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MADRAS RECORD OFFICE

GOVERNMENT OF MADRAS

Revenue DEPARTMENT

G.O. No.	2029	Press
B.P. No.		Mis. ✓
Dated	28.8.1976	196

Not to be folded or roughly handled

Read the following papers :—

No. 88. From R. WOOLLEY, Esq., to the Hon. D. F. CARMICHAEL, Secretary to Government, Revenue Department, dated Wallajah Baugh, Madras, 27th March 1876.

I HAVE the honor to submit the following proposal for the consideration of the Government. I have long desired to make it, but until now I have not had sufficient leisure to justify me in doing so.

2. I am willing to undertake the maintenance of the Northern and Southern Canals for a period of five years from, say, 1st July next (or as may be arranged) upon being paid for so doing a monthly sum equivalent to one-twelfth of the average yearly expenditure of the last five years.

3. I would open the Ennore Bar, or any other barrier of the like kind which it is customary to open, and keep clear all side-channels connecting the canals with the salt-pans on the same terms and for a like period.

4. I would also maintain any portion of canal which has not been five years opened, or which may be opened within the next five years, upon being paid a monthly mileage rate fair and equitable to the Government and myself.

5. If my proposal be entertained, it would be easy hereafter to add to it if agreeable to the Government—

- (1.) The lease of all tolls and ferries in connection with the canals, and
- (2.) The carriage, in properly-constructed boats, of all the salt made in connection with the canals which it might be necessary to remove to the depôts.

6. At present, however, owing to the uncertainty which prevails as to the future mode of dealing with the salt, I have confined my proposition to the maintenance of the canals and works connected therewith.

7. In this form I presume the Government may be able and willing to decide upon it now. I suppose the canals will have to be maintained whether the present mode of dealing with the salt be continued or an excise be imposed instead, for there is now a considerable general traffic upon them, and it seems probable that this would largely increase both in passengers and goods if the canals were made a *certain* water-way at all seasons and suitable boats were encouraged or provided.

8. Perhaps I may be permitted to add a few words in explanation of my offer.

9. As to the maintenance of the canals. I mean their efficient maintenance : the preservation of a workable depth of water throughout. It would not become me to describe or pass any opinion upon the mode in which this object is sought to be attained at present. I propose to deepen and clean the canals by means of dredges worked either by manual or steam power or by both, and to place the mud and earth thus raised so that they will not again find their way into the canals. I venture to assert that one rupee spent now, the water being unusually low, would remove as much mud as five rupees would a few months later.

10. As to the bars or barriers which it is occasionally necessary to open and keep open, I should consider it part of my duty to render whatever assistance might be required to secure the benefits to the fishermen and the salt-makers which

they depend upon, but do not always now obtain, by the flow of sea water into and out of the backwaters, canals, and lakes along the coast.

No. 88-A. From R. WOOLLEY, Esq., to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Wallajah Baugh, 28th March 1876.

In connection with my offer of yesterday's date, addressed to the Revenue Secretary to Government, to maintain the northern and southern canals for a period of five years, I have now the honor to submit, for the consideration of the Government, the following proposal for cleaning out a portion of the Northern Canal (not included in my offer of yesterday) and a portion of the Cooum River laying between the Basin Bridge on the north and the Harris' Bridge on the south and round the island to the Napier Bridge near the Marine Villa.

2. After much thought and inquiry, I have arrived at the conclusion that the best way of performing this work, having in view the public health, would be to raise the mud, &c., by dredging, beginning at the north end, and removing it in barges to the low-lying land on the banks of the canal north of the Napier Fundry; the quickest plan would be, I believe, to remove the mud round the island by ordinary labor and bury it on the island *simultaneously* with the dredging on the north.

3. If the island could not be utilized in this way, the whole of the mud must be dredged and removed three or four miles north and north-west of Madras. In this case I doubt if the work could be got through in less than five years.

4. The Northern Canal north of the Basin Bridge in its present and chronic state would be unable to float the barges which would have to be employed; but, if it were deepened as proposed in my letter of yesterday, it might be used in the mode suggested.

