

MADRAS RECORD OFFICE.

Government of Madras.

Revenue **DEPARTMENT.**

G.O. No.	1400	Press
		Mis.
	191-192	
Dated	15. 7 -	18 61.

Not to be folded or roughly handled

*Proceedings of the Madras Government, Revenue Department,
15th July 1861.*

No. 191. Read the following letter from Major W. H. WAPSHARE, Secretary Ootacamund Improvement Committee, to J. D. SIM, Esq., Secretary to Government, Revenue Department, Fort Saint George, dated Ootacamund, 17th June 1861, No. 19 :—

SIR,

1. By desire of the Ootacamund Improvement Committee I have the honor to transmit, for submission to Government, Extracts of their Proceedings held on the 6th instant.
2. The Plans and Estimates therein treated of are forwarded by this day's banghy.

Proceedings of a Meeting of the Ootacamund Improvement Committee held on the 6th June 1861.
*Present :—*MESSRS. ROHDE, OUCHTERLONY, DAWSON and WAPSHARE.

FIRST SUBJECT.

1. A letter from the Senior Medical Officer on the Neilgherries (*See file*) having been previously circulated, the Committee assembled in the bazar on the 4th instant, and proceeded to a close examination of the present state of the drainage and sewers.
2. There is too much reason for the complaint urged in the letter of the Senior Medical Officer. No efficient control appears to be exercised over these works, so as to preserve them in good order.
3. It is only a month since that the Committee had the street drains leading to the lake cleaned out in anticipation of the monsoon, but in some cases they have already been filled up by rubbish and offal thrown into them; in one particular case, a party had actually filled up a whole drain in defiance of the Committee; and it was likewise found, in one instance (and the same no doubt exists in many others), that the privy drainage of a house flowed into the open drain of the street, remaining stagnant there until the rain should wash it away. All this the Committee consider that the Police have authority to restrain and prevent, and resolve therefore to call the special attention of the Inspector of Police to the subject.
4. In the high road, running along above the upper street of the bazar, it was found that no arrangement existed for carrying off the water from the upper part of the hill, in consequence of which the water flowed across the road to the detriment and inconvenience of the dwellings below it; the remedy for this is check drains on the hill side above the road, and a good drain on the hill side of the road. To keep this efficient will require constant care to prevent chocking. It is presumed that this particular work belongs to the Public Works Department, to whom the subject will therefore be referred.
5. The under side of the same road drops abruptly to the upper row of houses of the bazar, in front of which a drain runs; or rather ought to run, but an unchecked practice seems to exist of throwing all rubbish from the houses out upon this drain, until every here and there it is entirely choked, the water stagnated around dwellings, and as a consequence the general state filthy in the extreme.
6. A small strip of land runs between the road and these houses; in some but not all instances this is enclosed in front of a house with bamboos, in some enclosed with mats which hide the filth within; in other cases the drain is actually built over, and in some enclosures wells have been sunk, the water from which cannot be otherwise than unwholesome from the falling in of earth, and sweepings from the road above. It is very questionable whether the whole of these enclosures are not unlicensed encroachments; as they exist, it is evident that they impede any decided action in respect of cleansing the important drain which runs through them. It will therefore be the duty of the Committee to make this point a special subject of investigation when examining into the general Pattas of the place.
7. With reference to the general subject of the drainage of the bazar, and seeing how very closely it is built over (an evil which it is now too late to remedy), it appears to the Committee that all the main cross and direct drains should be constructed of masonry, as from the great rush of water during the monsoon there is otherwise always a liability to the side being undermined, and they resolve to record their opinion to this effect.

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8. They further resolve, that as a monthly sum is contributed by the inhabitants of the bazar towards keeping it in order, a copy of the present Proceedings be sent to the Collector of Coimbatore, who, they understand, has the official disposal of the fund; and, lastly, they resolve to request Captain Farewell to estimate the cost of masonry drains, such as they have above recorded their opinion to be necessary, and on receiving such estimates to take measures to ascertain whether the inhabitants of the bazar are willing to meet the expense of their construction.

9. It is unnecessary here to enter upon Dr. Stewart's remarks regarding laterines, or a flow of water into the lake for sewerage purposes, as that question has already been fully considered, and no new light appears to be thrown upon the subject in them.

