Public Works (1898) Department.

G.O., No. 840 W

DATED 29 March 98

3.A 3/3/98

[Despatch Abstract.]

Ootacamund Lake – The proposals of the Chief Engineer, P.W.D., in regard to increasing the depth of the lake supply channel and lowering the level of water in the — accepted with remar

11/6

1 / 28-3-98

Indexed.

[P. W. 56. / 1,000—13-2-98.]

BACK PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

BUILDINGS AND ROADS.
CIVIL WORKS.

Government (1898) of Madras.

PUBLIC WORKS.

Recd. } 1898. *Enclosures*
Regd. } *Spare copies*

G.O., No. 840 W., 29th March 1898.

MARCH.

Ootacamund Lake

The proposals of the Chief Engineer, Public Works Department, in regard to increasing the depth of the lake-supply channel and lowering the level of water in the —, accepted with remarks.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

Read—the following papers :—

From A. H. GARRETT, Esq., Superintending Engineer, IV Circle, to the Chief Engineer, Public Works Department, dated Coimbatore, 11th January 1898, No. 11/W.

I have the honour to forward a note on the stream supplying the Ootacamund lake by the Executive Engineer on special duty.

2. I do not think any advantage would be gained by the arrangement proposed in paragraph 5.

3. Orders are requested regarding the level at which water in the lake should be maintained. The reasons assigned for lowering it to the extent proposed seem conclusive.

Enclosure.

Note on the Ootacamund Stream, being the source of supply of the Ootacamund Lake.

The catchment basin of this is 3·7 square miles, of which about 3 square miles drains into the stream direct.

In Mr. Ashpitel's report printed in G.O., No. 107 M., dated 27th January 1897, he proposes to widen the existing channel (with present bed width of 7′ 0″) to 12′ 0″, with 2′ 0″ depth of water and fall of $\frac{1}{450}$, which gives a discharge of 98 cubic feet per second. This, he states, "is sufficient for an effective rainfall of about $3\frac{3}{4}$ inches in 24 hours, which is the maximum likely to be dealt with, seeing that the gross maximum rainfall registered only amounts to 6·62 inches." Apparently a clerical error has crept in here, as 98 cubic feet per second only provides for a run off of 1·3 inches.

$$\overset{(a)}{1\cdot\text{C} — 98 \text{ cubic feet per second} = 8{,}467{,}200 \text{ cubic feet in 24 hours.}}$$

$$\overset{(b)}{3 \text{ square miles} = 83{,}635{,}200 \text{ square feet.}}$$

$$\frac{a}{b} = \frac{8{,}467{,}200}{83{,}635{,}200} = 0\cdot11 \text{ feet} = 1\cdot3 \text{ inches.}$$

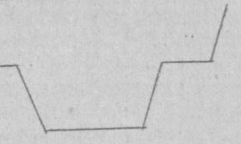
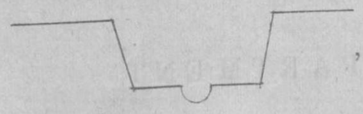
2. During my stay here my observations have led me to conclude that considerably more than 98 cubic feet per second passed down the channel in heavy rains.

3. I consider that the channel should be made large enough to carry off in 24 hours a run off of 2″, giving a discharge of Q = 3 square miles × 27,878,400 square feet in 1 mile × $\frac{2}{12}$ run off = 13,939,200 cubic feet.

Note.—This gives C = 75, in formulæ $D = CM^{\frac{2}{3}}$.

This requires a channel large enough to carry $\frac{13{,}939{,}200}{24 \times 60 \times 60}$ = 161 cubic feet per second.

4. It will be observed from the accompanying longitudinal section that a fall of $\frac{1}{402}$ is easily obtainable from the point where the channel crosses the road between the A, B, C ground and the Agraharam. Increasing the depth from 2′ 0″ to 2′ 6″, the channel requires the same originally proposed bottom breadth of 12′ 0″ slopes 1 : 1.

5. With such a broad width as 12′ 0″, I fear that in the dry months the stream will not flow strong enough to flush it well and I have tried sections thus  and thus , but they are both open to objections, and I propose to cut the bottom of the channel with one side 6″ lower than the other, so as to confine the stream to one side as much as possible.

