

(1) Number of pages _____

(2) Date of repair _____

(3) Initials of the Referencer _____

MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

G.O. No.	1965	(W)	Press Mis.
Dated	7-12-	1877.	

Not to be folded or roughly handled

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

4th December 1877, No. 1,965 W.

Buildings and Roads.

Civil Works.

Read the following paper :—

No. 56. From Major J. L. L. MORANT, R.E., District Engineer, Nilgiris, to the Chief Engineer, Public Works Department, dated Ootacamund, 16th November 1877, No. 458.

With reference to Revenue Department G.O., F.R., No. 2,315-A, dated 12th October 1877, I have the honor to submit an estimate, amounting to Rs. 3,887-11-7, for repairing the lower portion of the Kotergherry ghaut, which was much injured by successive storms of rain on the 30th of September and on the 18th and 28th of October last.

2. The Collector of Coimbatore could not supply me with any relief coolies for this work.

3. The lower half of the Kotergherry ghaut is made in very steep ground. The hill side is composed of a hard gravelly soil, interspersed with boulders and rocks. During the dry weather the hill side is rendered very friable and the very little grass and vegetation that do grow are entirely killed. To walk over the ground in this dry weather is a matter of much difficulty owing to slippery little nodules which lie scattered over the baked surface. When the ground is in this condition the north-east monsoon (which strikes against that side of these hills with great force) suddenly bursts upon it. The result is that the dry, gravelly and rocky surface is all swept into the ravines, and so down on to the road culverts and bridges, the mouths of which it speedily chokes; the water in a very large quantity then tears over the road, cutting it to pieces, and over the revetment walls on to the foundations, where it was never expected, knocking down a few and undermining many others. To give an instance :—At one of the few zigzags of this ghaut are two teak bridges built over the same stream, one immediately above the other. The other day the storm swept on to the mouth of the upper of the two bridges an extraordinary quantity of earth, stones and rocks, completely filling it up to the level of the road platform. The water then dashed over the platform sweeping away the railings and falling in a large cascade several tens of feet down on to the apron below the floor. This it moved bodily on to the lower bridge, blocking up its turn its mouth. It then escaped down the falling gradient over an adjoining revetment, a small piece of which it threw down. The waters scoured out the earth of the upper bridge almost down to the level of the foundations of its return walls, and had they not been well-founded they must have gone, carrying away both bridges in their fall.

4. The works provided for in the estimate are, first, the removing of large slips of earth and rocks which have been brought on to the 10-foot roadway. Two of these rocks are of enormous size and each weigh approximately nearly 275 tons. Secondly, the building of stone aprons and other protective works to existing retaining walls, bridges and culverts, to save the existing structures, which are of large size and have cost some money. And, thirdly, the substitution of a bridge for a drain, the water-way there having proved insufficient, and the substitution of some first-class for second-class drains, and the addition of a few third-class drains.

5. As it was of the utmost importance to save, on a much frequented road, existing costly structures from further inevitable and serious injury, and as this ghaut was entirely closed to traffic, causing a temporary loss to the toll contractor who had purchased the toll and who might claim damages for further loss, I have taken upon myself to begin the works estimated for in anticipation of sanction. The road is now open to pack animals. I hope it will soon be available as before for cart traffic.

6. The Nilgiri Local Fund Board having not only no funds at their disposal, but being largely in debt, I have taken the liberty of forwarding this direct to you, as from the Board under the circumstances no sort of assistance could be expected.

7. To in a measure obviate the recurrence of some of these disasters I also beg to append, for sanction and provision of funds, a separate estimate, amounting to Rupees 1,026, for providing a catch drain to the lower 10 miles of the ghaut. This the original estimate did not provide for. This work I will not commence until sanctioned.

No. 4,084.

TRANSFERRED to the Revenue (Famine) Department, for early orders with reference to Order in the Revenue (Famine) Department, No. 2,315-A, dated 12th October 1877.

23rd November 1877. (Signed) E. A. FOORD, Colonel, R.E.,
Chief Engineer, P.W.D.

THE estimate is sanctioned.

26th November 1877. (Signed) J. H. GARSTIN,
Addl. Secy. to Government.

No. 57. ORDER THEREON, 4th December 1877, No. 1,965 W.

THERE are no funds available for appropriation to the work, but the District Engineer will proceed with such repairs as are emergent, the cost being charged to Provincial.

(True Extract.)

Colonel, R.E.,
Secretary to Government, P.W.D.

To the District Engineer, Nilgiris.
" Examiner of Public Works Accounts.
" Financial Department.