5. The cost would be Rupees 50,000 per mile whichever method of working were agreed upon; this is equivalent to a little over Rupees 28 per yard forward the whole width of the river.

6. If my proposal were accepted, I should not want any advance from the Government, and I would accept payment by monthly instalments.

7. I presume all are agreed as to the advisability, if not the necessity, of thoroughly cleaning out the Cooum River; the advantages of doing so are obvious.

8. I attach a copy of my letter of yesterday for your convenience.

No. 88-B. From Major P. MONTGOMERIE, R.E., Officiating District Engineer, Presidency, to Major-General G. W. WALKER, R.E., Chief Engineer and Secretary to Government, Public Works Department, dated Fort St. George, 10th June 1876, No. 1,338.

Among other improvements to the Government House grounds, Madras, required by His Grace the Governor is a permanent river embankment to the Cooum for the purpose of securing deep water along its edge, and thus prevent the emanation of

noxious gases. As such an embankment along the Government House grounds alone would be of little practical utility unless the upper and far more offensive portion of the river be at the same time trained and reduced to moderate dimensions, I have the honor to lay before you the advisability of taking in hand the complete training and conservancy of the whole lower portion of the River Cooum below Harris' Bridge, and in connection with this subject the construction of some permanent work at the mouth of the river to utilize the high tides in scouring and flooding the same.

2. You are probably acquainted with the appearance and the evil effects of this backwater of the Cooum during the cooler months of the year, but it requires an inspection of the locality during the hot weather to form any adequate idea of the intolerable nuisance it then becomes.

3. The training and conservancy of the Cooum must be taken in hand in a thorough manner some day by Government if only for the sake of the public institutions along its banks and which are principally influenced by its effects; and, as this work cannot interfere in any way

with the drainage or navigation schemes now before the Government, I would strongly recommend that the project be put in hand forthwith, and that a survey

	Per mensem.
	Rs.
1 Surveyor	100
1 Lascar	7
4 Lascars, each at	6

establishment as per margin be sanctioned for six months to enable the District Engineer to prepare the plan and sections on a large scale of the portions of the river to be trained. General maps of the drainage basin, &c., are probably available in the Irrigation Department, but an accurate large scale map of the lower portion of the river is absolutely essential in considering this subject.

No. 88-C. — Endorsement of the Officiating District Engineer, Presidency, dated 12th June 1876, No. 1,359.

From L. R. BURROWS, Esq., Acting President of the Municipal Commission, Madras, to Major P. MONTGOMERIE, R.E., Officiating District Engineer, Presidency, dated Madras, 9th June 1876, No. 306.

I HAVE the honor to inquire whether the Government contemplate undertaking within a reasonable period any operations for improving the Cooum conservancy. It is now nearly two years since the bar was opened, and during the whole of that time the sewers of Triplicane, Chintadrepettah, Comaleswaram Covil, and John Pereira's have continued to discharge their contents into the bed of the river. A small establishment is entertained for the purpose of collecting scum and cleaning the banks, throwing down road-dust at the mouths of the sewers as a deodorant. But this establishment is quite insufficient to grapple with the evil. It is no exaggeration to say that the river between Harris' Bridge and Marine Villa is a gigantic cesspool. Unless some radical improvement is effected, the state of the river must become worse and worse in spite of the efforts of the establishment.

2. I would suggest that effect be given to the recommendations of Mr. Clark, the Drainage Engineer. These will be found at the end of his report in the town drainage. The material for the necessary groynes might be taken from the old groynes on the south, beach which, in consequence of the retrogression of the sea at that part of the shore, are no longer required.

SUBMITTED to the Chief Engineer and Secretary to Government, Public Works Department, in continuation of this office letter, No. 1,338, dated 10th June 1876.

(Signed) P. MONTGOMERIE, Major, R.E.,
Officiating District Engineer, Presidency.

No. 88-D. Endorsement of the Chief Secretary to Government, dated 26th July 1876, No. 1,141.