10. On the same occasion the Committee found that the drain constructed for the purpose of flooding the laterines was having the injurious effect of raising the water in the supply channel of the lake to such a height as to flood the adjacent ground, and they therefore ordered its removal, and requested one of their members, Mr. Rohde, to construct in place a temporary dam with a flood gate.

SECOND SUBJECT.

11. Read and considered Captain Farewell's estimates and plans for improving the lake and carrying off the sewerage of the bazar (under the scheme proposed by Mr. Fraser), and the minutes recorded thereon in circulation.

12. Resolved that the Committee regard Captain Farewell's scheme for the improvement of the lake as a very judicious and desirable one, but seeing that it involves an outlay of Rupees 28,253, they do not feel themselves justified, under existing circumstances, in pressing its adoption upon the Government, but they resolve to send it on for its consideration, they agree with Captain Farewell in the opinion that the plan for the removal of the sewerage of the bazar would be most advantageously carried out as a part of his general scheme of improvement, but as of itself it forms a mere plan for completing the work already agreed upon by the Committee, viz., the substitution of a system of boats for the purposes of the now existing latrines, they deem it advisable that this should be carried out with the least possible delay.

13. The expense of this work they observe is comprised in the following estimate:—

	Rs.
No. 3.....	1,617
„ 5.....	918
„ 6.....	152
„ 7.....	586
Total...	3,303

which is, however, much beyond the amount available in their hands (excluding the 7,000 Rupees which was granted for a special purpose), and it is necessary, therefore, that they should solicit the aid of Government to complete this important work.

14. In conclusion, the Committee determine to seek this aid at the hands of Government, and at the same time, in view to its being fully informed on the subject of laterines, to forward with this day's proceedings the letter of the Senior Medical Officer, Dr. Stewart, dated 31st May 1861, and also the letter of their Member Dr. Rogers, dated 19th March 1861.

(True Extract.)

(Signed) W. H. WAPSHARE, Major,
Secy. Ootacamund Improvement Committee.

From Assistant Surgeon L. W. STEWART, Senior Medical Officer Neilgherries, to
Major W. H. WAPSHARE, Secretary of the Ootacamund Improvement Committee,
dated Ootacamund, 31st May 1861, No. 30.

SIR,

In virtue of my being Senior Medical Officer I am considered the sanitary Officer at this station, and therefore I beg to offer a few observations connected with the sanitary condition of Ootacamund for the consideration of the Improvement Committee.

*Proceedings of the Madras Government, Revenue Department,
15th July 1861.*

2. Regarding the laterines, if they are to be continued, I consider they should be erected over the main stream, which would allow the offal to be carried directly into the great body of water, instead of as at present being dispersed over the marshy land on both sides of the channel when the laterines are flushed from the main stream.

3. A flood gate should be erected some distance above the laterines in the main stream, which should be opened three times a week, and the laterine, I consider, should be built at greater distances from each other than they are at present, thus making them more subservient and convenient to those for whom they are intended.

4. On both sides of the arch in the middle of the bend, looking north-east, the water is comparatively stagnant, and the more solid filth as a consequence is lodged close to the banks, and the surface of the water is there covered with decaying vegetable matter.

5. To remedy this I beg to suggest that two more arches be built, one on either side of the present centre arch, within twelve feet of the banks, this would allow a free current of water to pass along the principal or bazar side of the lake, and tend greatly to carry off the refuse from the bazar and laterines.

6. It seems to me questionable if the offal from the laterines should be washed into the lake, when it is considered that so many natives are in the habit of drinking this water, and that, too, when it is comparatively stagnant close to the banks. I have observed the dry refuse matter, such as the sweepings from the bazar, the horns and hoofs of animals, thrown on to the very bank of the lake. Such a practice most undoubtedly prove prejudicial by contaminating the water.

7. It requires the serious consideration of the Committee to decide on these points, viz., whether the laterines should be continued in their present site, or altogether done away, and privies erected throughout the bazar, and the offal removed to a distance by carts.

8. I am more in favor of this latter suggestion being carried out, because it seems impossible to prevent the natives using the lake water for drinking purposes, and it is reasonable to conclude, to a certain extent, the water holds, in solution, impurities which must affect those who use it.

9. I am informed that very contiguous to the dwellings of all high caste Musselmen and Hindoos there is a compartment wherein all the female inmates defecate.

10. This must, by accumulation, render the air very detrimental to those resident in the immediate vicinity of such dwellings.

