinion that as a means of communication and drainage the scheme is likely to be highly advantageous.

19. I have after careful consideration formed a very favorable opinion of this project. The great drawback to the efficiency of the Poolairoo Channel and its branches is the low level on which they run, in the lower part of their course, in consequence of which the necessary command of the land is lost, the supply of water wasted and swamps are formed.

20. This evil the present scheme if carried out will effectually remedy and the drainage which it will secure is a most unquestionable advantage.

21. The utility of effecting a water communication between the Salt Cotars and Bezoarah is too obvious to require remark.

22. The only point upon which I had any doubt was whether the supply which the Channel receives at its head would suffice for the very large additional quantity of land proposed to be irrigated. On this point I have communicated by Telegraph with Major Anderson, but as yet received no reply. Knowing, however, how very desirous the Government here as well as the Home authorities are to promote the early extension of irrigation under the Kistna Anicut, and being very anxious to have this scheme entered if possible in the next Budget I availed myself of the opportunity which Captain Chambers' presence at Madras afforded of consulting him on the subject as I know him to be well acquainted with all the circumstances of the Channel.

23. He informs me that the supply of the Channel is abundant and all that it requires is to have the levels on which it runs corrected, and this the scheme now submitted will thoroughly effect.

24. I also put a question to him as to the necessity for irrigating sluices which the estimate does not provide for, and he tells me that palmyra sluices are in common use in that part of the District and will probably suffice.

25. Under these explanations I beg to recommend the estimate amounting in all to 95,710 Rupees for sanction and 25,000 of the amount for entry in the Budget for 1863-64.

26. I beg further, with reference to paragraph 20 of Major Anderson's letter No. 70, dated 24th September 1862, to recommend that with a view to expedite the work, he be allowed to incur such expenditure on the preparation of materials for the work, during the current year, as the District funds at his disposal will admit of.

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1. Ordered that the above letter and its enclosures be submitted for the early consideration of Government with the Board's strong recommendation in their favor.

2. The estimated cost of the works is Rupees 95,710, and the Acting Collector estimates that it will produce an annual return of Rupees 27,725 from extension of cultivation in one Táluq alone in which it will also effect a much needed improvement in the drainage, while it will also benefit some villages in another Táluq from which the detailed returns had not been received when he wrote.

3. The project will further afford an uninterrupted line of navigation from the Buntumilly Salt Pans to Bezwada, to which point the Brinjaries can resort at all times of the year without risking loss of cattle from want of forage, and may eventually be extended so as to form a navigable connection with the Godavery Delta by the Oopatair.

4. It appears to the Board very promising and deserving of all encouragement. They would recommend its inclusion in the Budget for 1863-64, and that authority be given to collect materials in anticipation.

(A true Copy and Extract.)

(Signed.) W. HUDLESTON, *Secretary.*

ORDER THEREON, 17th December 1862, No. 3,028.

1. The estimate amounting to Rupees 95,710 for the improvement of the Poolairoo channel in the Kistna District, is sanctioned for entry in the Budget of 1863-64.

2. The proposition of the Deputy Chief Engineer, Northern Circle, as contained in paragraph 26 of his letter to Government dated 2nd December 1862, No. 495, is approved.

(True Extract.)

(Signed.) W. I. BIRDWOOD, Colonel, R. E.,
Secretary to Government.

To the Deputy Chief Engineer, Northern Circle.
„ Chief Engineer.
„ Board of Revenue.
„ Accountant General.



Exd. S. T. Augustin.

No 79 Deputy Chief Engineers Office
Rajamundry 24th September 1862

From Major J. C. Arbuthnot
Divl Engineer &c

To Lieut Col S. A. C. Ludlow
Dy Chief Engineer
N. C. D. B. W.

Sir

I have the honor to submit for insertion in the Budget for 1863-64 a project for improving the lower portion of the Poollairoo Channel with plans and Section as per Margin.

2 The Estimates now submitted provide for the following works.

1. A Cut at Pammaroo at the head of an existing Channel Connecting the Poollairoo and Manelipatam Canal.

2. A new Channel 36 feet wide from the Poollairoo at the distance of 7½ Miles below Pammaroo to Buntumilly with a Cut and Calingula at-

× By Dinghy
1 General plan
1 Sheet of Sections
2 Plans of Lines of Locks
1 Section

† No 95242 — 45710

Estimated Cost Rs 9920.

† Rs — 26300 —
§ Lock — Rs 10950 — 10960
* Calung.a Rs 5090 — 5120

at Read. and a Calingita* at its termini. The above work would form a Navigable Communication between the Salt Cotaur of Buntimilly and Rayanoh. and this admit of salt being conveyed to the latter place immediately after manufacture. At present the Cotaur is not accessible until December and January; and it would be a great advantage to have the Brinjaries a journey through the Delta altogether. as they can obtain no fodder for their Cattle between Ellore and Buntumilly. On the other hand, were they to resort to Rayanoh, they would have the advantage of being able to bring down Oil seeds or grain from the upper Taluqs, which would be shipped at once on the Canal, and they could choose their own time for coming, as the Country to the Northward is favorable at all seasons.

5 The proposed Channel to

×17.30 Rs.

*originally proposed by Captain Chambers. See his Report dated March 30. 1855.

I

Buntumilly will serve for Irigation as well as Navigation, and it will also act as an Escape for surplus water, The want of any means at present of disposing of the surplus during heavy rain is a source of the greatest inconvenience if not loss. The Pollairoo from the point selected for the Head of the Channel, downwards Paimurroo, Weyoor and Kumkipaud encircles the highest ground in the Centre of the Delta, and with certain improvements, to be noted hereafter, is admirably adapted to serve as a Main Irrigation Canal, as the Country falls away on both sides, on the one hand towards the Pudoo-mair and the Colair Lake, and on the other to the Swamps near the Sea-Bank below the Head of the proposed Channel, the character of the Pollairoo completely changes. It has a very slight fall and the Country on either side is almost on the same level

level is that along its margin while at some distances from it both on the North and South sides there is a series of sand ridges of sea formation. The lower part of the Poollairoo is in short a basin, from which there is no outlet for drainage water, excepting by a few cuts which run from it to the Swamps to the South; but of which the fall is so slight that the water can be pursued off only very gradually. After a heavy fall of rain the drainage and Canal water together turn the whole tract into a swamp, and the cultivation is subjected to serious injury; and moreover the breaching and remaking of Embankments which is rendered necessary is a source of great expence. Altogether the Poollairoo, and its numerous branches are in a very primitive state. They had been used long before the Construction of the Spiral, and comparatively little has been done for them since beyond simply furnishing them with a regular supply of water and of keeping them in repair. As a proof of this, I may mention that the expenditure on new works on the Poollairoo and Subsidiary Channel from 1855 to the end of 1860-61 has been only 6511 Rs, while that on repairs for the same period has amounted to Rs 65204 or about ten times as much.

