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MADRAS RECORD OFFICE

Government of Madras

Public Works DEPARTMENT

G.O. No.	234	Press
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Dated	26-1	6875
		195

Not to be folded or roughly handled

18

*Proceedings of the Madras Government, Public Works Department,
26th January 1875.*

No. 479. Read the following Proceedings of the Madras Government, in the Military Department, dated 4th November 1874, No. 3,587 :—

Read the following letter :—

From Brigadier-General A. HOWLETT, c.b., Quarter Master General, to Colonel A. C. SILVER, Secretary to Government, Military Department, dated Head-Quarters, Ootacamund, 23rd October 1874, No. 454-7,332.

I HAVE the honor, by order, to forward, for submission to Government, an approximate estimate for Rupees 3,210 and two plans for the construction of masonry falls with wings to be built in certain nullahs near the rifle butts at Bangalore.

2. These nullahs are in some places 40 feet wide and 10 feet deep, with perpendicular sides, and are increasing in dimensions. Unless prompt measures are taken to prevent their enlargement, they will still further encroach on the practice ground, interfere with the practice, and eventually cause a very much larger expenditure of money.

3. Immediate action is therefore desirable; and, in submitting the estimate for the approval of Government, His Excellency the Commander-in-Chief would suggest that it be transferred to the Public Works Department, with the recommendation that funds be provided as early as possible for the execution of the work.

APPROVED and communicated to the Public Works Department, in view to the very early execution of the work.

(True Extract.)

(Signed) A. C. SILVER, Colonel,
Secretary to Government, M.D.

MEMORANDUM.

HAVING inspected the rifle range in company with the District Engineer, Bangalore, on the 17th ultimo and on two subsequent days, I am of opinion that, although the falls proposed by Captain Vibart would, no doubt, prevent the ravines referred to in his report above noticed from extending themselves longitudinally, they would have little effect as regards their lateral growth, and that ultimately further measures would be necessary in this direction.

2. These nullahs are, as every one who has been to Bangalore knows, a marked feature of the country, and with their perpendicular and sometimes overhanging sides cut out into cavernous ramifications; they form a complete obstacle to progression. The soil is of an exceedingly light friable character, and, though apparently compact, it is acted on by water with great ease and carried away in large quantities at comparatively low velocities. The features, which extend into the rifle range, have nearly reached the water-shed at their head, and the drainage into them is derived from a very small area, and yet its effect has been remarkable.

*Proceedings of the Madras Government, Public Works Department,
26th January 1875.*

3. The general measures, which suggest themselves in order to reform the ground and maintain it in good repair, are—

I. The diversion of all drainage which can be readily directed to other out-falls.

II. The cutting to a slope of the perpendicular sides of the nullahs, so far as they extend into the rifle range and interfere with the movements of the detachments, or endanger the butts, and the filling up of the beds of the ravines to the extent implied by the use of the earth cut away.

III. The confining of the entry of the drainage water into the ravine to selected points protected by rough stone drains or aprons.

IV. The stoppage, as far as may be of the scour in the bed of the ravine by rough stone falls, at such intervals and with such height of crest as to reduce the inclination of the bed of the nullah in the intervals to zero.

V. Conservancy, by which is implied the speedy repair of erosion when it commences to show itself, and the encouragement of the growth of grass and shrubs in the bed and on the slopes of the ravines.

4. As regards the first measure, Captain Vibart has pointed out that the drainage, intercepted by the Bellary Main Road which skirts the range ground, could be turned to the other side of the water-shed instead of as now into nullahs CX and EY.* All drainage running into the head of the nullahs A and B should be cut off and carried away by a falling contour drain running to the north and passing probably between the Sepoy guard and the end of the running deer butt. The portion of these nullahs near the butts will have to be filled up, but the sides lower down may be sloped, and they may be prepared as in other cases to receive the rainfall. The sloping of the sides of the ravines to 2 to 1 or $2\frac{1}{2}$ to 1, combined with the filling up of the bed with the resulting spoil, will not be an expensive operation, and, as grass can be made to grow on such a slope, it should not be difficult to maintain them against the effect of the rainfall. Ramps may be provided, leading across the ravines E and C for the convenience of the detachments passing them. The drainage, which enters the ravines from the surrounding land, must be prevented from flowing indiscriminately down the slopes, and for this purpose the edge or lip of each ravine must be protected by slightly raising it above the general level, with gaps at such intervals as may be necessary, and rough stone gutters must be provided, leading to the bottom of the ravine from these gaps. Rough stone weirs or falls laid across the beds of the ravines with the crest of each about 1 foot or $1\frac{1}{2}$ feet above the level of the base of the one above and protected at the ends with a small quantity of rough stone revetment laid on the slope will, no doubt, suffice to prevent any appreciable scour and undermining of the sides of the nullahs. No arrangements, which can be made, will prevent the necessity for regular up-keep of the ground and repair of the unavoidable effect of falls of rain, but with those proposed the annual work should be very slight.

