

MADRAS RECORD OFFICE.

Government of Madras.

Revenue DEPARTMENT.

G.O. No.	863	Press ~~Mis.~~
	312. 873	
Dated	27-4-1865.	

Not to be folded or roughly handled

*Proceedings of the Madras Government, Revenue Department,
27th April 1865.*

No. 312. Read the following Proceedings of the Madras Government in the
Public Works Department:—

Declining to sanction the large additional
expenditure recommended by the Su-
perintending Engineer, 6th Division,
on account of the Chundranuddy under-
tunnel; and in the case of the two
small tunnels alluded to by the same
officer, approve of the alterations re-
commended, and sanction the additional
expenditure amounting to Rupees 1,600. } (Here enter 20th April 1865, No. 1,051.)

No. 313. ORDER THEREON, 27th April 1865, No. 863.

Miscellaneous.

Communicated to the Board of Revenue for their
information.

(True Extract)

(Signed) J. GROSE,
Acting Under Secretary to Government.

To the Board of Revenue, with Proceedings Public Works Department, No. 1,051.

Exd. S. T. Augustin.

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*Proceedings of the Madras Government, Public Works Department,
20th April 1865.*

No. 320. Read the following letter from Lieutenant-Colonel T. GREENAWAY, Superintending Engineer, 6th Division, to Colonel C. A. ORR, R. E., Secretary to Government, Public Works Department, dated Tanjore, 1st April 1865, No. 2,855:—

SIR,

1. I have the honor to bring to your notice that the under-tunnels recently constructed beneath the bed of the Vedar-niam canal, at the crossing of the Tritrapoondi road, to admit of the passage of

3 Plans.
8 Estimates.

two irrigation channels and of the surplus water of the Chundranuddy, were reported by the Officer of the Range as being in his opinion unsafe, as owing to the great head of water they are liable to be exposed to they might very probably blow up.

2. Having had accurate data determined as to height of water in river and canal, &c., I now do myself the honor to forward a cross section of the existing work (under-tunnel for Chundranuddy) and a section showing water levels. You will observe that the crown of the arch is liable, in high freshes, to a pressure of 750 lbs. to the square foot, due to a head of 12 feet, to counterpoise which there is only the weight of brick masonry 1' 10" thick = about 200, and about 4 feet of water in the canal (it could not be counted on as more at low-tide,) which for sea water, would be 256, total 456 lbs., leaving an excess of pressure of 294 lbs. to be resisted by cohesion only. To lower the arch one foot (it could not afford more) and load the crown with granite slabs would give $P = 812\frac{1}{2}$ ($h = 13'$) $R = 624$: an excess of $188\frac{1}{2}$ lbs, still to be met by cohesion only, quite unsafe to trust to in masonry of the sort and dimensions.

3. I have great diffidence in proposing a plan for protecting the work which occurred to me, as I believe nothing of the sort has been attempted hitherto, but as it looks plausible on paper, it may be worth suggesting.

4. It is to cover the whole extrados of the arch, as shown in the second plan attached, with sheet iron,* the plates

• One-eighth inch thick.

revetted together at their ends, the sheet carried over the skew backs and turned up at its outer extremities. The entire back of the arch to be loaded with granite rubble masonry up to the level of the canal bed, except over the crown, which being so thin should be of cut granite.

5. The hydrostatic pressure on one entire arc of the intrados one foot in width would be with the water 16' above the floor 14,780 lbs, to counterpoise which there would be:—

Weight of one foot wide of brick arch	lbs.	3,795
Rubble and stone work about... ..	"	8,150
Water in canal $24 \times 1 \times 4$	"	6,144

lbs. 18,089

making $R > P$ by 3,309 sufficient to prevent any risk of the whole thing blowing up bodily.

6. The cohesive strength of the iron would be amply sufficient to prevent blowing out of the crown.

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*Proceedings of the Madras Government, Public Works Department,
20th April 1865.*

7. I suppose that during low tide when R would be at its least value P also would be somewhat reduced owing to increased fall, but I have no data for estimating to what extent.

8. The two smaller tunnels were fortunately only just commenced when the danger was brought to my notice, they are exposed to a head never exceeding 10', and I propose merely to lower their vents one foot and load their crowns with granite, which will be rather cheaper than applying the sheet iron remedy also to them; I have however forwarded both, and request that orders may be passed upon the subject as early as possible, as time draws rapidly towards the season when work will be impracticable in those parts.

No. 321.

ORDER THEREON, 20th April 1865, No. 1,051.

CIVIL WORKS, No. 58.

1. With reference to the above letter the Government are of opinion, in the case of the Chundranuddy under-tunnel, that the brick-work of the arch, if of ordinary good quality, ought to have tenacity far more than sufficient to counteract the maximum excess of pressure, represented by Colonel Greenaway, as liable to occur on the occasion of a high fresh in the river, and they are not therefore disposed to sanction the large additional expenditure* recommended by that Officer.

* Rupees 3,500.

2. In the case of the two small tunnels alluded to in the last paragraph of the foregoing letter, the information supplied by the Superintending Engineer is far from full, but as these works have just been commenced, the Government will not object to the alterations recommended, and they accordingly sanction the estimate of the additional expenditure, amounting to Rupees 1,600.

(True Extract.)



Colonel, R. E.,
Secretary to Government.

To the Superintending Engineer, 6th Division.

„ Accountant General.

„ Controller of Public Works Accounts.

„ Revenue Department.

New York
Decr 1865

Proceedings of the
Madison Court in the
Pauline Forks Depot.

March 20th 1865
Tearin 1229

82.1051-

[illegible]

212-213.

No. 869 - 27th March

Wm. D. D.

87-863-

Communicated to the
Board of Revenue for
their information. —

John W. C. Long
No. 112, 112000

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Office of the
Do. 10570 by Office