6. The proposed Channel to Dentumilly will have the immediate effect of relieving the lower portion of the Poollairoo from flooding. You will observe that it crosses the Poollairoo in 3 places, and that three independent Channels will thus be formed: the first the portion of the Poollairoo, as far as Tadecherla, and a new Channel called the Tadecherla Cut in

Continuation; the second, for the supply of a number of Irrigation Channels on the South bank; and the third the remainder of the Poollairoo itself. The Poollairoo in its present state is not sufficiently wide to carry the supply of water required for the Irrigation: the proposed division of the Channel into three parts, each of which will be furnished with a head sluice, will give the means of increasing the proportional supply of each, or in times of flood of cutting it off from one or all entirely.

† Estimate 1810
Shuma Calmpula 1730-1811
× Do —— 1730
× Do —— 1736

7 Improving and extending the Polraz Cooe. II. Rs. 25,381

The Polraz Cooe runs into a swamp near the Colair Lake and irrigates the lower lands by a number of small branches. It is however too deep for several Miles from its head for the irrigation of the lands adjoining it. Unless when the Poollairoo carries a full supply; and at the close of the season, there are always numerous complaints of a deficiency. Though the actual quantity of water may be sufficient, it may not rise to the required level, and the absence of sluices and Masonry regulators, give the Executive Officer no power of economizing the water during a scarcity, or of distributing it to different villages in turn.

8. I have further to observe in explanation of the necessity of the proposed works, that the Country to the South of the Colair Lake consists of a series of alternate ridges & depressions, and that the former are in a higher level than the ground traversed by any of the branches of the Poollairoo that approach them.

9 To irrigate these high lands, the Channel for the purpose would first have to pass through very low ground. The Polraz Cooe itself

is the most favourable line for gaining access to the high land, and also the requiring to be raised in any case as above mentioned, any project for its improvement would naturally include its extension to the tract in question.

10 It is therefore proposed to raise the bed of the Polrazzie Coolé considerably, to embank it and to excavate a Channel in continuation from the 6th Mile to the villages of Vinjarampaud - in all 17½ Miles. The width of the Channel will be 30 ft. and the fall of bed 5 inches per Mile - The levels are known from the proposed terminus to the Estuary, and eventually the Channel may be extended to that River and form a Navigable Communication with the Godavery Delta -

11 The Estimate for the improvement and extension of the Polrazzie Coolé Amount to Rs. 25340 - including the probable Cost of a branch 6½ Miles in length -

12

12 The portion of the Polrazzie Coolé beyond the 6 Mile, would receive a supply from the Branch of Rajaveo Channel. Eventually the bed of the latter at the terminus should be raised, and the drainage water from the tract to the westward of the Polrazzie Coolé, would pass into the old Channel on a lower level -

III 13 The bed of the Pooltairoo at the Head of the Polrazzie Coolé is 7' 6" above high water. It is proposed to raise it to 11' 3" that is it is proposed to construct the upper sill of the Lock and the floor of the Sluices on that level, and to leave the bed to silt up of itself by degrees. From the floor of the Drioge at Rajaveo a distance of 17½ Miles upwards, an uniform fall of 7 inches per Mile would thus be obtained, the Surface of the water will be raised in proportion, and the Capabilities of the Pooltairoo will be enormously

increased

increased. The surface of the water has only to be raised to allow of its irrigating the tract of Country 5 or 6 Miles wide immediately to the Rorthward which is now under dry cultivation only; and by means of a new Head to the Butter Coolé, it will also increase the Command of that Channel allowing of the irrigation of the high lands adjoining its Southern

14 The Embankments of the Poolais Pro mill Lane to be gradually raised to meet the increased depth of water which mill Lane to be thicker in as the Cultivation is increased, and the earth for the purposes will serve to widen the Channel to the extent required for the supply of the Polrayu Coolé, Puntumilly Chanl and the old line of Poollairoo. This I estimate to be 25 yards which will furnish a supply equal to the irrigation of 50500 acres. distributed as follows:-

Under the Polrayu Coolé & branches	15000
Puntumilly Chanl & branches	25000
Old Poollairoo & Tasachorla Cut	10500
	50500

III

Estimate No IV

2151
215

15 A new Head to the Butter Coolé is proposed for the double purpose of improving the supply and of relieving the Main Irrigation Canal from the silting, which is now occasioned in the reach between Kunkiesaund and Veeranky, and which is a source of much inconvenience and expense. This has been reported on former occasions and the expediency of the measure proposed seems to have been acknowledged.

× Civil Engineer's letter No 80 dated 26th August 1861.

§ Govt Pro No 471 Dated 18th March 1862.

V

16 Two other Channels are proposed from the N Bank of the Poollairoo the first from Pannaroo towards Guduvada and the second from Chittrum. The Estimated Costs respectively Rs 5600 & 2930 and the Area which they will be capable of irrigating will amount to from 8 to 10000 acres.

17. The following is an abstract of the Estimates of the whole of the two Channels described

Lock at Pannaroo	9920
Channel from Poollairoo to Puntumilly	26300
	36220

Brought over	36220
Lock at Red D	10950
Caliagula D	5990
4 other Caliagula D	6920
Improving V Extension Bobrazo Codes	25191 3253 5
New Red & Butler Codes	2550 2157
2 Irrigation Channels	8530
	95252 95 · 10

Their construction would extend over a period of about four years, by which time it is to be anticipated that there will be a largely increased demand for water for extending the irrigated cultivation.

18 I am unable to give a statement in detail showing the extent to which present dry lands could be turned into wet, but if the project is sound there can be no question that the revenue will be much improved. The following figures /obtained from the Collector's Office/ show a progressive rise in the receipts from wet cultivation since the Aricut Channels have come into operation in the whole Masulipatam Delta, and the portion under the Pollair which will be influenced by the proposed improvements, almost entirely Govt. lands, may be calculated to have yielded about one half of the total profit derived from the increase of the wet cultivation in the whole of the Section of the Delta-

25000 acres wet cultivation

Masulipatam Delta

Balance of profit after deducting the average revenue derived from wet cultivation for the 10 years previous to the Construction of the Aricut-

		Rs.
Fasly	1265	6422
Collrs Statement 25 October 1861	1266	26698
	1267	25620
	1268	67373
	1269	95675
—	1270	92673
8 to 19 July 1862	1271	114599

19 The accompanying plan of the 6th Range for the compilation of which, and for much assistance in the preparation of the project now submitted, I am indebted to Lieut Trail, will show you the alignment of the various Channels

under the Provisions and the Sites of the various works proposed.