6. Below the Willow bund it is not feasible to use a steeper gradient than 1·5 feet per mile. It is to be remembered that, as at present arranged, the stream is to be carried round the margin of the lake in cutting where possible and where it crosses deep water by silting up and then cutting a channel. This will take some years to effect, but will prevent the silting up of the lake, which would eventually do great harm. With a fall of 1·5 feet per mile and a 16′ 0″ bottom breadth, the channel would take 55 cubic feet per second, and I propose to surplus the balance (160—55) = 105 cubic feet into the lake below the island by means of a flush outlet, with a shutter in the centre with sill at bed level by which the admission of water to the lake could be regulated when the channel had reached the end of the lake.

7. It is now necessary to discuss and settle finally at what level the lower lake is to be fixed. Using the datum of the drainage scheme I found that the customary level of the lake was about + 23·0. I obtained permission, for purposes of work construction, to lower the lake 2′ 0″, and during the last season it was kept at + 21·25. The crest of the flush outlet weir in the lock end bund is + 22·11. That at the Willow bund is + 21·33. The level of the lake + 23 was obtained by restricting the waterway of the weir, chiefly, I believe, to provide a source of supply to the dhobies who wash below the bund.

8. It will be seen from the longitudinal section that the F.S.L. of the channel at the new Willow bund culvert is + 23, the same as the customary level of the lake. Unless, therefore, the level of the lake is reduced, the water in the channel will back up, and now the upper lake is filled up and does not afford an outlet as hitherto, a part of the A, B, C ground and probably the Agraharam will be flooded.

9. Further it is to be noted on the longitudinal section at the point B, that the ground level of the A, B, C ground is only 6″ higher than the F.S.L. of the channel. Now that the upper lake is filled in and this natural drainage to the upper part of the Hobart Park is lost, I believe it will be found absolutely necessary to drain the A, B, C ground if it is to be in the least bit of a healthy recreation ground. In any case it is desirable to keep the water in the channel as low as possible so as to keep the subsoil water as low as possible in the A, B, C ground.

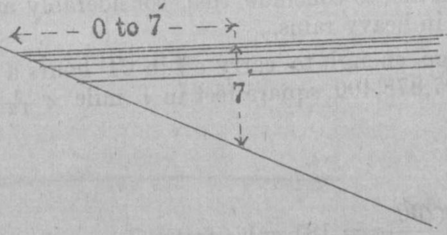
In fact the question resolves itself into, whether the A, B, C ground should be made fairly healthy, or the lake kept up at the usual level. My recommendation is for the former, on the grounds that the A, B, C is close to the bazaar and is used by far more people for recreation purposes than is the lake.

10. I would therefore propose that the lake level be permanently reduced to + 21·5. Possibly it might be increased to + 22 in the summer months, but this I deprecate.

11. The objections that have been advanced against such lowering are—

(*a*) Reduced area, but this is really infinitesimal and when the brown area round the margin is covered with vegetation will not be noticeable.

(*b*) Spoiling the appearance of the lake. This is a matter of opinion I cannot say I could notice it to any appreciable extent.



(*c*) Increase of weed area. This sounded a plausible objection, but if the slope is continuous, as I believe it to be, it is not the case as if, as they do, weeds grow between nothing and seven feet of depth, that area is simply transferred low down.

(*d*) Injury to boating. The only real nuisance is the getting into the boats from the stagings. If the level of the lake is fixed these can easily be altered.

(*e*) Vegetation on water surface. This was rectified by temporarily lowering the weir and creating a surface flow when it disappeared.

12. As the water in the upper lake is doing harm, and it is necessary to divert it into the new channel, work will be proceeded with on the above lines. The earth from the channel is required for the lake filling, so that estimate will bear the cost of the excavation.

13. Orders are requested as to the lake level.

(Signed) J. F. SOMERS-EVE,
Executive Engineer on special duty.

From the Superintending Engineer, IV Circle, dated 16th February 1898, No. 96/W.

Note by the Chief Engineer, Public Works Department.

In his No. 11/W., dated 11th January 1898, the Superintending Engineer, IV Circle, forwards for orders a note by the Executive Engineer on special duty at Ootacamund on the stream supplying the lake and the level at which the water in the lake is, in future, to be maintained.

2. The proposals are as follow :—

(1) To increase the depth of the lake-supply channel from 2′ to 2½′ to enable it to carry 161 cubic feet per second. This is necessary and may be sanctioned.

(2) To cut the channel with one half of the bed 6″ lower than the other half to concentrate the scanty summer flow. This would soon silt up and be of no permanent benefit.

(3) To run the channel round the margin of the lake beyond the Willow bund until, by a process of silting through a long series of years, it forms its own bed, and be practically independent of the lake; the object being to avoid silting in the lake, also to have a flush outlet just below the island, to pass surplus water into the lake when the channel has reached the end of the lake. The former has already been sanctioned. The outlet will not be required for many years to come and its construction may be postponed till then.