From Colonel W. T. F. FAREWELL, Officiating Deputy Chief Engineer, Public Works Department, L. R. BURROWS, Esq., Officiating President of the Madras Municipal Commission, and Surgeon-Major H. KING, M.B. and A.M., Officiating Sanitary Commissioner, to the Hon. W. HUDLESTON, Chief Secretary to Government, Fort St. George, dated — July 1876.

In compliance with G.O., No. 727, dated the 6th of July 1876, we have the honor to report that we have inspected the banks of the Cooum River and found that they have been well conserved and are as clean as possible.

2. We have examined the Triplicane and Chintadrepettah drains, the outfalls of which are in the vicinity of the Government House Bridge; they flow freely into the Cooum, the channels to which are well cleared, and the drains as drains are fairly clean. We found the water in the Cooum, though clear, to be very offensive, which we understand is always the case at this season of the year. The river has for some time past been nothing more or less than a stagnant pool, into which no fewer than thirty-nine sewage drains empty themselves.

Thirty in the Cooum.
Nine in the Canal.

3. Having been called upon to suggest some immediate measures for the speedy abatement of the evils arising from the present condition of the Cooum and being of opinion that the only remedy is to dilute as much as possible its contaminated contents, which, under present circumstances, can only be accomplished by admitting the sea, we beg to recommend that the Cooum bar be cut to mean tide level to a width of one hundred feet, and that the cutting be kept open to the depth named until heavy rain falls and the river assumes its monsoon condition. The Presidency District Engineer approximately estimates the cost of the cutting at about Rupees 500, and that of keeping it open at Rupees 15 per diem.

4. We examined the Government House compound along the banks of the Cooum, and in the vicinity of the Marine Villa the banks of the river are well conserved; there, however, exists close to the Marine Villa an unsightly pond with some stagnant water in it; this, we think, should be filled up with sand obtainable from the Cooum Bar.

5. We have been unable to submit this report earlier in consequence of the absence from Madras, on duty, of the Sanitary Commissioner.

TRANSFERRED to the Public Works Department for disposal.

(Signed) W. HUDLESTON,
Chief Secretary.

No. 88-E. From Major P. MONTGOMERIE, R.E., Officiating District Engineer, Presidency, to Major-General G. W. WALKER, R.E., Chief Engineer and Secretary to Government, Public Works Department, dated Fort St. George, 13th July 1876, No. 1,921.

WITH reference to your memorandum, No. 791, dated 1st December 1875, and G.O., No. 43, dated 7th January 1876, in the former of which the District Engineer, Presidency, was directed "to reconstruct one of the dams of the Hospital Bridge so as to totally obstruct the flow of water in the canal from south to north and retain the level of the water of the Cooum as high as possible," and in the latter of which the District Engineer was directed "to take steps to have the banks of the Cooum kept clear of decaying filth and to remove all accumulations of filth from the mouths of the large drains opening into it" and "also to adopt such measures as may be practicable to keep open the mouths of the creeks flowing from Triplicane and Mylapore to the sea," I have the honor to furnish you with the following information on these points, and to request further instructions at an early date.

1 Register of Heights of Water in Cooum.
1 Original letter from Mr. Pogson.
1 Sketch of Cooum.
1 Statement.
1 Report.

2. From the accompanying register of the heights of water in the River Cooum and Fort Ditch during the months of March, April, May and June, to which is attached an original communication from the Government Astronomer regarding the rainfall and tides at Madras during the same period, you will observe that the level of the water in the Cooum is at present about the mean sea level according to DeHavilands B.M., and that it is now only 6 inches lower than it was in the beginning of March. At the end of June the level of the water in the Cooum was $1\frac{1}{2}$ feet and that of the Fort Ditch $2\frac{1}{2}$ feet higher than the water in Cochrane's Canal, so that the construction of the dam may be said to have fully and successfully accomplished one of the objects for which it was constructed, viz., the retaining of the water of the Cooum at a high level. The Hospital Bridge works are, however, now nearly completed, and as soon as the rough stone apron has been packed there will be no further necessity for the dam so far as the bridge works are concerned. I have, therefore, the honor to solicit your further instructions with reference to this dam—whether I am to make it secure or not against any of the high floods which may now be expected.