20 Should the proposed works be sanctioned by the Government, I would solicit permissions to commence on them during the current official year so far as the Amount allotted to the District for expenditure may admit of. The Damanhoor Canal will be closed on the 1st March and re-opened on the 1st June and unless a lower rate down from Rozetta to Damanhoor before the former date, the Masonry works in the Neighbourhood could not be commenced till the end of 1863 or beginning of 1864. On the other hand by commencing work in March next, it could be proceeded with without interruption throughout the Rains.

I have the honor to be
Sir
Your most Obt Servt

J. Anderson Major R.E.
Dist. Engineer Kd.

Dispatched 29th October 1862.

The delay in the submission of the above report and Accompanying Estimates, has been occasioned by the Acting Collector having been occupied for a considerable time in making an enquiry & ascertaining the probable results of the proposed works, before countersigning the Estimates.

J. Anderson
Dist. Engr Kd.

Jan from the Estimates at once, I am only sorry they have been kept back so long. It arose from the change in the Collectors. Thinking his successor, not being able to form an opinion on the works without first referring to the Talook Accts.

Yrs very truly
J. Anderson

29 Oct

No 120

Dist. Office Kirkee
Bazaroon 13th November
1862

From Major H. Anderson RE
Dist. Engineer Kirkee

To Lieut. & Col. Wilson RE
Chief Engineer
Poona

Sir

Referring to my letter
No 70 dated 24th September 1862 submitting
various Estimates amounting in the
aggregate to Rs 95710
Rs 95,712 for improving
the Lower Portion of the Kolhapoor &
Kaira Roads to form a Cart
Road a Cart Track from the Collector's Cutcherry
to a Point on the Poona Road,
Rio opinion on the Proposed Diversion,
and Furnishing an approximate
Estimate of the probable increased
Revenue which will be derived from them
in the Current Year.

I have the honor to be
Sir
Your most Obt Servt

H. Anderson Major
Dist Engineer & Dpty

No 229 dated
10th November 1862.

To Genl No 4958/2nd Dept 62
Do Pol No 3608/2nd Dept 62
Copy in a letter to England
dated 30th January 1863
of 1863.

K. No 1163

From
The Chief Engineer
Poona

To
The Dy Chief Engineer
N. C. D.

Dated 24th September
Rec'd 1862

No 70
Enc 19

Remarks Estimates Nos
for improving the Lower Portion of
Kolhapoor Diversion
& Rs 95710 for
Insertion in the Budget
for 1863-64

Rio 7/11/62

No 229

Civil Div. Dep. Collector
Clackrai ar. Kamilaplatan
10 Nov. 1862

From
C. D. Collector
Clackrai

To
The Chief Secy to Govt
Fort William

Sir

I have the honor to forward herewith a letter from the 2d Assistant Land Revenue Commissioner, Chittagong, dated 22 Instant, submitting a certain Estimate for approval and sanction, and to request you will be pleased to lay the same before the Lieutenant Governor for the orders of Government thereon.

2 I have the honor to be
Sir
Your most obedient
humble Servant
C. D. Collector

To Govt No 495 of 2nd Dec 1862
& Rev No 360 of 2nd Dec 1862
Copy in a letter to England
dated 30th January No 6
of 1863.

Rec'd 13th Nov 1862
Rec'd 18th
No 120
Recorded

Forwarded a Copy of Collr's letter conveying his opinion on the proposed works for approval & the lower Rate on the Char and furnishing an Approximate Estimate of Revenue derivable from them on the Guevanda Salt

Letter to Collr No 7641 of 1862
Letter to Accountt

103

2

new works specified below.

Works	Estimated Amount	Increase of Cultivation: Dry in the wet — Wet: Sann Kist. Land	Sann Kist. Rs	Total: Land	Total: Kist
		acres	Rs	acres	Rs	acres	Rs	acres	Rs
1 Channel from Pulicaru to Puntumilly	26,300	387	1161	920	3095	1307	4256
2 Improving and Extending Poluru Canal	25,381	2464	7394	343	837	2807	8231
3 Two new irrigation Channels	8,530	5079	15238	"	"	5079	15238
Total		7930	23793	1263	3932	9193	27725

3. It will be observed from the above, that the additional income is calculated at Rs. 27,725, as far as these works will affect the Gudivada Taluq. They will, it is reported, also be beneficial to some Villages in the Bunder Taluq; for which similar information has been called for.

4. The Channel to Puntumilly is not only useful for irrigation but will also be available for Navigation from Kenee direct to Nagapatam and will enable Brinjaries, and other Salt traders, to obtain Salt at all times of the year, instead of, as is now the case, only during the dry season. The other 2 projects are well calculated to increase wet cultivation. From the present Estimated profits, derivable from these new Channels, it would appear, after making due allowance for excess in the Estimates, that the projects will prove highly remunerative, provided that the proposed Channels bring down adequate supplies to irrigate the whole of the land under Contemplation.

5 The benefits which will accrue from the proposed works, are so fully treated of in your letter to the Dy Chief Engineer that they need no further comment from me.

6 The Gudivada Taluq, a very

No 110
Enc

Despatch from Officer Administering the Government of Queensland to the Right Honble Sir E. B. Lytton Bart MP

Dated 21st January 1863

Received 27th March 1863

Answered 7th April 1863 No 14

Sir

I have the honor to transmit herewith a Telegram which I received on the 19th instant from the Government Resident at Somerset, informing me that a Vessel had arrived there from the Arafura Sea, bringing with her the Master and Crew of the Barque Maria, which had been wrecked on a Reef in the Arafura Sea, and that the Captain had proceeded in the Ship's Boat to Timor, to obtain a Vessel to convey the Crew to Sydney.

I have the honor to be
Sir
Your most obedient humble Servant
(Signed) G. E. Dalrymple
Lieut Col
Officer Administering the Government

To Govt No 7495 of 23 Decr 62
Bd of Rent No 360 of 23 Decr 1862
Copy in a letter to England
dated 30th January 1863 of
1863.

1403.

Enclosure in
Letter from Officer
Administering the Govt
of Queensland
dated 21st January 1863

Rec 120 of 13th March 62

No 360 of 62

Read 2 April 1863

the Mouth of the Captain, does already afford the means of conveying Salt to the Eastward - But only the smallest size of Dhonies can navigate it, and I question if it admits of deepening or any material permanent improvement as the soil impregnated as it is with Salt, has no Cohesion, and the slopes are liable to melt down - The violent winds that sweep across the Swamps at times, have also the effect of washing down the banks and filling in the Channel.