11. I would specially bring to the notice of the Committee, the state of nearly all the drains in the bazar, particularly that which runs parallel with the upper road. This drain is filled with stagnant putrescent vegetable and animal matter, within a foot or two of the houses. The more liquid matter in this drain slowly passes off to the lower bazar, or is removed by evaporation.

12. Many cases of Typhoid fever must and do result from inhaling such vitiated air. The cases of fever and dysentery, which are admitted into the Civil Hospital so frequently, furnish sufficient evidence of the insalubrity of the bazar.

13. I am of opinion that no time should be lost in improving the state of all drains before any thing approaching an epidemic is brought into existence.

14. The drains throughout the bazar should be constructed of stone and chunam; a channel merely dug out of the earth, without any means taken to protect the sides from falling in, is but a waste of money; besides which the liquid filth passing along must, in its course, become absorbed and finally evaporated.

15. I beg to refer to G. O. G., dated 2nd December 1858, No. 107, in which it is clearly stated the Senior Medical Officer of this station is ex-officio Sanitary Officer.

16. I also beg to enclose copy of letter from Secretary to the Director General Medical Department, and with reference to paragraph 3, I shall consider it my duty to act accordingly should the Improvement Committee disregard this communication.

*Proceedings of the Madras Government, Revenue Department,
15th July 1861.*

From C. J. ROGERS, Esq., Medical Officer, Neilgherries, to Major W. H. WAPSHARE,
Secretary Ootacamund Improvement Committee, dated Ootacamund, 19th March 1861.

SIR,

1. I have the honor to request you will be good enough to bring to the notice of the Ootacamund Improvement Committee, the filthy state of the ground and privies in rear of the bazar. On the south-west side of the market, there are a number of old huts, many of them in a very dilapidated condition. On my visit to this locality I found outside many of these hovels heaps of decomposing filth; in fact, the whole of the ground in the neighbourhood is in a very dirty state. The privies give forth a sickening effluvia, and whatever may have been the depth of the pits in the first instance, the ordure is now within a foot or two of the level ground. Between the huts above alluded to and the privies runs a stream of water, and although at present there is no communication between this and the pits dug for the privies, yet it is evident from several channels running from this stream into the pits, that as soon as the stream of water rises it will be carried into the pits, and thence charged with human excrement over the adjacent low marshy ground. Now, it will either remain to breed miasma and engender disease, or be washed into the lake, thereby poisoning the water.

2. I would suggest that these privies should be at once covered with quick-lime and closed and the plan of carrying the filth by means of the stream of water into the lake discontinued, and in replacing the privies I am of opinion that, if possible, the plan of casting away the dirt should be adopted; but as there may be many obstacles to prevent this arrangement being carried out, I would propose that pits at least 15 feet deep be dug, and that quick-lime should at intervals be thrown in. These pits should after a certain time be closed and fresh ones made. Arrangements should also be made for the removal of the enormous quantities of filth in this neighbourhood and for the prevention of its future accumulation.

(True Copies.)

(Signed) W. H. WAPSHARE, Major,
Secretary Ootacamund Improvement Committee.

No. 192.

ORDER THEREON, 15th July 1861, No. 1,400.

Ordered to lie over.

(Signed) J. D. SIM,
Secretary to Government.

Ootacamund Improvement Committee

*Abstract of Estimates of the various
works proposed to be done towards
the improvement of the Upper Lake
at Ootacamund*

R 1465/61-

Amount of Estimates

Rupees. 28,258-

Abstract of Estimates of various works proposed to be done towards the improvement of the Upper Lake & Lakeview.

Estimates

Total

1	Estimate of the expense for improving the Upper Lake by deepening the station ponds, removing the islands, filling & raising the adjoining nearly level	21,554
2	for constructing and building a sluice, and deepening channel 7 feet below the present water level in the Lake	3,401
3	for works proposed to be done in building and constructing docks, wharves, and buoys around the Lake	16,175
4	for constructing a similar bridge at the South end of Victoria Canal	22,750
5	for removing the head of the Victoria Canal Bridge and putting on a new one	21,000
6	for constructing a channel at the North end of Victoria Canal	1,572
7	for constructing a dock & basin for the Gun	5,860
Total 21 Ponds		30,533

Added to do 22,750
 182,058

Wm. H. Smith
 Assistant Engineer

Subject for the improvement of the drainage of the low marshy ground adjoining the upper portion of the Co'tacamund Lake, and its supply channel as far as the Market Bridge, draining the general Bazaar of the Station and adjoining the right side of the Lake for the use of the Natives, and building Boats, Sheds, &c. &c. for this purpose.