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(*a*) The full supply water level in the supply channel at Willow bund is + 23, and unless the lake is lowered, the water will back up the channel and probably flood the Hobart Park.

(*b*) The full supply water level in the channel is generally only 6 inches lower than the ground level of Hobart Park, and it is necessary, in the interests of the latter, to keep the water level as low as possible.

With these views I agree, though very unwillingly, because I fear it is certain that unless the lake level is permanently lowered Hobart Park will be more or less of a swamp for several months in the year. I therefore recommend their adoption and solicit early orders on the subject as the height of the sewage manholes depends upon the water level in the lake.

(Signed) W. B. deWINTON,
Ag. Chief Engineer.

5th March 1898.

ORDER—No. 840 W., dated 29th March 1898.

His Excellency the Governor in Council sanctions the proposals in clauses (1) and (4), paragraph 2 of the Chief Engineer's note, and accepts the conclusions arrived at in clauses (2) and (3).

2. The cost of the work now sanctioned will be met from the Public Works Provincial grant, and the Superintending Engineer will, in due course, apply for such funds as may be necessary.

(True Extract.)

~~Under~~ Secretary to Government.

To the Superintending Engineer, IV Circle, with plan.
„ Examiner, Public Works Accounts.
„ Local and Municipal Department.

Exd. W. D'Moss.

BUILDINGS AND ROADS.
CIVIL WORKS.

Government (1898) of Madras.

PUBLIC WORKS.

Recd. } 1898.
Regd.

Enclosures

Spare copies

G.O., No. 840 W., 29th March 1898.

MARCH.

Please send me the original of this & the section if still in the office
HS
29/4/98

Note for the H.M.

The original of G.O. No: 840 W 29th March 1898 is submitted here. The section has already returned to Mr. Somers Eve and will be obtained from him, if necessary

7.5

HS
11/5/98

Ootacamund Lake

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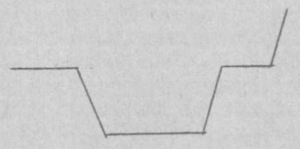
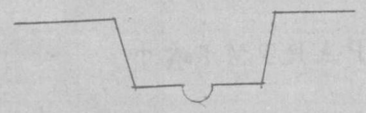
5. With such a broad width as 12′ 0″, I fear that in the dry months the stream will not flow strong enough to flush it well and I have tried sections thus  and thus , but they are both open to objections, and I propose to cut the bottom of the channel with one side 6″ lower than the other, so as to confine the stream to one side as much as possible.

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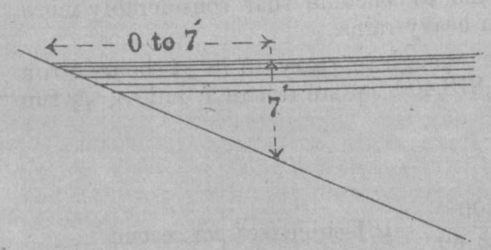

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With these views I agree, though very unwillingly, because I fear it is certain that unless the lake level is permanently lowered Hobart Park will be more or less of a swamp for several months in the year. I therefore recommend their adoption and solicit early orders on the subject as the height of the sewage manholes depends upon the water level in the lake.

5th March 1898. (Signed) W. B. DEWINTON,
Ag. Chief Engineer.

ORDER—No. 840 W., dated 29th March 1898.

His Excellency the Governor in Council sanctions the proposals in clauses (1) and (4), paragraph 2 of the Chief Engineer's note, and accepts the conclusions arrived at in clauses (2) and (3).

2. The cost of the work now sanctioned will be met from the Public Works Provincial grant, and the Superintending Engineer will, in due course, apply for such funds as may be necessary.

(True Extract.)

(Signed) W. B. DEWINTON,
Ag. Secretary to Government.

To the Superintending Engineer, IV Circle, with plan.
,, Examiner, Public Works Accounts.
,, Local and Municipal Department.

Exd. W. D'Moss.

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ssue orders

Public Works DEPARTMENT.

Papers to be read in Proceedings:—

Again G.O., dated 189 , No.
Again G.O., dated 189 , No.
Print with 1 Encls — Current No. 291 of 1898, dated 11th January, from the S.E. IV Circle.
Dupls ,, 1534 ,, 1898, ,, 16th February, ,, 6 .-Do- No 96/W
,, ,, 189 , ,, , ,,
Print — Note by the Chief Engineer, P. W. Department d/5th March 1898.