3. With regard to the conservancy of the Cooum Banks and the mouths of the Triplicane and Mylapore Creeks, I have the honor to submit a statement of the monthly establishments and their cost which have been employed on this work. The conservancy of the mouths of the smaller creeks is now most successful, although at first the odors from these drains were occasionally rather pungent owing to the cuttings at their mouths having been carried too deep and thus laying bare the whole of the surface of the drains at low water. But by a little judicious management in the removal of the sand so as to allow the fresh sea-water to roll in without permitting the

drain to empty itself except periodically, these most disagreeable portions of the beach are now as fresh and inoffensive as any other part.

4. The perfect conservancy of the banks of the Cooum is, however, not possible with the limited establishment at my disposal; the men have worked diligently, but the removal of filth by manual labor from such a gigantic and foul cesspool as the Cooum has now become is, in my opinion, worse than useless. The bar of this river was last cut on the 17th September 1874, and, as it closed again about January 1875, there has not since that period been any natural means of evacuating the sewage which has been allowed to flow into it, nor has a single drop of sea-water been allowed to enter to dilute the same. The removal of the surface weeds and scum has however been beneficial; but, as the hot weather advances, the growth and production

Present Establishment.			Proposed Establishment.		
Per month.			Per month.		
Rs.	A.	P.	Rs.	A.	P.
1 Cart	16	12 0	3 Carts at Rs. 16-12-0 ea.	50	4 0
1 Peon	7	0 0	2 Peons at " 7-0-0 ea.	14	0 0
6 Coolies at Rs. 4-13-6 ea.	29	1 0	18 Coolies at " 4-13-6 ea.	87	3 0
Total	52	13 0	Total	151	7 0

of these is greater than the small establishment at my disposal can satisfactorily contend with, and I would suggest that until next monsoon this establishment be increased as per margin.

5. As, however, no permanent benefit can possibly be gained by any amount of weeding and skimming the surface-matter of the Cooum unless steps are at the same time taken to secure the thorough evacuation of its contents by natural means into the ocean and which in return could be made to furnish an ample supply of fresh sea-water, I have the honor to draw your special attention to my letter, No. 1,338, dated 10th June 1876, in which I applied for the services of a small survey party to enable the District Engineer to investigate the subject and submit a complete project to Government, and I now beg to submit a sketch of the Cooum basin showing the arrangements I would propose to secure this most desirable effect.

Proposed Improvements for Scouring and Flushing the River Cooum with Tidal Water.

1. The Cooum proper must be trained uniformly to moderate dimensions as shown by the dotted lines on the plan and the margin revetted with stone.
2. The backwater running north from the mouth of the river towards the Wallajah Bridge to be separated from the main river by means of an embankment with sluices at A.
3. The southernmost groyne C to be extended beyond the shore and the groyne D to be carried out to the sand-bank formed by the surf-action.
4. Scouring sluices to be constructed at B between the two groynes.
5. During the flood tide all sluices to be kept open and the influx of sea-water to be assisted by manual labor if necessary. At high tide all sluices to be closed until about half an hour before low water when the scouring sluices at B are to be opened and the sluices at A being kept closed. The water in the north portion of the basin will flow round the island towards the Penitentiary and help to augment the volume of water required to scour out the main stream.
6. It is observed from Mr. Clark's report on the drainage of Madras that he has already suggested the construction of these groynes. But it cannot be expected that with such a surf to contend with, and so small a rise and fall of tide (viz., 3 feet) as exists on the Madras coast, these groynes alone can keep the bar of the Cooum open without the assistance of manual labor or some mechanical contrivance, such as sluices, &c.

(Signed) P. MONTGOMERIE, Major, R.E.,
Officiating District Engineer, Presidency.

13th July 1876.

From N. R. POGSON, Esq., Government Astronomer and Meteorological Superintendent, to Major P. MONTGOMERIE, R.E., Officiating District Engineer, Presidency, dated Madras Observatory, 23rd June 1876.