Exd. S. T. Austin.
Spare Copies

Anticipated Estimate 12/12 of 1877-78
Nilgiri District
Cost of repairs to the lower half of the Nilgiri
ghaut of damage by extraordinary rainfalls on
the 30th September, on the 18th October and on the 28th October

No.	Measurements	Contents of cartworks	Contents of Rock works	Contents of stone works	No. of 1st class drains	Particulars of works.
1	9 3 2	54				Kandilipartha
10	2 1	30				Do " "
15	5 2	150				Do " "
20	12 2	480				Do " "
40	12 2	960				Do " "
100	10 1	1000				Do " "
56	10 1 1/2	840				Do " "
35	12 3	1260				Do " "
46	19 3	2565				Do " "
14	3 3 3	"	378			Do " Rocks
5	4 4	"	80			Do " "
22	3 2 2	"	264			Do " "
12	6 3	216				Do " Cattle
5	4 3	"	60			Do " Rocks
24	4 1	96				Do " Cattle
16	6 4	384				Do " "
110	4 2	880				Do " "
30	2 1 1/2	90				Do " "
Carried forward		9605	1782			

[illegible]

5th. Lib.

Rocks
 Earth works
 1st Class Drain Pipeline
 13rd Do
 Rocks
 Do
 Earth works
 Do " Do
 Do " Do
 Do " Do
 Stone building or apron
 Rock works
 Do " Do
 Earth " Do
 Do " Do
 Do " Do
 Stone building or apron
 Do " Do
 Earth works
 Do " Do
 Stone building or apron
 Earth works
 Do " Do
 Do " Do
 Do " Do
 Do " Do
 Stone building or apron

Weight	Forward	16314	13820	29068	3
30	4	3	360		
60	12	1	720		
60	18	5	5400		
30	6	3	540		
50	8	7	1600		
20	8	2	320		
20	21	2	160		
20	10	1 1/2	300		
15	8	2	240		
11	6	6		396	
3	3	3		81	
6	4	2	48		
10	6	2	120		
24	4	2	192		
60	3	2	360		
6	5	4		120	
4	3	3		288	
12	6	6	432		
20	6	6	720		
30	4	1	120		
24	2	1	48		
100	12	1	1200		
30	4	1	120		
12	21	5		240	
4	4	3		240	
40	8	3	960		
20	21	4 1/2			
30	6	6	900		
Weight	Forward	12174	14945	29303	4

	17	
Earth works		
Do	"	Do
Do	"	Do
Do	"	Do
Do	"	Do
Do	"	Do
Do	"	Do
Do	"	Do
Do	"	Do
Do	"	Do
Rock	"	Do
Do	"	Do
Earth	"	Do
Do	"	Do
Do	"	Do
Do	"	Do
Do	"	Do
Rock	"	Do
Do	"	Do
Earth	"	Do
Do	"	Do
Do	"	Do
Do	"	Do
Do	"	Do
Do	"	Do
Do	"	Do
Stone building & apron		
Piers		
Earth		
1/4 class drain & grouting		
Earth works		

Brought forward				12174 11945 27808 4			
20	6	6	6	720	stone building or apron		
4	4	4	4	64	Rock Works		
10	3	2	60	✓	Carton do		
10	8	3	240	✓	do do		
8	5	3			Rock do		
4	4	3	120	✓	Carton do		
40	6	2	96	✓	do do		
60	4	1	480	✓	Carton do		
20	2	2	840	✓	do do		
40	4	1	560	✓	1 st 3rd class Drain to ground		
9	8	5			Carton Works		
4	3	3	360	✓	Rock		
12	8		36	✓	do		
8	4	5			1 st Vonghy wood bridge		
10	6	4	160	✓	Rock Works		
15	8	4	240	✓	Carton do		
24	6	2	480	✓	do do		
100	12	12	288	✓	do do		
60	12	1	600	✓	do do		
16	10	6	720	✓	do do		
4	3	3	900	✓	do do		
12	10	4			do do		
100	6	12	480	✓	Rock do		
20	12	1	300	✓	Carton do		
24	5	5	240	✓	do do		
20	2	2 1/2			do do		
12	12	1	600	✓	Stone building or apron		
80	5	3	144	✓	1 st 3rd class Drain to ground		
Carried forward				128946	15887	30628	6