22 MAR 98

B & R
Out works

109
N. 840 W. 29.3.98

ORDER.

(The Secy. to Govt., L & M Dept for favour of counter-initials)

Note for the Secretary
No objection in this department.
23/3/98

His Excellency the Governor in Council sanctions the proposals in clauses (1) and (4) para 2 of the Chief Engineer's note, and accepts the conclusions arrived at in clauses (2) and (3).

2. The cost of the work now sanctioned will be met from the P.W. Provincial grant, and the Superintending Engineer will, in due course, apply for such funds as may be necessary.

LHH 19.3.98
CWS 18/3/98

I B

24.3.98.

The Suptg. Engineer IV Circle, with plan.
,, Examiner, P. W. Accounts.
,, Local & Municipal Department.

26/4/98

A

P.W. DEPARTMENT.

Papers to be read in Proceedings :— 291

Again G.O., dated 189 , No.

Again G.O., dated 189 , No.

Print with encls. } Current No. 291 of 1898, dated 11-1-98, from the S.E. IV circle

Enclos. " 1534 " 1898, " 16.2.98, " — do —

" " " 189 , "

Print Note by the Ch. Engr. P.W. Dept of 5.3.98

ORDER.

Send copy to Govt. L & Mu. Dept for favour of Council initials —

H.E. the Governor in Council sanctions the proposals in clauses (1) & (4) para 2 of the Chief Engr's note, and accepts the conclusions arrived at in clauses (2) and (3) —

2. The cost of the work now sanctioned will be met from the P.W. Provincial Grant, and the Supply Engr. will, in due course, apply for such funds as may be necessary —

Cop

CMM
17.3.98.

To the S.E. IV circle with plan
— Genl. Press
— L & Mu. Dept.

21.3.98

4 / 500-14-10-97.

291

DEPARTMENT.

Papers to be read in proceedings :—

Again G.O., dated 189 , No.
Again G.O., dated 189 , No.
Current No. of 189 , dated , from
" " " 189 , " , "
" " " 189 , " , "

H.E.
& H. Ms

Level of Ootacamund Lake

For ORDERS

In his No 11 dated 11 Jan 1898 the S.E. IV Circle forwards for orders a note by the Geologist on Special Duty at Ooty on the stream supplying the Lake & the level at which the water in the Lake is in future to be maintained.

2. The proposals are as follows
(1) To ~~deepen~~ increase the depth of the Lake supply channel from 2' to 2½', to enable it to carry 168 c/ft per second. This is necessary & may be sanctioned.

3. To cut the channel with one half of the base 6" lower than the other half, to concentrate the scanty summer flow. This will soon silt up & the [illegible]
[illegible]

permanent benefit.

(3) To run the Chl. round the margin of the lake beyond the Willow tunnel, until, by a process of silting through a long series of years, it forms its own bed, & be practically independent of the Lake: — the object being to avoid silting in the Lake — also to have a flush outlet just below the island, to pass surplus water into the Lake when the Chl. has reached the end of the Lake. The former has already been sanctd. The outlet will not be required for many years to come, & its construction may be postponed till then.

(4) To permanently lower the level of water in the Lake from + 23 to + 21.50, i.e. by 18 inches. The reasons given for this are (a) The full supply water level in the supply Chl. at Willow tunnel is + 23, & unless the Lake

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[4 / 500-14-10-97.]

DEPARTMENT.

Papers to be read in proceedings :—

Again G.O., dated 189 , No.

Again G.O., dated 189 , No.

Current No. of 189 , dated , from

" " " 189 , " , "

" " " 189 , " , "

2

ORDER.

is lowered, the water will back up the Chl. & partially flood the Holant Park

(b) The full supply water level in the Chl. is generally only 6 inches lower than the present level of Holant Park, & it is necessary in the interests of the latter to keep the water level as low as possible.

With these views I agree though very unwillingly, because I fear it is certain that unless the Lake level is permanently lowered Holant Park will become more or less of a swamp for several months in the year. I there—

their adoption, & submit [illegible] orders on the subject, as the height of the drainage manholes depends upon the water level in the Lake.