3. The Attoo Cooi was excavated in 1859-60 at a Cost of Rs 03115- The repairs in succeeding years have been considerable, and the Officers who have had charge of the Range, have complained of effecting any real improvement, and have advocated it being abandoned, as the repairs seemed to be labour lost - The Salt Superintendent, however, has always urged the necessity of keeping it up, and as, notwithstanding it's

× January & Dec[r] 61
1646 Dhonies
30285 Maunds
valued at
Rs 44785.

× 1861/62 1266
1862/63 403
and Clearance
again required
at this time

advantages, a considerable traffic in Salt is carried on by means of it, there can be no doubt that he is right.

4 If a Lock at Duntumilly were all that is required in addition to the proposed Channel from the Poollaiva to connect the Navigation of the two Districts, I should not hesitate to recommend it; but it must be borne in mind that the Attoo Cooi is the feeder of the Salt pans, and that it would be objectionable to discharge fresh water into it. It is true that the Manufacture of Salt is carried on from March till the setting in of the rains while the Koottua Channels are closed from 1st March to 15th June, but water would be thrown in earlier if the state of the River permitted and the Clearances of the Canals were completed - In the event of an unseasonable fresh in the dry weather it would be impossible to keep the water out entirely, and the Salt-

shall would be in danger of being destroyed.

5th By referring to the plan of the 6th Range, you will observe that I propose for tailing the proposed new Channel into a Swamp quite distinct from that which supplies the salt pans: and thereby it would be possible to continue the Channel to the Captain, it would be subject to the same drawbacks as the Petite Codée: and I believe the line which I have sketched in the Map lately forwarded to you, forming the Continuation of the Poligny Codée, will be much superior to it. There would be no drainage to Crique, as the water in all the Swamps from the South of the Colair Could be discharged, after attaining a certain height into the Capotain, and the Channel would not only form a Communication with the

with letter No 70 dated 24 Sept/62.

Godaney

Godaney, but it intersects the heart of one of the most impassable 31
& road traffic / tracts in this District.

I have the honor to be
Sir
Your most obt. Servt.

J. Thomson Major
Dist. Engineer Tobago

REVENUE IRRIGATION (NEW WORK.)

ABSTRACT of Estimate No. of 186 -6

DISTRICT Kistna

TALOOK . VILLAGE

WORK . Improving the Conveyance of the Pedaiveo Channel

Quantities.	Description of Work.	Rate. Rs.	A.	P.	Amount. Rupees.	Amount of each part. Rupees.
C. Yards.						
	Improving the Channel from the Pedaiveo along Polavazu Veda					
40625.00	Cyds. Earthwork @	"	"	10	2115 7	
	Contingencies	"	"	"	106 3	
						2220
	Excavating Channel from Polavazu Roda at Gunza to Chinagonipeta					
57895.20	Cyds. Earthwork @	"	"	10	3015	
	Contingencies	"	"	"	155	
						3170
	Excavating a channel from the Pedaiveo at the Head of Polavazu Roda to Bruntamulla					
40069.92	Cyds. Earthwork @	"	1	"	25061	
	Contingencies	"	"	"	1259	
						26300
	Constructing a channel from the Pedaiveo at Pamarru to irrigate the land between it.					
81661	Cyds. Earthwork @	"	"	10	4253	
8	Irrigation Sluices @	75	"	"	600	
	Contingencies	"	"	"	247	
	Carried over	"	"	"	5100	51690

To Earthwork in Excavation in Pedaiveo Channel from Polavazu Roda to Bruntamulla @ 1 Rupee per 100 Cubic Feet as per Measurement taken by Mr. Knight & Mr. Hall in 1865.

To Earthwork in Excavation in Pedaiveo Channel from Polavazu Roda to Gunza @ 1 Rupee per 100 Cubic Feet as per Measurement taken by Mr. Knight & Mr. Hall in 1865.

Memo. Estimate Prepared by Mr. Purkis Assistant Engineer & Corrected & Passed by Mr. Cotton Superintending Engineer

Dated 15th December 1866

Rajahmundry 31st Dec. 1866

Superintending Engineer

Approved Chief Engineer and Secretary to Government in the Revenue Department

Madras 8th January 1867

Chief Engineer & Secretary to Government

Quantities.	Description of Work.	Rate. Rs.	A.	P.	Amount.	Amount of each part.
C. Yards.					Rupees.	Rupees.
	Brought over				5100	51690
	Head Sluice					
80	Cyds. Rubble Masonry	1	8	"	360	
14	Cyds. Roughstone	2	4	"	31	
	Cut stone	"	"	"	20	
	Excavation	"	"	"	8	
3	Beams	3	"	"	6	
2	Shutters	25	"	"	50	
	Contingencies	"	"	"	25	
						5600
	Excavating a Channel from Pollaiver at Chittrum for the irrigation of the Country between the Pala & Polerazy Coodoo					
35640	Cyds. Earthwork	"	"	10	1856	
6	Irrigating Sluices &c.	25	"	"	150	
	Contingencies	"	"	"	124	
	Head Sluice					
80	Cyds Rubble Masonry	1	8	"	360	
14	Cyds. Roughstone	2	4	"	31	
	Cut stone	"	"	"	20	
	Excavation	"	"	"	8	
3	Beams	3	"	"	6	
2	Shutters	25	"	"	50	
	Contingencies	"	"	"	25	
						2930
	Carried over	"	"	"		60220

Quantities.	Description of work	Rate Rs	A	P	Amount	Amount of each part
					Rupees	Rupees
	Brought over	"	"	"	"	60220
	Constructing a Coss Road and Bridge at the Head of the Proposed channel from the Pollaire to Mundamully					
214.11	Cyds. Concrete	4	"	"	856	
221.13	Cyds. Cut stone in Chunam	11	"	"	2433	
418.6½	Cyds. Brick Work in Chunam	5	"	"	2091	
1901.25	Cft. Arch work	"	1	6	535	
1859	Sqr. Plastering 2 Coats	3	14	3	73	
82	Cyds. Roughstone	2	8	"	205	
1	Gate, complete	"	"	"	1600	
	Bailing, Excavating foundation and Temporary Bunds				1500	
	Contingencies	"	"	"	464	
	Bridge					
92	Cyds. Brick Work in Chunam	5	"	"	460	
686	Sqr. Plastering 2 Coats	3	14	3	28	
198.88	Cft. Special Wood work wrought & fixed	2	8	"	497	
	Earthwork	"	"	"	150	
	Contingencies	"	"	"	65	
						10960
	Constructing Coss Road Across at the Head of the channel Leading from Pollaire to Mooreliyalam Canal					
214.11	Cyds. Concrete	3	8	"	749	
221.13	Cyds. Cut stone in Chunam	10	"	"	2214	
418.6½	Cyds. Roughstone in mill Chunam	4	4	"	1778	
1901.25	Cyds Arch work	"	1	"	475	
1859	Sqr. Plastering 2 Coats	3	"	"	56	
82	Cyds. Roughstone & Spunn	2	"	"	164	
	Carried over				5436	71180