The whole of the upper portion of the Lake has been carefully surveyed, and the properties on the Bazaar side of the Lake all measured and marked plainly in the plan which is furnished with a table of references shewing to whom each plot of ground belongs.

I am given to understand that a project for removing the right soil from lakes used by the inhabitants of the general bazaar by the means of Boats was contemplated by Mr. I. Master, the late District Engineer of Coimbatore; however, no details of any kind have been furnished to me regarding this project. I have therefore at the request of the Co'tacamund Improvement Committee prepared plans, estimates, and specification for carrying out this project in detail.

I shall now give a general sketch of this project and the cause of its adoption. At present the lakes of the general Bazaar are built over a small channel, leading from the supply channel of the lake, and the whole of the right soil, daily deposited in this, is thus taken directly into the lake, at its shallowest part (shown in the plan and marked **AB**) where dense sedges, and weeds, of all kinds are growing luxuriantly, collecting silt, filth, &c. gradually, filling up the upper portion of the lake above the Willow-land, which must in course of time become a rank morass, giving out most unhealthy exhalations, instead of being a useful, as well as beautiful, sheet of water. To allow of a good flow of water through the channel flowing under the lakes, a dam has been thrown across the supply channel at the lake at the point marked **M**, thus turning the lake channel into the lake supply channel, and by raising the water, for the reasons just given, the low land marked **T. V.** is constantly flooded and covered with stagnant water.

The water in the lake is used for the purpose of ablation, and Shear is also frequently used for drinking purposes, by residents, both native, and euro, here, who I presume must be unacquainted with the mode of disposing of the sewage, from

the latrine as at present adopted. The sanitary effects produced by such an arrangement must be well known by all; so I need say nothing further on the subject, than that the present project is submitted to remove this great evil and thus render the public supply of water in the lake, not at all domestic purposes, to the residents of the station.

5. From the General Diagram being situated in the head of the station, and the limits to which the station will now being extensive, there are many reasons why carts, cannot be employed for the removal of the night soil from the latrines, in the first place, it would require many carts, and (Balkons, together with an expensive establishment to be kept up, in the second place, these carts could not make more than one trip per diem, to discharge into any direction, at a proper distance beyond the station, in the third place, double sets of port hubs, or boxes, would be necessary, and in the last place, the night soil carts, would have to load by the high roads through the station in open day, and be a general nuisance to everybody. The climate being such, that I do not believe, any high way, would induce carters to work at night.

~~No~~ ~~As~~ ~~has~~ ~~these~~ ~~been~~ ~~proposed~~ ~~and~~ ~~have~~ ~~already~~ ~~to~~ ~~re-~~
move the night soil beyond the Calingulah, or north wing of the -
Cotacamund lake by boats, and have discharged them on land.

On careful examination this plan appears to me to be the best mode to be adopted. While more thorough proposed to give a detailed description of the project of removing the night soil of the latrines of the general bazaar by boats, stairs, and columns wanted 1800 5 are attached. It is proposed that four latrines be provided, each to dig in the margin of the lake, below the general bazaar as far removed as possible from the public road, these docks to be covered with a good substantial thatched roof, a double row of seats will be provided to each latrine by dividing the platform over the docks into two parts. The docks to contain sufficient water to float flat-bottomed punts twenty feet long, four feet wide, and two feet deep, to receive the night soil. Boats to contain about four inches of water for deodorizing purposes. The boats are to be removed as often as necessary (which experience can only show) floated to a distance of two hundred, and fifty feet, beyond the present Calingulah, or waste river, of the lake, where a dock with necessary banders to receive the boats is to be built, and a second calin-

float
-gulah with shutters to raise the water to a sufficient height to
a boat. On a boat reaching this point, by removing a plug
in its bottom it is to be allowed to fill and sink on to the ma-
sonry banters, a shutter is then to be removed from the lower ca-
lingulah, and the water thus obtaining velocity, will flush out the
boat. To admit of this scheme being carried out, the Committee
suggested that a (Bridge) be built in the Willow bund, to allow of a
sufficient water way for the boats to pass beyond the willow bund.
The present bridge does not afford this, an estimate for a bridge of
the cheapest description, and of a bund most easy to construct is also
attached to the plans, and estimates, as also a plan and estimate
of the lower catingulah, docks, and masonry banters.