5.8.07

W in return

W. The Exec. Engr. on special Duty at Ooty submits a note on the stream supplying Ooty Lake & discusses the question of the width to be allowed to this stream before it reaches the Lake. He gives calculations to show that with the bed fall available a channel 12 ft bottom width will be sufficient to carry off the discharge from the catchment area. There can be little doubt that the max. discharge assumed by the E.E. viz 161 c.ft per sec is much too low, but the question of the width of the chl. seems to be settled by the waterway allowed at the different bridges which cross it. There are 4 of these bridges -

(1) on Kelso Road - 3 vents, one of 5' & two of 5½'
(2) on Coonoor Road - one vent of 15'
(3) on road to ABC ground - one vent of 13'
(4) on Willow bund - one vent of 15' (I think. the plans not available for reference).

2. Below the Willow Bund the
he proposes to carry the

along the margin of the Lake with a fall of 1.5' per mile & a bed width of 16'. This with a depth of 2½' will give a discharge of 55 c.ft per sec. The balance he proposes to surplus into the Lake near the Willow Bund

3. The E.E. next discusses the question of what level the Lake is to be kept at & shows that unless it be lowered 1½' the A.B.C. ground will always be liable to be flooded & will always be unhealthy. He gives reasons for & against the proposed lowering of the water level and comes to the conclusion that the advantages outweigh the disadvantages

S.R.
23/2/98

Vide Dept

5-3-98

Send [illegible]

This shd have come to me before

Public Works DEPARTMENT.

[43/50]

C. No. 291 of 98.

HIS EXCELLENCY THE GOVERNOR. ✓

THE HON'BLE SIR HENRY BLISS, K.C.I.E. ✓

THE HON'BLE MR. GROSE, C.I.E. ✓

SUBJECT.

Level of Ootacamund Lake.

[illegible]

~~FOR ORDERS.~~

note by the chief Engr PWD

In his No. $\frac{11}{W}$ dated 11th January 1898 the Superintending Engineer IV Circle forwards for orders a note by the Executive Engineer on special duty at Ootacamund on the stream -- supplying the lake and the level at which the water in the lake is, in future, to be maintained.

2. The proposals are as follow:-

(1) To increase the depth of the lake supply channel from 2' to 2½' to enable it to carry 161 C.ft. per second. This is necessary and may be sanctioned.

(2) To cut the channel with one half of the bed 6" lower than the -- other half, to concentrate the scanty summer flow. This would soon silt up, and be of no permanent benefit.

(3) To run the channel round the -- margin of the lake beyond the Willow Bund, until, by a process of

I have no objection, but the P.W.D. must find the money. What remains of the grants formerly made by Govt. to the Muncy must be kept for the drainage of the bazaar

H.B.
10/3/98

Yes.
A.S.H.
J.G.

I agree.
A.S.H.
J.G.

xxx of silting through a long series of years, it forms its own bed, and be practically independent of the lake; the object being to avoid silting in the lake-also to have a flush outlet just below the island, to pass surplus water into the lake when the channel has reached the end of the lake. The former has already been sanctioned. The outlet will not be required for many years to come, and its construction may be postponed till then.

Yes.
A.S.H.
JG

(4) To permanently lower the level of water in the lake from +23 to +21.50, i.e. by 18 inches. The reasons given for this are

(a) The full supply water level in the supply channel at Willow Bund is +23, and unless the lake is lowered, the water will back up the channel, and probably flood the Hobart Park.

(b) The full supply water level in the channel is generally only 6 inches lower than the ground level of Hobart Park, and it is necessary, in the interests of the latter, to keep the water level as low as possible.

With these views I agree, though very unwillingly, because I fear it is certain that unless the lake level is permanently lowered Hobart Park will be more or less of a swamp for several months in the year. I therefore recommend their adoption, and solicit early orders on the subject as the height of the sewage manholes depends upon the water level in the lake.

I agree, though unwillingly.
A.S.H.
8.3.98

JG
16/3/98

L Bell
W.
5.3.98

E.G.H.

Public Works (1898) Department.

824 PW

CURRENT No. 1534

From

The Supg: Engineer
Fourth Circle

Order Urgent

Secy
What has happened to my note for orders of Secy dated 1 Feb. [illegible] attend to it at once
[illegible] 98

No. 96/W.

Dated 16th Feb: 98

Received } 28-2-98

Registered }

Enclosures

Spare copies

SUBJECT.

Lake, Ootacamund - Requesting to pass orders regarding the level at which water in the - should be maintained.

BACK PAPERS. FURTHER PAPERS.

No.	Date.	No.	Date.
[illegible] before CN 1898			

Papers re: rails for Ooty Lake order 666 C.O. 5-2-98

Letter from J F Somers Eve Esq Executive Engineer on Special Duty to the Supg: Engineer 4th Circle dated Ootacamund 28th January 1898 No. 725.