Quantities	Description of work	Rate			Amount	Amount of Each Item
	Brought over				3436	1180
1	Each Complete				1500	
	Baling Excavating Foundation Stone work &c				1500	
	Contingencies				114	
1625	Cubs. Clearance of Channel Sand Retain to Maintain Channel		1		1017	
	Contingencies				53	
						6920
	Constructing a Bar Head Sluice to the Butlin Cooleo on the Pelain at Commencg of Excavating a new Head					
592.3	Cubs. Concrete	3	8		2007	
150.05	Cubs Brick in Chunam	5			750	
2249.25	Sft Plastering & Coats		3		67	
50.25	Cft Timber for Sluice, fastening with iron	2	8		126	
50.66	Cubs Rough stone	2			101	
121.7	Cft Seat Timber for bridge wrought & put up	2	8		303	
	Extra for Cutwaters				15	
	Excavating & baling				100	
	Contingencies				81	
	Excavating a new Head				500	
						2350
	Constructing a Calingula across the Pallaire below the Head of the Pelain Cooleo					
59.03	Cubs Concrete	4			236	
150.05	Cubs Brick in Lime	5			750	
2249.25	Sft. Plastering		11	3	88	
	Carried over				1074	8350

Quantities	Description of work	Rate			Amount	Amount Rs.
	Brought over				1074	8350
42.25	Cft Timber for Sluice with Iron fastenings	2	8		106	
50.66	Cubs. Rough Stone	2	8		126	
121.17	Cft. Timber for bridge wrought and put up	2	8		303	
	Extra for Cutwaters Grooves				15	
	Excavation & baling				100	
	Contingencies				86	
					1810	
	For two others similar to the above				3620	
	Also another at terminus of the Channel at Buntamully				1810	
	Constructing a Calingula Sluice for the supply of water to proposed new Channel from Pelain to Buntamully					7240
507.5	Cubs Brick Work Lime	5			2537	
61.13	Cubs. Cutwaters	10			613	
	Extra for Grooves				9	
2929.2	Sft Plastering	3	14	3	114	
90.66	Cft. Rough Stone	2	8		226	
3	Jamboghe shutters	25			75	
28.35	Cft Sluice plank & Teak R. with iron fastenings	2	8		71	
20	Cft. beam in front of shutters	2	4		45	
	Bridge					
232.34	Cft Seat Wood including iron fastenings & labor in fitting	2	8		581	
	Excavating foundation and Temporary bunds				300	
	Baling				300	
	Contingencies				249	
						5120
	Total Rupees					95710

A.C. Office
Chupanee
22nd Dec 1782

J.O. Lindsay Lieut Col & C.E.
Deputy Chief Engineer &c &c

No 495. | Northern Circle Office 34
Oakhampton 22nd December 1862

From
Lieutenant Colonel P.O.B. Ludlow R.E.
Deputy Chief Engineer N.C.

To
Colonel H.S. Birdwood R.E.
Secretary to Government P.W.D.

Enclosures N.S.
1 Letter from Chief Engr
Cons. & Military No 970
d/ 24th Nov 1862
1 Sketch Plan & Estimate
2 Plans Nos 2 & 3
1 Plan No 4
1 Abstract

Sir

I have the honor to forward an Estimate amounting to £95710. Rupees framed by the District Engineer Hill Tracts, for the further advancement of the system of Navigation and Irrigation under the Kuladan Navigation, by the improvement of the lower portion of the Pollaroo Channel.

2. The Pollaroo is one old Channel, used long before the construction of the Arracan; but since that construction it has fallen into disuse, (Chuttar Khan has formed a little mukhroo, (Chuttar Khan has the mukhroo increased) only by 5 or 11 Rupees running through it, the water now keeping there exclusively to the Arracan. The improvement, although like many others of the Arracan, will not increase the Arracan's supply, but will ensure the Arracan's supply being kept at a level of 10 feet above the bed of the Channel.

3.

Copy in a letter to England dated 30th January 1863.

Enclosure
In a letter, 3680/62
From
The Deputy Chief Engr
Northern C.
To
The Secretary to Govt
P.W.D.

Dated 2nd } December 1862
Received }

No 495.

Abstract Estimate for
Improving the lower portion of the Pollaroo
Channel.
Amounting to Rs. 95710.

Estd 7th Oct 1862

3. The project now submitted provides.

1st For the extension of the Pollaroo or walker for a new branch from it between a point 7½ Miles below Pamurroo and the Salt Cotars at Buntamilly.

4. The object of this branch is threefold.

1st The formation of a navigable communication between the Salt Cotars at Buntamilly and the Masulipatam Canal, and so to Bezoarah, thus admitting of the conveyance of salt from the Cotars to Bezoarah at all times, immediatly after manufacture, whereas the Cotars is now inaccessible until December or January, and further saving the Brinjarries a journey through a Delta which yields no fodder for their cattle.

2nd The drainage of the land adjacent to the Pollaroo at the lower part of its course, where, owing to the lowness of the ground and the slight fall of the Channel, the want of an escape for surplus water, during heavy falls of rain, is found to be a source of the greatest inconvenience, and, from the expedients that have to be adopted to diminish the evil of heavy expense.

and

and 3rdly For the extension of irrigation in that direction.

5. The proposed Channel to Buntamilly will act most beneficially in at once relieving the lower portion of the Pollaroo from flooding, and from the manner in which it intersects the old Channel 2 independent Channels (one of them with 2 branches) are formed instead of one, and the additional capacity requisite for increased irrigation thus secured; while the regulating Sluices at the head of each afford the means of controlling and distributing the supply as may be necessary.

6. Besides the excavation and embankment of 15 2/5 Miles of a Channel 36 feet wide and costing 26,300 Rupees, this part of the scheme involves the construction of the following masonry works.

Lock at Pamurroo to complete communication with Masulipatam Canal	9,920
Do: at head of new Channel	10,960
Calinguluk at Pamurroo	5,120
Do: at Buntamilly	1,810
2 Do: between head and Buntamilly	3620
	31,430
which added to cost of Channel	26,300
gives a total of	57,730 for

the cost of this part of the project.

7

7. The second part of the project provides for the improvement and extension of the Poolrazcodu an existing Channel branching from the Pollaroo.