I have examined the site selected for the timber bridge
and find that except the sluice and drainage scheme is accepted,
it will be an expensive operation, as the site chosen, as water is
reached within four feet of the surface of the earth, and the subsoil
is such as will necessitate deep excavation for foundations, involving
the expensive process of coiling. I would therefore recommend the
cheaper plan, of removing the brick arch from the present bridge
in the Willow bund, and erecting a timber platform bridge on
the remaining abutments of the bridge, this will afford ample
water way for the boats to go, and the roadway of the bund can
without difficulty be raised eighteen inches, above its present height
which will in itself be a great improvement, this work is estima-
ted for Rs. and attached to the estimates marked Nos 4 and 5
8. In order to cause a current to pass down the

sides of the lake, to prevent the angle marked A from sitting in, a
plan and estimate for building a bund, six feet wide in the sand
at this point I an estimate for digging a channel to and, from the
bund is likewise appended.

9. I will now proceed with the project of draining the
general bazaar, and also that of draining lands now covering the
now marshy grounds adjoining the upper portion of the Lake.

10. All the general bazaar above the lower road, is built
in such a position as to render its drainage very simple, open
drains will answer this purpose, if the authorities in charge of the
Bazaar, see that they are kept clear, I constrains have already been
made, so no estimate is forwarded for this purpose, when masonry
drains, would of course be a great improvement, but as such a
work would involve a great outlay I do not estimate for it. The

ground, that is, an immediately adjoining the lower road. When
it is for a human distance, but when it is the margin of the lake, from
the lake, is in most instances level with the surface of the water in the
lake, and in some, there, actually below it, when at its summer level.
Thus it is impossible to drain it, therefore, proposed that all the ground
be raised to a uniform level of three feet above the summer level of
the lake, and thus render its drainage an easy matter, by the plan
proposed of the other portions of the lake, it will be observed that
many and various portions of the land between the road and the lake is
private property, a sum of money has already been sanctioned to pur-
chase this land, as the value of the property is not immediately in the es-
timate. I have examined the public channels, and am of opinion,
that it would not be a judicious plan to change its course and direct
it as suggested by the Committee through the marshy land and through
which it flows it would be with a very great advantage, by which, as much
convenient as it is, and raising it with the earth, raised in this
manner the water, in the bed of the lake. The public channel
originally ran through the low swampy ground just alluded to and
was directed to its present course to cause a current to run down the
northern side of the lake and thus prevent the formation of mud,
masses of weeds collecting, the difficulty is in the way, and certainly
forming a current along shore the danger the standard strategy
formed in the other, location of the lake and maintaining a good
this current will gradually increase in size and the swampy ground
adjoining the still water, on the margin of the ^{point} ~~point~~ side of the lake
will also be raised in excess on its water. To the right and left of
the present public channels, there are several pieces of ground so low
as to be constantly swampy, to remedy this I should recommend
the public channel, to be widened so that in stormy times on the
plain, and the earth excavated be used to fill up the low places.
The removal of the
of all of the water, is and is in the upper portions of the lake as also
to reduce the swampy portions on its margin, it would be necessary
to lower the water in the lake, as a temporary measure, it is difficult
to dig, yet, the effect of this, is to have that a regulating device, for with
in the water ground, to the south of the retaining banks of the lake
at the point marked, in the plan, a plan and estimate must be
made ~~is needed~~ is needed.

It should be proposed of lowering the level of the water in
the lake, as a temporary measure by means of the devices at the lower
end of the lake, be constructed a large extent of valuable land would
be reclaimed and when levelled and drained would be available
for use, as building sites or for agriculture.

It will be observed, that without a regulating device

James

6
none of the drainage operations recommended can be satisfactorily accomplished. The earth required to raise the low swampy grounds adjoining the lake can only be obtained from its bed, and the sedge and silt composing the islands and swamps encroaching on its waters, can only be removed by lowering the water in the lake to the depth the sluice provides for. I would also add I am of opinion, that the boat scheme, for removing the night soil from the latrines of the bazaar, should form part, and parcel, of the whole project, as the combined accomplishment of both schemes will much facilitate the speedy completion of both, and will probably lessen the cost of at least one of them. It must also be remembered that the sluice proposed to be created will be of great value, in the case of unusually heavy rain, when it can be used as a safety valve, to the lake, in aiding the discharge of the existing calingulak, or waste wing and the waters in the lake will be perfectly under command as long as the works exist. I leave not to show the position of the ~~proposed~~ latrines on the plan as I think it better to decide their sites after the land has been cleared, drained, and levelled.