With reference to the Chief Engineer's order No. 182 W of 21st January 1898, instructing me to proceed with alterations of the Ooty Lake Pipe Sewer, I have the honor to request that the question raised in my No. 665 of 21st December 1897 regarding the Permanent Level of the Ooty Lake may be settled, as on this, depends the height to which the man holes should be built to. They should be kept, as low, as possible above the water surface, as they will not add to the beauty of the lake.

2. With reference to para 4 of the Chief Engineer's notes, in which it is stated that the cost of replacing the brick Sewer will be Rs 1000, I have the honor to bring to notice that the cost will be at least

18.

W

BUILDINGS AND ROADS.
CIVIL WORKS.

Government (1898) of Madras.
PUBLIC WORKS.

Recd.	1898.	*Enclosures*
Regd.		*Spare copies*

G.O., No. 47 W., 10th January 1898.

JANUARY.

Water-supply of Ootacamund

Proceedings, Local and Municipal Department, sanctioning certain improvements to the —, communicated to the Superintending Engineer, IV Circle, the work ordered to be carried out by the Executive Engineer on special duty at Ootacamund, a report called for as to the probable expenditure on the work within the next six months and the Local and Municipal Department requested to transfer to the Public Works Department certain plans and estimates for the works now sanctioned.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

Read—the following paper:—

G.O., Mis. No. 15 M., dated 4th January 1898.

From the Chairman, Municipal Council, Ootacamund, dated 11th December 1897, No. 3990.

With reference to paragraph 3 of G.O., No. 2156 M., dated the 2nd October 1897, I am desired to report that the municipal council approves of the proposals made by the Government regarding the improvement of the water-supply to the town, viz.:—

	RS.
To line the existing Snowdon channels with masonry and to divert into the southern channel a stream above the Government gardens	23,900
To construct a pipe head reservoir on the Kodapamund valley stream	3,740
To conduct the water from this new reservoir to the houses along the Kelso road and to the villages of Kodapamund and Vannarpetta	8,060
Total ...	35,700

2. I am also desired to request that the Government will be pleased to allow Mr. J. F. Somers-Eve, Executive Engineer on special duty at Ootacamund at present, to carry out the works referred to as the municipality has no competent subordinate in its employ to do so.

Order—Mis. No. 15 M., dated 4th January 1898.

The improvements to the water-supply of Ootacamund referred to in paragraph 3 of G.O., No. 2156 M., dated 2nd October 1897, which are estimated to cost Rupees 35,700, are sanctioned.

2. The municipal council is requested to place at the disposal of the Public Works Department a sum of Rs. 35,700, out of the balance of the Provincial grants amounting to Rs. 1,63,000, which it has already received on account of the water-supply scheme.

3. The Public Works Department is requested to put the work in hand at once. Its attention is drawn to the Chairman's remarks in paragraph 2 of his letter.

(True Extract.)

(Signed) H. TREMENHEERE,
Acting Secretary to Government.

Order—No. 47 W., dated 10th January 1898.

Communicated to the Superintending Engineer, IV Circle, in continuation of G.O., No. 2991 W., dated 23rd October 1897.

2. The work will be carried out by the Executive Engineer on special duty at Ootacamund, who will report, with the least possible delay, the probable expenditure on the work within the next six months.

3. The Local and Municipal Department will be requested to transfer to the Public Works Department the original plans and estimates for the works now sanctioned.

(True Extract.)

(Signed) W. B. deWINTON,
Ag. Secretary to Government.

To the Superintending Engineer, IV Circle.
" Examiner, Public Works Accounts, with a copy of G.O., No. 2991 W., dated 23rd October 1897.
" Local and Municipal Department.

Exd. A. F. Eccleston.

Public Works (1898) Department.

820W

CURRENT No. 291

47/9C 23-11-97
3224W of 17-11-98
for C 210 3324 of 98

From The Supg. Engineer, 4th Circle.

Order

No. 11/W

Dated 11th January 1898.
Received } 14-1-98
Registered }
Enclosures 2. (1 plan)
Spare copies

SUBJECT.

Note on the Stream Supplying the Ootacamund Lake.
Forwards for orders a — by the Ex: Engineer on Special duty.

BACK PAPERS.