(Signed) A. DEC. SCOTT, Major, R.E.,
Under Secretary to Government, P. W.

* See the tracing attached to the estimate.

*Proceedings of the Madras Government, Public Works Department,
26th January 1875.*

No. 480.

ORDER THEREON, 26th January 1875, No. 234.

MILITARY WORKS, No. 13.

THE memorandum prepared by Major Scott, under the orders of the Chief Engineer, will be communicated to the District Engineer, with instructions to prepare a design and estimate for carrying it out if finally approved.

(True Extract.)

Colonel, R.E.,
Secretary to Government.

To the District Engineer, Bangalore.
,, Military Department.

Exd. A. Grubert.
Spare Copies

District Engineer's Office
Bangalore
The Chief Engr. or General
Mysore Division

No 2352

Dated 14th October 1874

Sept 15th

Received

Enclosures - 3.

With reference to docket No 398
from Captain Caldwell regarding
the Ravines near the Rifle Butts
has the honor to state that the
District Engineer does not think
it would be advisable to neglect
Ravines marked B as it is gradually
washing up towards the Grand room
at the Butts and will eventually cut
away in front of the Butts.

The position marked B seems
the best position for the ravine
wall; as if placed higher up, the
2 other small ravines will con-
tinue to cut away - As it is not
considered necessary to fill up
Ravines C, the position of fall might
be altered and placed near the road.
The Estimate will thus be reduced
to rupees 3210-

Done

Long leap " 22
March begins
 starts or ends in an

I have the honor to inform you that Captain Goodwell having brought to notice that the rangers near the Rifle butts were extenuating themselves very much so as to interfere with the Rangers - I visited the ground with him and we came to the conclusion that it would be useless to attempt to stop the erosion by any temporary expedients - and that the work should be taken in hand and carried out so as to stop the damage effectually -

I have forwarded a survey of the Rifle Range, showing the position of the various Ravines. The five Ravines which most seriously affect the Range are those marked A. B. D. C. E. I propose to build at these points, masonry walls with small mounds and to fill up the portions of Ravines above these points with earth obtained lower down. It is proposed also to fill up 2 holes near D. marked G and H with earth with a stone revetment at the side

1. Estimate
2. Places

1. Estimate
2. Places

of the Revenue. The cost of this work
would be Rupees 200. This probably
will seem a large amount, but I do
not think the cutting away can be
put a stop to effectually without
this expenditure. It will be observed
that I have not dealt with 4 other
Ravines shown on the plan. The
ones are estimated for one. These
must require the need of attention.
As far as the Ravines are concerned,
it might be better to place the
same C. & D. and C. at lower points
if possible, but the cost under the
head of earthwork would be very
largely increased. Probably by
Rupees 200. The other Ravines
marked on the plan would each
require a masonry fall and a
large quantity of earth filling and
the cost would probably not fall
far short of those now sent in.

I have the
honour to be, Sir,
Very truly,
Your obedient servant,
Lieut. Col. J. E. Cashart.

Proceedings of the Madras Government, Military Department,
4th November 1874.

Read the following letter:—

No. 31. From Brigadier-General A. HOWLETT, C.B., Quartermaster-General,
to Colonel A. C. SILVER, Secretary to Government, Military Depart-
ment; dated Head Quarters, Ootacamund, 23rd October 1874,
No. 454-7332.

I have the honor, by order, to forward, for submission to Government, an
approximate estimate for Rupees 3,210, and two plans for the construction of
masonry falls with wings to be built in certain nullahs near the rifle butts at
Bangalore.

2. These nullahs are in some places forty feet wide and ten feet deep, with
perpendicular sides and are increasing in dimensions. Unless prompt measures
are taken to prevent their enlargement, they will still further encroach on the
practice ground, interfere with the practice and eventually cause a very much larger
expenditure of money.

3. Immediate action is therefore desirable: and in submitting the estimate for
the approval of Government, His Excellency the Commander-in-Chief would sug-
gest that it be transferred to the Public Works Department, with the recommen-
dation that funds be provided as early as possible for the execution of the work.

No. 32. ORDER THEREON, 4th November 1874, No. 3587.

Approved, and communicated to the Public Works Department, in view to the
very early execution of the work.

(True Extract.)

Alimulol
Secretary to Government.

To the Public Works Department, with five enclosures. *10 of 100*
Quartermaster-General.

Ed. J. E. Cashart.

[illegible]

Memorandum

Having inspected the Rifle Range in company with the District Engineer Bangalore on the 17th ultimo and on the subsequent days. — I am of opinion that although the fallow proposed by Capt Sibart would no doubt prevent the ravines referred to in his report, all noticed from extending themselves longitudinally they would have little effect as regards their lateral growth and that ultimately further measures would be necessary in this direction.