8. The Poolrazcodu at present runs into a swamp near the Colaur Lake irri=gating only the lower lands and even these (as explained by the District Engineer) very imperfectly owing to its running on too low a level. But the country to the South of the Colaur Lake consists of a series of alternate ridges and hollows, the former are consequently quite above the command of the Channel on its present level.

9. It is therefore proposed to raise the bed of the Poolrazcodu considirably and to embank it where it crosses the hollows, and to excavate a Channel in continuation on a higher level from the 6th Mile to the village of Tejarumpaud in all 17½ Miles. This Channel will be 30 feet wide at sole and have a fall of 5" per Mile.

10. It may eventually be extended to the Coopatair thus completing a navigable connection with the Godavery Delta but this forms no part of the present project.

11. The new portion of the Poolrazcodu will receive an additional supply by a branch from Ryves' Channel.

12. The estimated cost of improving this Channel including a branch 6½ Miles in length to the Coonmalair is 25,390 Rupees for earthwork and 1,810 Rupees for a Calin=gulah in all 27,200 Rupees.

13. The bed of the Pollaroo at the head of the Poolrazcodu will be raised 3-9" the sill of the lock and floor of the Sluices being placed that much above the present level of the Channel bed. The bed of the Channel above will be left to silt up of itself. The fall per Mile will then be 7" for a distance of 17½ Miles. The banks above will be gradually raised, the excavations made for the purpose sufficing to increase the capacity of the Channel to a width of 25 yards. The ca=pabilities of the Channel will thus be enormously increased and the water so raised will be able to irrigate a tract of country immediately to the Northward 5 or 6 Miles wide, which is at present under dry cultivation, and by means of a new

head

head to the Buttracodu (to be mentioned hereafter) much high land, adjacent to the banks of that Channel, will also be commanded. With the proposed capacity and fall the Pollaroo will be capable of irrigating 50,500 acres under all its branches.

14. A new head from the Pollaroo to the Buttracodu Channel at present branching from the Masulipatam Canal is proposed with the double object of improving the supply and relieving the Canal from silting a source at present of much inconvenience and expense. The cost of this new head and regulating sluice will be 2,250 Rupees.

15. Finally 2 Channels are to be taken from the North bank of the Pollaroo for the irrigation of 8 or 10,000 acres at a total estimated cost of 8,530 Rupees including head sluices.

16. With respect to the returns that may be expected from the proposed works the District Engineer states that he is unable to shew in detail to what extent dry cultivation can be converted into wet but thinks that, if the project does what it promises, there can be no question that the revenue will be much increased. He shews that the profits from irrigation in the Masulipatam Delta have risen in the 7 years since the Annicut was built from 6,422 to 14,599 Rupees and supposes that half this profit has been derived from lands under the Pollaroo which will be improved by the works now proposed.

17. The Collector furnishes a rough estimate of the probable increase of revenue under the new works as far as they affect the Gudivada Taluk. The additional income is expected is 27,775 Rupees, but the works will benefit other villages from which returns though called for have not been yet received.

18. The Collector is also of opinion that as a means of communication and drainage the scheme is likely to be highly advantageous.

19. I have after careful consideration formed a very favorable opinion of this project. The great drawback to the efficiency of the Pollaroo Channel and its branches is the low level on which they run

rum, in the lower part of their course, in consequence of which the necessary command of the land is lost, the supply of water wasted and swamps are formed.

20 This will the present scheme if carried out will effectually remedy and the drainage which it will secure is a most unquestionable advantage.

21 The utility of effecting a water communication between the Salt Lakes and Pezoara is too obvious to require remark.

22 The only point upon which I had any doubt was whether the supply which the Channel receives at its head would suffice for the very large additional quantity of Land proposed to be irrigated. On this point I have communicated by Telegraph with Major Anderson but as yet received no reply. Knowing however how very desirous the Government here as well as the Home Authorities are to promote the early extension of irrigation under the Kistna Annicut and being very anxious to have this scheme entered if possible in the next Budget I availed myself of the opportunity which Captain Chambers' presence at Madras afforded of consulting him on the subject as I know him to be well acquainted with all the circumstances of the Channel.

23. He informs me that the supply of the Channel is abundant and all that it requires is to have the levels on which it runs corrected and this the scheme now submitted will thoroughly effect.

24 I also put a question to him as to the necessity for irrigating sluices which the Estimate does not provide for and he tells me that Palmyra sluices are in common use in that part of the District and will probably suffice.

25 Under these explanations I beg to recommend the Estimate amounting in all to 95,710 Rupees for sanction and 25,000 of the amount for entry in the Budget for 1863-64.

26. I beg further with reference to paragraph 20 of Major Anderson's letter No. 70 dated 24th September 1862 to recommend that with a view to expedite the

work

work, he be allowed to incur such expend-
-iture on the preparation of materials
for the work during the current year,
as the District funds at his disposal
will admit of.

No. Circle Office
Chirpank
2nd Dec. 1862

I have the honor to be,
Sir,
Your Most Obedient Servt.

J. R. Wilson Lieut.-Colt. R.E.
Deputy Chief Engineer N.C.

To
Colonel W. S. Birdwood C.B.
Secretary to Government P.W.D.

Specification & Report to accompany Estimate (Rs. 9920). for proposed Lock at Pauweroor to form a Navigable Communication 5½ between the Pullair & Masulipatam Canal—

Long th of Lock between Gates to be.	100 feet
Width of Lock Chamber	15 feet
Drop	3' 6" feet
Front Battresses	2 3' long
do	7' thick
Rear do	22' long
do	7' thick
Chamber walls	79' long
do	4'-6"—2' thick
Front Wings	8' long
do	2'—3' thick
Rear wings	13' long
do	2'—3' thick
Counterforts	6'—8' long
do	2'—3' thick

A layer of Concrete 1' 6" thick to extend under the whole of the foundations, and 1 foot beyond - to be laid throughout. The flooring of the Chamber to be an inverted Arch of brick and lime Masonry 1 foot thick in Centre and joining the lines of Chamber walls at the height of 2' - above the floor - To be plastered all the other Masonry to be of stone and lime faced with cut stone - The Chamber walls to have a batter of 6" -

Copy in as follows to Engrs. Letter No. 30 dated 4th January 1862.

From Lieut. Col. Dickens
Supt.
Trunk Road & Public Engineer
&c
To the Secretary
to Government Fort St. George

Dated 22nd December 1862
Rec'd 2nd January 1863
No. 45
Encls: 15.