No.	Date.
47 W	10-1-98 ✓ (S.C)
4967 C	23.11.97
3221 W	17-11-97 ✓
4306 C	23-10-97 ✓
2938-9 W	20-10-97 ✓
2687 W	27-9-97 ✓
1457 D	23-9-97 ✓
353 D	27-5-97 ✓
1700 C	24-3-97 ✓
1072 C	23-2-97 ✓
662 W	6-3-97 ✓
12223 C	3-3-97
3214 W	11-11-96 ✓
3977 C	7.11.96
1735	26.10.96
2066 W	19-8-95 ✓
195 W	22-1-94 ✓
155 W	18.1.94 (S.C) ✓
2738 W	26-10-93
~~1140-5 D~~	14.10.93
1046 D	14.10.93 ✓
1012 D	9-10-93
2639 W	6.11-93 (S.C) ✓
283 W	6-2-85
931 W.	22.3.83 (S.C)
669 C	5.2.98
182 W.	21.1.98
47 W.	10.1.98
3409 W	6.10.97
2991 W	23.10.97
2917 W	19.10.97
2156 M,	2.10.97 (S.C)
2102 W,	2.8.97 (S.C)
378 W	8.2.97 (orig + S.C)
982 W,	19.3.96

FURTHER PAPERS.

No.	Date.
×3598 C,	17-10.96
728 D,	22.5.96
572 W,	10.3.96
2016 C,	11.[illegible].96
2768 W,	1.11.95
3812 C	5.12.95
1482 D.	26.9.95
940 D,	7.9.95
787 D,	17.8.95
458 C,	14.3.95
314 D,	7.6.95
355 D.	19.6.94
1997 W	13.8.94
714 W,	13.3.94
338 W	8.2.94

"Enclo: No. 1 to letter No. 11/W"

Note on the Ooty Stream, being the source of supply of the Ooty Lake.

The catchment basin of this is 3·7 sq: miles of which about 3 sq: miles drains into the stream direct.

In Mr. Ashpitel's report printed in G.O. No. 107 M, dated 27th January 1897 he proposes to widen the existing Channel (with present bedwidth of 7'-0") to 12'-0", with 2'-0" depth of water and fall of $\frac{1}{450}$, which gives a discharge of 98 cubic feet per second. This, he states, "is sufficient for an effective rainfall of about 3¾ inches in 24 hours which is the maximum likely to be dealt with seeing that the gross maximum rainfall registered only amounts to 6·62 inches." Apparently a clerical error has crept in here as 98 cubic feet per second only provides for a run off of 1·3 inches

G.o. No. 378 W d 8.2.97

1.C – 98 cubic feet per sec: = 8,467,200 cft in 24 hours. (a)

3 sq: miles = 83,635,200 sq: feet. (b)

$$\frac{a}{b} = \frac{8,467,200}{83,635,200} = \overset{\text{feet}}{0 \cdot 11} = 1 \cdot 3 \text{ inches.}$$

2. During my stay here my observations have led me to conclude that considerabl

ore than 98 cubic feet per second passed down the Channel in heavy rains.

3. I consider that the Channel should be made large enough to Carry off in 24 hours a run off of 2", giving a discharge of $Q = \overset{\text{sq. m}}{3} \times \overset{\text{sq. ft in 1 mile}}{27,878,400} \times \overset{\text{runoff}}{\frac{2}{12}} = 13,939,200$ Cft.

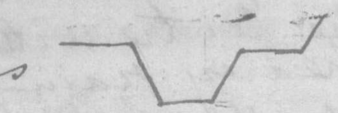
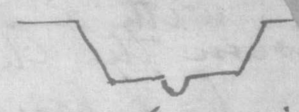
Note
This gives $C = 75$
in formulae. $D = CM^{\frac{2}{3}}$

This requires a channel large enough to Carry $\frac{13,939,200}{24 \times 60 \times 60} = 161$ Cft per second.

4. It will be observed from the accompanying longitudinal section that a fall of $\frac{1}{402}$ is easily obtainable from the point where the Channel crosses the road between the A.B.C. ground and the Agraharam. Increasing the depth from 2'-0" to 2'-6", the Channel requires the same originally proposed bottom breadth of 12'-0" slopes 1:1.

5. With such a broad width as 12'-0", I fear that in the dry months the stream will not flow strong enough to flush it

well

well and I have tried secti
thus  and thus 
but they are both open to objections, and I propose to cut the bottom of the Channel with one side 6" lower than the other, so as to confine the stream to one side as much as possible.