2. These knolls are, as everyone who has been to Bangalore knows, a very marked feature of the country and with their perpendicular and sometimes overhanging sides cut into cavernous ramifications they form a complete obstacle

to progression. The soil is of exceedingly light friable character and though apparently compact it is acted on by water with great ease and carried away in large quantities at comparatively low velocities. The features which entered into the Rifle Range have nearly reached the watershed at their head and the drainage into them is derived from a very small area and yet its effect has been remarkable.

3. The general measures which suggest themselves in order to reform the ground and maintain it in good repair are

I. The diversion of all drainage which can be readily directed to other out falls.

II. The cutting to a slope of the perpendicular sides of the nullahs so far as they entered into the Rifle Range and interfere with the movement of the detachments or ridges and the filling up of the nullahs to the extent implied by the use of the earth cut away.

III. The confining of the entry of the

drainage water into the Ravine to selected points, protected by rough stone drains or aprons. The stoppage as far as may be of the scour in the bed of the Ravine by rough stone falls at such intervals and with such height of crest as to reduce the inclination of the bed of the nullah in the intervals to zero.

V. Encouragement by which is implied the speedy repair of erosion when it commenced to show itself and the encouragement of the growth of grass and shrubs in the bed and on the slopes of the Ravines.

4. As regards the first measure, Captain Sebert has pointed out that the drainage intercepted by the Bellary main road which skirts the Range ground could be turned to the other side of the watershed instead of as now into nullahs CX and EX. All drainage running into the head of the nullahs A and B should be cut off and carried away by a falling contour.

drain running to the north and passing
probably between the Sepoy Guard and
the end of the running deer butts. The
portion of these butts near the butts will
have to be filled up but the sides lower
down may be sloped and they may be
prepared as in other cases to receive the
rainfall. The sloping of the sides of the
ravines to 2 to 1 or $2\frac{1}{2}$ to 1 combined with the
filling up of the bed with the resulting
slope will not be an expensive operation
and no grass can be made to grow on such a
slope it should not be difficult to maintain
them against the effects of the rainfall.
A ramp may be provided leading across
the ravines E and C for the convenience
of the detachment passing them. The
drainage which enters the ravines from
the surrounding must be prevented from
flowing indiscriminately down the slopes
and for this purpose the edge or lip
of each ravine must be protected by
slightly raising the gaps at each interval
^{it above the general level}

at an angle as

as may be necessary and rough stone gutters
must be provided leading to the bottom of
the ravine from these gaps. Rough
stone weirs or falls laid across the beds
of the ravines with the crest of each about
1 ft or $1\frac{1}{2}$ ft above the level of the base of
the one above and protected at the ends
with a small quantity of rough stone work.
ment laid on the slope will no doubt suf-
fice to prevent any appreciable scars
and undermining of the sides of the butts.
No arrangements which can be made will
prevent the necessity for regular upkeep
of the ground and repair of the unavoidable
effect of falls of rain but with those
proposed the annual work should
be very slight.

Adel. Sate.

Major R.
Under Secretary to Govt.

To
The Chief Engineer
P. B. D.

P. W. D.

Proceedings of the Madras Government,
187

Under date the

Read the following:—

Pages of Government in the
Military Dept. } (H. No. 3587 dt. 11 Nov. 1874)
264

The Lieut. Colonel
having doubts as to the full
efficiency of the measures
proposed by the Quarter
Master General at the sug-
gestion of the District Engineer
Bangalore, for the permanent
stoppage of the encroach-
ments of the natives in
question on the Rifle Range,
directed the Under Secretary
in this Department to in-
spect the ground and re-
port on the subject. That
Officer has done so; and
the Government approve
of the general arrangements
proposed.

prepared by Major Scott
as being calculated to
more effectually remedy
the evil complained of.

2. The District Engineer
is accordingly directed to
prepare a design and to
submit for carrying the same
into effect.

The Memo prepared
Major Scott will under the
orders of the Chief Eng. will
be convenient order to the

Done

It will go so fully into
the matter in a G.O. I
will see the comparative
cost before commencing
Govt - 11/11

To the D. C. Bangalore with 3 Enclos
Military Dept
Receipt to be made 28/1/75.

11/11

11/11

7065

Govt. of Madras.

PUBLIC WORKS.



To

The Dist. Sgr.

Bangalore

Dated

Recd.

Encl. 2

10. 11. 1874, No. 284

NO. 479-1180

Rangoon

Rifle Batts at Bangalore

Major Scott's Memo:

prepared. The Memo: prepared by Major Scott under the orders of the Chief Magistrate regarding the works necessary for the further improvement of the encroachments of the ravines on the Rifle Range, and to the B.E. in the instructions to the

a design & Estimate for carrying out the works if finally approved -