W. A. A. A. A. A.
Respectful Obedience

Q. 1465/62

Object for the improvement of the
drainage of the low-lying ground
adjoining the upper portion of the
Colacumunda Seta and its supply channel
as far as the Market bridge, draining the
General Bazaar of the Station and re-
moving the right side of the Station
for the use of the natives, and building
cesses, sheds, dykes for this purpose.

18/10/1862

18/10/1862

No. 1

Estimate of the probable expense for improving the Upper Lake by deepening the shallow parts, removing the islands, and filling in and raising the adjoining low marshy lands. *Recommend -*

Measurements			Particulars of work.		Vol.	Page
Length	Breadth	Height				
3700	20	1/2		55500	Deepening margin of Lake -	
100	50	1		5000		
100	35	1		3500		
50	20	1		1000	Clearing & removing islands.	
25	10	1		250		
20	9	1		180		
120	85	1		10200	Deepening the marshy land above the Lake.	
250	4	1/2		750	widening the Channel up to the bridge leading to the present latrine	
4000	1	1		76380	Re-excavating & raising the adjoining land.	1824 19095
				4000	Raising & walls along the margin of Lake	2 500
						19595
					Superintendence &c &c when done	1959
					Total expenses	21554

W. H. H. H. H.
Executive Engineer.

No. 1

Specifications of Sundry works required to be done in improving the upper portions of the Cotacambú Lake by deepening the shallow part, removing the Islands and filling in and raising the low marshy lands adjoining

Amount of Estimate 2,1554. —

The lake will be lowered to 6 feet below its present water level by constructing a sluice as shown in Plan Specifications and Estimate marked No. 2. The whole of the portions of the lake marked in the plan in dotted red lines will be cleared of weeds, reeds &c. &c. the Islands removed, and the earth, so taken away will be used for the purpose of raising the whole of the low marshy lands adjoining thus reclaiming 9 acres of land fit for good building sites and valued at about 5000 Rupees

Executive Engineers, Office
Cotacambú 18th May 1861


Executive Engineer

No 1

Wicamund Improvement

Committee

No 1

specificative of our duty was acqui-
red to be done in improving the Wicamund
portion of the Wicamund State,
by deepening the shallow shoals, reover-
ing the shoals, and filling in the
low marshy lands adjoining.

Dec 14 65/66

Apr 2.

9

Estimate of the probable expense for Constructing and building a sluice, and surplus Channel 6 feet below the present water level in the Lake at Datsacand.

Length	Breadth	Height	Volume	Unit Price	Particulars of work	Rate	Per	Amount
104	2 1/2	3	-	780	Foundation to two main walls.			
24	2 1/2	3	-	180	" " wing walls,			
104	2	6	-	1268	side walls above			
24	2	18	-	864	wing walls above			
50	4	1 1/2	-	300	Arch			
18	1 1/2	15	-	405	bricks & Knappek stone laid			
6	2	3	-	36	Retaining wall above of stone.			
6	1 1/2	2 1/2	-	22 1/2	Filling in Arch			
				3835 1/2	Cost of Back in Channel	30	per foot	1150 10
50	5	-	250	-	Flooring			
7	1	-	7	-	Lintel for arch.			
14	1/2	-	7	-	door pins for iron shutter			
7	1/2	-	3 1/2	-	door - " - " - "			
				267 1/2	Cost of Put Stone in Channel	150	per foot	404 1/2
20	13	-	260	-	rough stone above & dressed wall		1/2 per foot	24 5
50	15	-	1008	-	Finishing wing			
18	18	-	324	-	" " " "			
				1332	Plastering in the Channel	6	per foot	79 15
50	10	15	-	7500	Excavation			
50	7 1/2	15	-	5625				
				13125	Cost of 485 1/2 ft. excavation	3	per foot	91 2
					Sluice Shutter Complete			100
					Superintendence @ 10 per cent			184 11
					Total Expenses			2032
					Excavating New Surplus Channel			
47	9	9	-	595	Surplus Channel			
17	10	3 1/2	-	9350				
170	11	5	-	9945	Cost of excavating new Channel	2	per foot	1243 2
					Superintendence @ 10 per cent			124 14
					Total Expenses			1368
					Grand total Expenses			3601

W. H. H. H. H.
Executive Engineer.

No. 2.