Brought forward				128946 15887 30628 6			
100	3	2	600		Carton do		
20	2	2 1/2			3rd class Drain to ground		
60	4	2	480		Carton Works		
20	6	2	240		do do		
40	8	5	1600		do do		
6	4	3		360	Rock do		
20	4	2	160		Carton do		
26	4	2	208		do do		
60	5	4	1200		do do		
20	2	2 1/2			1 st 3rd class Drain to ground		
18	5	4		360	Stone building or apron		
20	6	1	120		Carton Works		
10	5	1	50		do do		
20	6	1	120		do do		
20	3	3	180		do do		
20	4	2	160		do do		
60	5	2	600		do do		
40	10	3	1200		Rock do		
8	7	5		280	Carton do		
12	8	4	384		do do		
80	3	2	480		do do		
30	2	1 1/2	30		do do		
110	3	2	660		Rock do		
4	3	2		240	Carton do		
30	10	2	600		do do		
40	12	3	1440		do do		
660	1	1 1/2	330		do do		
250	1	1 1/2	125		Rock do		
6	5	3		90			
Carried forward				139913	16871	30983	8

10th Miller	139.93	16.571	30.988	8
1 1/2	1	420		
2	1	40		
200	2	400		
760	1 1/2	1140		
20	20	10	1000	
10	30	8	3600	
141.913	24.175	30.918	8	

Barlu 100
 Do " 00
 Do " 00
 Do " 00
 Rock " 00
 Do " 00

Abstract Estimate No 78 of 1877-78 Nilgiri District

Notes: Cost of repairs to the lower half of the Kotegiri
 Ghat of damage done by extraordinary rain
 - falls on the 30th September, on the 18th Oct and
 on the 28th October 1877.

Quantity	Particulars	Price Per	Amount	Detailed Remarks
	Exposed Earth on Kandolipo			Kandolipo of found
5256	to be removed	1	525 9 7	ation of stone buildings
895	Rock boring, blasting & running	18	16110 8	
1147	Rough stone building	14	16058 10	Aprons & structures
3	1st class Drains 20x4x4 1/2	120	360	in place of 2nd class
54	2nd " Do. 20x2x2 1/2	14	756	Additional drains
1	Bridge with rough pavement	600	600	In place of 1st class drain.
Total Expenses			1887 11 7	

J. M. M. Major. R. O.
 District Engineer

District Engineer's Office -
 Coimbatore 16th November 1877

Detailed Estimate No 79 of 1877-78

Nilgiri District

Work. Cost of forming a Catch Drain along the lower half of the Kotegiri Ghaut to prevent wash by excessive rain.

In	Measurement			Content of Cartmash	Content of Rockwork	Content of stone build-ing	No. of Drains	Particular of Work
	L	B	H					
	Miles 9 1/2	2 x 2		"	"	"	"	Catch Drain

Abstract Estimate No 79 of 1877-78

Work. Cost of forming a catch drain along the lower half of the Kotegiri Ghaut to prevent wash by excessive rain.

Quantity	Particulars	Price	Per	Amount
9 1/2	Miles Catch drain to landing 2 x 2	108	"	Miles 1026 " ✓

John Morant
Major R. E.
District Engineer

District Engineer's Office
Pottacammund 16 Nov 1877

Endorsement in the Revenue Famine
Dept. dated 28th Nov/77 on letter from the
District Engineer, Nilgiris, No 458 dated
16th Nov 1877.

FOR ORDERS.

My impression is that
this is not a local
work - but in any case
they have no funds.
It is well supplied
Financially for the
is in a fine state in
deficit some millions
owing to the
expenditure & debit
past. I can only tell
the D. Eng. & forward
to the repairs & be
urgent. The cost
going to be
the deficit

The work was un-
dertaken on emergency,
and as it has been de-
cided that it cannot
be treated as a famine
work, while Local Funds
are not forthcoming, there
seems no alternative but
to provide Provincial
funds not only for repair
of storm damage but
also for the Catch Drain
intended for future pro-
tection.

The Public Works Dept.
have no money available
under Provincial, and

cannot therefore sanction
the estimates unless the
Financial Department
provide funds.

FOR ORDERS.

1965W

12 272

Paul J. H. H.

Edmund C. L. H.
Secretary to Govt.

12 Dec 77

W. H. H.

Oct 1. 12

District Engineer's Office

Octacumund 16th November 1877

No 458

From

The District Engineer

Milgiris

To

The Chief Engineer,

P. W. D.

Madras

His

With reference to Revenue

Department G. O. H. R. No 2315-A

dated 12th October 1877 I have the honor
to submit an estimate amounting to
Rs 3887. 11. 7 for repairing the lower
portion of the Kotangerry ghant, which
was much injured by successive storms
of rain on the 30th of September and
on the 18th and 28th of October last.