Submitting for sanction an Estimate amounting to Rs. 9920 for the improvement of the Lower Portion of the Pullair Channel in the District and subdividing Permission for the outlay of Rs. 2,500 in the current year

By Lieut. Col. Dickens
Supt. Trunk Road
Eastern Division

2. The heights of the various portions above Concrete are to be as follows -

Upper sill – in front of gates –	5' 6"
in rear – do –	6'
Side walls.	12' 6"
Counterforts	10' 6" – 11' 6"
Chamber walls, rear buttresses and wings	12'
Lower sill in front of gates	1' 6"
do rear	2'
Counterforts	9' – 10' 6"
Mitre sill front gates from front of lock	11' – 14'
Width of mitre sill	6'
Drop wing, a segment of circle to radius	11'
Mitre sill rear gates. from rear of lock	10' – 13'

Roughstone apron – 27' × 21' × 2'
and four roughstone slopes - two in front and two in rear each 15' long by 9' wide by 2' thick.

3rd. Bridge over the proposed lock at Pannarroo is not required. A Bridge having already been constructed across the Channel leading from the Pullarroo to Maralapalam, Canal. It has only 12' waterway, and eventually it will be necessary to

6' constructed a new one of 15' waterway.

District Engineer's Office.
Bezoarah. 29 October 1862

G. Anderson Major R.E.
District Engineer Kistna

To Govt. No. 495 of 2nd Dec. 1862
Rec'd 30th Dec. 1862
Rev. No. 360 of 22nd Dec. 1862
Copy in a letter to England
dated 30th January 1863.

Enclosure in a letter from the District Engineer Fort Mann to the Deputy Chief Engineer N.C. Div. No. 1 dated 24th September 1862.

P.W. 3689/62

Specification Report to accompany Estimate Rs. 20. for proposed Redoubt at Rumurras.

Ldo 9621/1862

No 1 Estimate Abstract & accompany Estimate (Chapleo Bridge) for a Cattle Gate & Rail & Iron Posts Chamber Gate & Rail & Iron Posts & Pavement &c. Granted the Chelmsford & Tewkesbury Railway Co.

1. The work to consist of a wattle fence 150' long in 3 lengths of 10' each, 4' high, and 3 lengths of 4' each 3' high with a short piece of 4' fence between each length.
2. The fence to be placed at a distance of 13' in the clear from the edge of the Bridge.
3. The foundations are to be excavated to a depth of 3' below the surface of the ground & filled in with concrete.
4. Timber Posts of 10' length, 9" square at the top & 12" square at the bottom, to be placed at distances of 10' apart from centre to centre.
5. Timber Rails of 4" x 3" to be placed on the Posts as shewn on the Plan.

Specification & Estimate to accompany Estimate for constructing a Cattle Gate & Rail & Iron Posts & Pavement &c. Granted the Chelmsford & Tewkesbury Railway Co.

1. Excavation. 3' deep - Chapleo Bridge. 3' wide. 3' deep - Bridge Hamlet Bridge. 3' wide (for taking off 9" bricks & making left to make room for 12" brick wall) 12" brick work in Mortar 3' thick - Retaining walls 3' thick 3' high (2) 2' wide - Front pillars 4' high 2' 6" square 6" wide - Coping of pillars & the same 2' 6" square & 6" wide.
2. Timber Posts & Rails.
3. Bricks & Mortar.
4. Gates 10' high. 3'-4' thick fixed in the Embankment 3' x 3' one on each side 5 = Piers 20' long

To Govt. No 495 of 22nd Decr 1862
Railway No 360 of 22nd Decr 1862
Copy inc to Letter to England dated 30th January No 6 of 1863.

No 5/403/62

Enclosure in a letter from the Director Genl of Railways to the Deputy Chief Engr & Secy Govt Public Works dated 24 Septr 1862.

J.P.W. 3880/62

Specification & Estimate to accompany Estimate for constructing a Cattle Gate & Rail & Iron Posts & Pavement &c. Granted the Chelmsford & Tewkesbury Railway Co.

J.P.W. 7641/1862

7

including Cutwaters, 3' thick, counterforts at extremities of wings 3'-5' long. 2'-5' wide and 11.6"—12.6" high. Apron 12' wide 2' thick. Slopes in front and rear 12'×9'×2'- including top of boxwall 20' in width of the floor to be of Cutstone, as also grooves and Cutwaters. The rest of the work to be brick and lime plastered.

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5. Bridge 3 girders. 6"×1'. beam in front of Sluices 6"×1'. Planks 3" thick. top and bottom rails and posts 6" dressing. railing 2' high.

District Engineer's Office
Bezoosiab 29 October
1862

I. Newton Major R.E.
District Engineer Indus

Specification Report & Accompanying Estimate for constructing Cabinjack Bridge on the Telegraph Road over the Pelican Creek, at two Points (No 3) where the 6 Pelican Channels intersect the Road, at the Crossings of Bantinnie, at the Crossing of the named Channels and at the Mouth of the Water Course - all on the same Section of the Road.

1 To be constructed of such Kind timbers as may be found convenient for the Purpose of erecting Bridges of the following Dimensions viz:- Abutments 16 feet Wide in the Clear.

2 Waterways to be formed under Floor of Bridges, Consisting of 7 Sleepers 6" Square, placed 1' 6" apart from Centre to Centre, and 2 Wall Plates 5" Square placed 1' 3" within the Outside of Floor. 29' 6" long. 2' wide. with 4 Piles to each Sleeper.

3. Bridge, Guarantee of 10 feet wide. Abutments 15' long. Consisting of 10 Sleepers, near Guarantee 10 feet long. all the above Scantling 6" Square. Also 2 Guarantee Sleepers 8" Square

Roughstone apron 9'×2'
Do sloped upstream rear 9'×9'×2'.

District Engineer's Office.
Bezoara 29 October
1862

I. Hamilton Major R.E.
District Engineer Kistna.

Specification

Report to accompany Estimate (Rs. 500) for sluices to proposed irrigation channels from the Cauveiroo at Cheemurroo and Cuttrum.

1. To be constructed of brick and lime masonry, excepting grooves which are to be in Cut-stone.

2. To have 2 vents of 4' span and 4' height to be 20' between extremities - retaining walls 4'×1'6" from 1'6" thick.

3 Foundation of Pier and Abutments 3'6" wide 4' deep below upper surface of floor - Abutments 5' high - 1' wide at top, to have an uniform batter on outside to bottom of foundation. Pier including Cut water 13' long. Arch 9'6" long and 1'6" thick. - Semicircular to radius 5' - Front wings Curved to radius 6' - Rear do. 10'6" long -

4. Beam in front of sluices 2" x coursing - Cutters 4' square, 3" thick -

5 Rough Stone Apron 9' wide 1'6" thick.

I. Hamilton Major R.E.
District Engineer Kistna

District Engineer's Office
Bezoara
29th October 1862.

53

Estimate of Rough Stone Bridge with 2 vents of 4' span and 4' height each, to be 20' between extremities.