10

Specifications of sundry works required to be done in constructing a sluice, and excavating a discharge channel, & put below the present water level in the lake at Cotacacumund.

Amount of Estimate Rupees 3044. —

The sluice will be built of bricks in chunam, cut stone flooring and rough stone apron, with retaining walls in rear, and the sides to be revetted with rough stone for a distance of twenty feet. The sluice to be provided with a 2 inch thick, sluice shutter and built according to the plan and estimate annexed.

Executive Engineers, Office }
Cotacacumund 18th May 1881 }


Executive Engineer.

Q 146576 -

604

No 3.

Estimate of works proposed to be done in Building and Constructing Docks, Piers, and Enclosures around the Lake at Pokharamund for Sanitary purposes.

Dimensions	Length	Breadth	Height	Volume	Particulars of work	Rate	Per	Amount
100	6	4		2400	Channel and Dock			
24	3	3		216	8 Posts to secure Bamboos Matting			
16	3	3		144	8 Posts to receive Lail for seats			
				2760	or 102 C4's of Examination		2 p.c. 4	12 12
64	1/2	1/2		16	8 Posts to secure Bamboos Matting			
60	1/2	1/2		15	8 Posts to receive Lail for seats.			
24	1/3	1/3		2.8	4 Cross pieces to seats.			
40	1/3	1/3		4.5	2 Longitudinal pieces			
168	1/3	1/3		18.8	Cross pieces for seats.			
				509	C4's of Jang wood timber, fitting & fixing		12 p.c. 4	42 9
60	8			480	Bottom & sides of Pier			
8	3			24	Ends of "			
574					Plankwork wrought both sides & fitted	75	per sq.	375
					2 Painter Eye bolts and Straps	3	each	6
66	5			330	Bamboos Matting	2	per sq.	8 4
25	20			520	Commons Matting (Roofing)	9	per sq.	46 13
					Extra Establishment			47 10

Total Amount of Estimate — 539

For two Bore — 1078

Total Bore — 1617

W. H. H. H. H.
Resident Engineer.

No 3.

Specifications, of Sundry Works required to be done in
constructing, docks, punts, and Rahine sheds on the margin
of the Lake, at Cotacamund.

Amount of Estimate Rupees 1617. —

The several Docks will be constructed according to
the plan, and estimate the punts to be 20 feet long by 14 feet
wide and by 2 feet deep constructed from Teakwood and firmly
fastened together with all necessary, Bolts Shaps, and Ribs
each punt to be supplied with a painter rope, and ring at
each end for the purpose of towing the punt where necessary
each punt will have 2 holes in its bottom provided with plugs
removable for sinking the punt, as noted, in the project
each Dock to be enclosed with Bamboo matting and covered
with a good thatched roof.

Executive Engineers, Office }
Cotacamund 15th May 1861 }

W. S. S. S. S.
Executive Engineer

No 3.

Dr 1465/6-

No. 4

13

and Building
Estimate of the probable expense for constructing a similar bridge across the
South end of the Willow Bend. Astoria, Ore.

Measurements			Calculation of work	
Length	Breadth	Height	Vol.	Superf.
60	4 1/2	6	1782	Foundation to abutments
64	3	12	2304	Abutments & wing bases above
18	12	2	432	Flooring
36	1	3	198	Parapets
1626			Brick in abutments	30 - Price 1387 13
108	1	3 1/2	378	Beams
14	12	1 1/2	384	Planking
52	1/3	1/4	4.4	Upper & lower rails
24	1/3	1/4	2.2	Posts
56	1/3	1/4	4.8	Prop rails
130			Feak timber	1 12 Price 227 8
			Carpenters hire to getting & fixing wood work	17
			200 Rail	1 1/2 Price 2 8
200			Excavating foundation & channels	3 Price 105 13
			Fixing the entire wood work	2 8 Price 27 8
			Draw and Building	300 -
				2008 1

Superintendent of the work 200 15
Total Expenses 2275 -

W. L. Lusk
Mechanical Engineer

N^o 14.