6. Below the Willow Bund it is not feasible to use a steeper gradient than 1.5 feet per mile. It is to be remembered, that as at present arranged, the stream is to be carried round the margin of the lake, in cutting where possible and where it crosses deep water by silting up and then cutting a channel. This will take some years to effect, but will prevent the silting up of the lake, which would eventually do great harm. With a fall of 1·5 feet per mile and a 16- bottom breadth, the Channel would take 55 cubic feet per second, and I propose to surplus the balance (160-55) = 105 cubic feet into the lake below the island by means of a flush outle

w

with a shutter in the centre with sill at bed level by which the admission of water to the lake could be regulated when the Channel had reached the end of the lake.

7. It is now necessary to discuss and settle finally at what level the lower lake is to be fixed. Using the datum of the drainage scheme I found that the customary level of the lake was about + 23·0. I obtained permission, for purposes of work construction, to lower the lake 2'–0" and during the last season it was kept at + 21·25. The crest of the flush outlet weir in the Lock end Bund is + 22·11. That at the Willow Bund is + 21·33. The level of the lake + 23 was obtained by restricting the water way of the weir, chiefly I believe to provide a source of supply to the dhobies who wash below the bund.

8. It will be seen from the longitudinal section that the F. S. L. of the Channel at the new Willow Bund culvert is + 23

the

the same as the customary level of the lake. Unless therefore the level of the lake is reduced, the water in the Channel will back up, and now the upper lake is filled up and does not afford an outlet as hitherto, a part of the A. B. C ground and probably the Agraharam will be flooded.

9. Further it is to be noted on the longitudinal section at the point B, that the ground level of the A. B. C ground is only 6" higher than the F. S. L. of the Chl. Now that the upper lake is filled in, and this natural drainage to the upper part of the Hobart Park is lost, I believe it will be found absolutely necessary to drain the A. B. C ground if it is to be in the least bit of a healthy recreation ground. In any case it is desirable to keep the water in the Channel as low as possible so as to keep the sub-soil water as low as possible in the A. B. C ground.

In fact the question resolves itself into, whether the A. B. C ground shou be made fairly healthy, or the lake kept up at the usual level.

My recommendation is for the former, on the grounds that the A.B.C is close to the bazaar and is used by far more people for recreation purposes than is the lake.

10. I would therefore propose that the lake level be permanently reduced to + 21.5. Possibly it might be increased to + 22 in the summer months, but this I depreciate.

11. The objections that have been advanced against such lowering are.

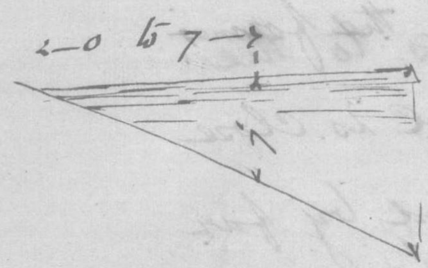
   a. Reduced area, but this is really infitesimal and when the brown area round the margin is covered with vegetation will not be noticeable

   b. Spoiling the appearance of the lake. This is a matter of opinion I cannot say I could notice it to any appreciable extent.

   C. Increase of weed area. This sounded a feasible objection, but

?. plausible

but if the slope is Continuous. as I believe it to be, it is not the case as if, as they do, weeds grow between nothing and seven feet of depth, that area is simply transferred low down.



   d. Injury to boating. The only real nuisance is the getting into the boats from the stagings. If the level of the lake is fixed these can easily be altered.

   e. Vegetation on water surface. This was rectified by temporarily lowering the weir and creating a surface flow, when it disappeared.

11. As the water in the upper lake is doing harm, and it is necessary to divert it into the ne Channel, work will be proceeded with on the above lines. The earth from the Channel is required for the lake filling, so tha

estima

estimate will bear the cost of the excavation.

12. Orders are requested as to the lake level.

(Sd) J. F. Somers Eue.
Exe. Engineer
on special duty.

True copy

Suptg. Engineer
4th circle

Gus. 2
25'/58

No 11
W

Suptg. Engr's Office IV Circ
Coimbatore 11th January 1898.

Recd 11

From.

A. H. Garrett Esq.
Suptg. Engineer IV Circle

To.

The Chief Engineer
P. W. Department.

Sir,

Enclosures. 2
1 Note.
1 Tracing showing sections.

I have the honor to forward a note on the stream supplying the Ootacamund Lake by the Executive Engineer on special duty.

2. I do not think any advantage would be gained by the arrangment proposed in para 5.

3. Orders are requested regarding the level at which water in the lake should be maintained. The reasons assigned for lowering it to the extent proposed seem conclusive.

I have the honor to be
Sir,
Your most obedt. Servt.

Suptg. Engineer IV circle

10/1