Brick Masonry in Lime 2½ Cubic Yards @ Rs. 10 = Rs. 25

Cubic Yards of Rough Stone Masonry in Lime 30 @ Rs. 6 = Rs. 180

Total Rs. 205

Bezoara 30th January 1863.

Specification and Estimate of Bridge to be built over the Cauveiroo at Cheemurroo on the Line of Irrigation Channels.

Specification

Report to accompany Estimate (Rs. 500) for sluices to proposed irrigation channels from the Cauveiroo at Cheemurroo and Cuttrum.

1. To be constructed of brick and lime masonry, excepting grooves which are to be in Cut-stone.

2. To have 2 vents of 4' span and 4' height to be 20' between extremities - retaining walls 4'×1'6" from 1'6" thick.

3 Foundation of Pier and Abutments 3'6" wide 4' deep below upper surface of floor - Abutments 5' high - 1' wide at top, to have an uniform batter on outside to bottom of foundation. Pier including Cut water 13' long. Arch 9'6" long and 1'6" thick. - Semicircular to radius 5' - Front wings Curved to radius 6' - Rear do. 10'6" long -

4. Beam in front of sluices 2" x coursing - Cutters 4' square, 3" thick -

5 Rough Stone Apron 9' wide 1'6" thick.

I. Hamilton Major R.E.
District Engineer Kistna

District Engineer's Office
Bezoara
29th October 1862.

Estimate of Rough Stone Bridge with 2 vents of 4' span and 4' height each, to be 20' between extremities.

Brick Masonry in Lime 2½ Cubic Yards @ Rs. 10 = Rs. 25

Cubic Yards of Rough Stone Masonry in Lime 30 @ Rs. 6 = Rs. 180

Total Rs. 205

Bezoara 30th January 1863.

Specification and Estimate of Bridge to be built over the Cauveiroo at Cheemurroo on the Line of Irrigation Channels.

Specification

Report to accompany Estimate (Rs. 500) for sluices to proposed irrigation channels from the Cauveiroo at Cheemurroo and Cuttrum.

1. To be constructed of brick and lime masonry, excepting grooves which are to be in Cut-stone.

2. To have 2 vents of 4' span and 4' height to be 20' between extremities - retaining walls 4'×1'6" from 1'6" thick.

3 Foundation of Pier and Abutments 3'6" wide 4' deep below upper surface of floor - Abutments 5' high - 1' wide at top, to have an uniform batter on outside to bottom of foundation. Pier including Cut water 13' long. Arch 9'6" long and 1'6" thick. - Semicircular to radius 5' - Front wings Curved to radius 6' - Rear do. 10'6" long -

4. Beam in front of sluices 2" x coursing - Cutters 4' square, 3" thick -

5 Rough Stone Apron 9' wide 1'6" thick.

I. Hamilton Major R.E.
District Engineer Kistna

District Engineer's Office
Bezoara
29th October 1862.

Revenue Department

No.

Proceedings of the Board of Revenue
dated 4th December 1862.

Read the following letter.

No. 360.

From

Lieutt Col. S.O.E. Ludlow R.E.
Deputy Chief Engineer N. C.

To

W. Andleston Esq.
Secretary to the Board of Revenue

Sir,

I have the honor to forward for transmission to Government, with any remarks which the Board of Revenue may have to offer, a project Estimated to cost 95710 Rupees, for the improvement of the Coolairoo Channel, in the Kistna District.

2. My own opinion of the scheme is set forth in my letter No. 495 dated 2d December 1862 to the Secretary to Government, Department Public Works, and I have only to add that I think it very desirable that the work should, if possible, find a place in the next Budget (63-64.) and beg, therefore, that it may be forwarded

To Lieut Col Ludlow R.E.
Chief Engineer No 6
Bezwada

Copy in original Letter No 495 dated 30th January 1863

Lieut Col Ludlow R.E.
Deputy Chief Engineer No 6.

Enclosure in a letter from the Secretary to Government Public Works Department No 360 dated 4th December 1862.

Project for the improvement of the Coolairoo Channel in the Kistna District.

Copy of Letter from Lieut Col Ludlow R.E. Chief Engineer No 6 Bezwada to the Secretary to Government Public Works Department No 495 dated 2nd December 1862.

Recommending the Project for the improvement of the Coolairoo Channel in the Kistna District estimated to cost Rupees 95710 and requesting that it may be forwarded to Government.

Dated 6th November 1862

Received 6th December 1862

forwarded with as little delay as possible.

I have &c.
(Signed) L.B.C. Ludlow
Lieut.t Col.t R.E.
Deputy Chief Engineer N.6.

Northern Circle of Tanjore
Cherpank.
2.t December 1862.

Ordered that the above letter and its inclosures &c. be submitted for the early consideration of Government with the Boards strong recommendation in their favor.

2. The estimated cost of the works is Rupees 95,710 and the Acting Collector estimates that it will produce an annual return of Rupees 27,725 from extension of cultivation in one Taluk alone at which it will also effect a much needed improvement in the drainage, while it will also benefit some Villages in another Taluk from which the detailed returns had not been received when he wrote.

3. The project will further afford an uninterrupted line of navigation from the Buntumilly Talliparu to Bezwara to which point the Bunjaries can resort at all times of the year without risking loss of cattle from want of forage - and may eventually be

be extended so as to form a navigable connection with the Godavery Delta by the Aspatam.

4. It appears to the Board very promising and deserving of attention. They would recommend its inclusion in the Budget for 1863-64 and that authority be given to collect materials in anticipation.

(A true Copy & Extract)
Secretary.

To
Colonel H. I. Birdwood
Secretary to Government
Department Public Works.
With 16 Enclosures.

Recd by Govt

Copy in a letter to England dated 30th January 1863 No 6

P.W. 1862 Despatch

Proc: of Govt for Rev

No 3680.

Proceedings of the Board of Revenue

Dated 4th
Desp. 4th } December 1862
Rec. 5th

Enclos. 16.
Encl. to Rec.

No 1743/65

Submitting with the Board's recommendation a project for the improvement of the Poolairoo Channel in the Kistna District.

No 3028. 17th December

With an Order.

No 3028

The estimate amounting to Rupees 95.710 for the improvement of the Poolairoo Channel in the Kistna District is sanctioned for entry in the Budget of 1863/64.

The proposition of the Dy Chief Engineer Northern Circle as contained in para 26 of his letter to Govt dated 2nd December 1862 No 495 is approved.

Chepauk
17th Dec 1862

7 Copies

To The Dy Chief Engineer Circle Disp. 23

13 " Chief Engineer -√

13 " Board of Revenue -√

2 " Accountant General -√

No 340-341

C. 12th Dec 1862 R. 15th Dec