Specifications of sundry works required to be done in
constructing a Timber Bridge across the South end of
the Willow Bend, Colacacumud

14

Amount of Estimate Rupees 2275-0-0

1. Timber Bridge is to be built across the Willow
Bend to allow of the soil, punts to pass to the lower bend
for the purpose of being emptied, as per plan and estimate
annexed and shown in the project. This plan and estimate
will not be required if the plan and estimate marked N^o 5 be
adopted.

Executive Engineers Office
Colacacumud 15th May 1861


Executive Engineer

Dr. 1465/4-

No 4-

No 5.

¹⁶
Specification of Sundry works required to be done in removing the arch of the Willowbund Bridge and constructing a Timber platform on its abutments

Amount of Estimate Rupees 948. —

The Arch of the present bridge to be removed, the side walls carried up as far as shown in the plan and covered with a Teak-wood platform, to allow of the soil boats or punts to pass to the lower bund for the purpose of being emptied, as per plan and estimate annexed

Executive Engineers, Office —
Colacacunda 18th May 1861

W. S. S. S. S. S.
Executive Engineer

Dr. 1465/61-

No 3-

16.

Estimate of the probable expense for constructing a tunnel across the northern end of Willow-Bend. Incorporated.

Measurements.				Particulars of work		Per	Amount
Length	Breadth	Height	Weight	Per	Per	Per	Amount
25	5	3		375	Concrete foundation	13	48 12
50	2	1		100	Side walls.		
25	1	1/2		112 1/2	Arch.		
				212 1/2	Bricks in Churn	30	63 12
40	9	9		140	Excavating Channel	3	28 4
140	1	1					138 12
							13 12
							152

Superintendence 2 1/2 per cent

Total Bids 152

Dependence & Power Bank:

Lt Col Roper. 152
Wheeler St Sept
Executive Engineer.

No 6.

Specifications of sundry works required to be done in connection with the
pumping or tunnel at the North end of Wilton Road at
Colacamund.

Amount of Estimate Rupees 132. —

A Tunnel of Bricks in Chumam is to be built across the
North end of Wilton Road, as per plan and estimate, the foundation
to be of rough stone in Chumam and concrete.

Executive Engineer Office
Colacamund 18th May 1861 }

Executive Engineer

1850

Dr. 1165/6-

No 6

No. 7.

17

Estimate of the probable expense of constructing a Dock to secure the Park at the end of the surplus Channel for the discharge of high-tide soil.

Measurements				Particulars of work.		Vol.	Per	Amount
Length	Breadth	Height	Depth	Width	Area			
80	3	2		480	Bankers			
8	10	8		640	Foundation to sluice			
9	18	3		486	Side walls			
Cp. 1606				Brick in Channel	30	per	4x1	13
30	5	1		150	Cp. Rough stone work	2	per	18
7	5	1/4		83 1/4	Cp. Teak Planks	2	per	17
40	10	8		3200	= 119 Cp. Recession	2	per	14
								532
								53
								586

Superintendence @ 100 per cent

Total 586

W. H. H. H. H.
Resident Engineer

No. 14

Specifications of Sundry Works required to be done in constructing a Dock to receive the Soil punts, at the end of the new channel for the discharge of their contents by flushing them with water

Amount of Estimate Rupees 586.

The Dock to be built at the end of the Surplus channel of Brick, in chimneys with cut stone grooves to receive shutters the 13, antiers to have, a foundation of 1 foot below the bed of the Dock, the shutters to be 5 feet high in five pieces agreeably to the plan and estimate

Executive Engineers Office
Calcutta 15th May 1861

Wm. Smith Esq.
Executive Engineer.

No 11

Dec 14 65/66

No 7

No 19

To the Government
of the
Senate
of the
United States

Sir

By desire of the Ottawa
Improvement Committee I have
honor to transmit for submission
to you some extracts of their
Proceedings held on the 6th ^{May} instant.
2. The Plans and Estimates
therein treated of are forwarded
of this day's date.

Yours truly
Sir

Your most obedient servant
W. H. Waples Esq
Secretary Ottawa Improvement
Committee

Ottawa
17th June 1867.

Recd 1861
Progr Govt & War
No 1465

From

the Secy to the

for annual depn.

and terms of

Recd 1861

Recd 1861

Recd 1861

[Signature]

Of monetary affairs of the
Government between the
United States and foreign
the estimates of the
of are forwarded by

No 1400

Ordered to be

over

Note. The int. have already
R 10,000 to the Com. already
for their work.

[Signature]

15th Aug 1861

As 1100.15. July

With an Order

No 141492