2. The Collector of Coimbatore
could not supply me with any relief
coolies for this work.

3. The lower half of the Hotcherry
ghost is made in very steep ground.
The hill side is composed of a hard gra-
velly soil interspersed with boulders
and rocks. During dry weather the
hill side is rendered very friable
and the very little grass and vegi-
tation that do grow are entirely killed.
To walk over the ground in this dry
weather is a matter of much difficulty
owing to slippery little nodules which
are scattered over the baked surface.
When the ground is in this condition
the S. E. Monsoon (which strikes
against that side of these hills with
great force) suddenly bursts upon
it. The result is that the dry gra-
velly and rocky surface is all swept
into the ravines, and down on to the
road culverts and bridges, the mouths
of which it speedily chokes; the water
in a very large quantity then flows
over the road, cutting it to pieces, and

over the rivulet walls on to the
foundations, where it was never ex-
pected, knocking down a few and
undermining many others. To give
an instance: About of the first big
mass of this ghost are two large
bridges built over the same stream,
one immediately above the other.
The other day the storm swept on
to the mouth of the upper of the two
bridges an extraordinary quantity
of earth, stones and rocks, completely
filling it up to the level of the
road platform. The water then
dashed over the platform sweeping
away the railings and falling in
a large cascade several tens of feet
down on to the apron below the floor.
This it moved bodily on to the
lower bridge, blocking up in turn
its mouth. It then escaped down
the falling gradient over an adjacent
rivulet, a small piece of
which it threw down.

The water scoured out the south of the upper bridge almost down to the level of the foundations of its return walls, and had they not been well secured they must have gone, carrying away both bridges in their fall.

The works provided for in the estimate are first the removing of large slips of earth and rocks which have been brought on to the 10 feet roadway. Two of these rocks are of enormous size and each weigh approximately nearly 2 1/2 tons. Secondly, the building of stone aprons and other protective works to existing retaining walls, bridges and culverts, to save the existing structures, which are of large size and have cost some money. and Thirdly the substitution of a bridge for a drain, the waterway there having proved

insufficient, and the substitution of four 1st class for second class drains, and the addition of a few third class drains.

5. As it was of the utmost importance to save, on a much frequented road, existing costly structures from further inevitable and serious injury, and, as this grant was entirely closed to traffic, causing a temporary loss to the Toll Contractors who had purchased the toll and who might claim damages for further loss, I have taken upon myself to begin the works estimated for in anticipation of sanction. The road is now open to pack animals. I hope it will be available as before for cart traffic.

6. The Stilgvi Local Fund Board having not only no funds

at their disposal, but being largely
in debt, I have taken the liberty
of forwarding this direct to you;
as from the Board under the cir-
cumstances no sort of assistance
could be expected.

7. To in a measure obviate
the recurrence of some of these
disasters I also beg to appeal
for sanction and provision of
funds, a separate estimate amount-
ing to Rs 1026, for providing
a catch drain to the lower
10 miles of the ghaut. This the
original estimate did not provide
for. This work I will not commence
until sanctioned.

I have the honor to be
Sir

Yours most obedt Servt

Frederic Horant Major R.E.

District Engineer

Revenue 1877 Departt.
No. 11065.
No. 4084

Buildings and Roads.

Transferred to Revenue (Tanning) Section
Refers last order with
reference to O.R.T.D. No
2315 H. dated 12th Nov 77

The District Engineer
Nilgiris

Adm. (M. R. S.)
Chief Engineer

23.11.77.

232 hours
P. 24/11/77
This is in the service
of the Nilgiris
The Nilgiris
26/11/77

The Chief Engineer
P. R. S.
Madras

No. 458
G.O. No. Dec. 77, 10.11.56
dated 10th Nov 1877

No. of Enclosures 2.

The lower portion of the Ko-
lari Grant - Submits
an estimate for repairs
-ing - which was much
improved by excessive
storms of rain -

J. H. P. S.

This is not a relief fund
I can not therefore
Sanction against famine
The Nilgiris is not a distressed
district & the collector of
Coimbatore can not furnish
any relief coolies for the work -
The grant is under
Ref 24/11 the local funds, they
must provide the funds &
if they have no money in hand

Mis No 1175 W. of 22nd July 77
They can be granted an advance
to be repaid next year
22/11/77 27/11/77

B. G. W. S.
No 1965 Public Works Department.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the 4 Dec 77
Read the following:-

Endorsement in the Rev.
Tanning Dept. on letter from
the Dist. Engr. Nilgiris
H.E. of 29th November 1877
H.E. of 16th November 1877

There are no funds
available for appropria-
tion to the work, but
the District Engineer
will proceed with
such repairs as are
emergent, the cost
being charged to
Provincial. 2.11.77

This sanction has
been registered as No 289
B. of 1877/78 -

Dist. Engr. Nilgiris M. S. Dated 4-12-77
En. P. H. Accounts &
Financial Dept. V
Dispt. - 11-12-77
" " " " "

M. S.
N. S.

Conf. in Prof.