In reply to your letter of the 20th instant, and I suppose to Lieutenant Hamilton's previous one of the 6th also, which I regret to find has not yet been answered, I have the honor to furnish you with the following particulars:—

1. The rainfall up to date this year has been thus recorded. The average due up to date is 5.7 inches. The accompanying table may be of occasional use in your office for reference, and the current returns are regularly published in the Weekly Meteorological Supplements of the Fort St. George Gazette.

January	2nd...	...	0.12
April	30th...	...	0.71
May	5th...	...	0.01
"	6th...	...	0.43
"	7th...	...	0.01
"	30th...	...	0.81
"	31st...	...	0.73
June	1st...	...	0.26
"	2nd...	...	0.07
"	8th...	...	0.04
"	12th...	...	0.01
"	13th...	...	1.43
"	15th...	...	0.43
"	16th...	...	0.53
"	17th...	...	0.03
"	19th...	...	0.05

Total on 16 days ... 4.87

2. With regard to the tides at Madras, I am of opinion it is high time that some new series of observations was commenced for verification, and probable correction of the very old data now available for their prediction at Madras. The "establishment of the port" is given as 7 h. 34 m., and the rise and fall as 35 inches, which I suppose is the difference between MEAN high and low water. Dividing this roughly in the proportion of lunar and solar influence, we should expect 48 inches for the average difference at spring tides and only 22 inches at the neaps, but how far this will hold good I cannot say. Then there are considerable differences between the heights of the springs, agreeably to the position of the moon in her orbit, both as regards her meridian altitude at the time and her distance from the earth. The superior tide is usually greater than the inferior tide, so that at new moon there should be a maximum between 7 and 8 p.m., while at full moon it should occur between 7 and 8 a.m. The springs occur on the new and full moon days, so that for March, April, May, and June we have

1876.	Moon's Phase.	Maximum Superior Tide.	Moon's Declination.	Horizontal Parallax.
March 10th ...	Full.	March 10th 7½ A.M.	6 N.	58
" 26th ...	New.	" 26th 8 P.M.	8 N.	59
April 9th ...	Full.	April 9th 7½ A.M.	9 S.	56
" 24th ...	New.	" 24th 7½ P.M.	18 N.	60
May 8th ...	Full.	May 9th 7½ A.M.	22 S.	55
" 23rd ...	New.	" 23rd 7 P.M.	25 N.	61
June 7th ...	Full.	June 7th 7½ A.M.	27 S.	54
" 22nd ...	New.	" 22nd 8 P.M.	28 N.	61

The nearer the moon's declination is to 13° N. (the latitude of Madras) and the greater her horizontal parallax, the higher the tide, and the reverse, so that, of the above, April 24th was by far the best when the moon southed only 5° N. of the zenith her horizontal parallax being 60'; and as decidedly the tide of June 7th, when she southed 40° S. of the zenith, with horizontal parallax only 54', must have been the worst in the four months.

It must, however, be always borne in mind that the tides are often considerably changed from their normal height by casual winds and currents, so that after all they may be unduly increased or diminished when least expected. The Mr. Fraser, when engaged some years back in some operations for the Ennore salt works, found the advantage of taking such considerations as the above into account. He was about to cut a channel and let the sea in at an unfavorable time, but, by waiting a fortnight as I advised him, succeeded entirely to his satisfaction.

No. 88-F.

MEMORANDUM.

THE condition of the Cooum River has been rendered rather more unsanitary than usual by the failure to open the bar in the north-east monsoon of 1875, the floods never having risen to that height at which there is a standing order to cut it. The accumulation of foul water in its tidal basin will therefore be treble the usual amount by the middle of October 1876. The Chief Engineer does not see that any effectual remedy can be applied to this until next floods admit of the bar being opened and the stagnant matter swept into the sea. The normal state of the Cooum will then be resumed, and meanwhile Government House, Madras, had better not be resorted to, but Guindy made use of instead.

2. In the present deficit of money for public works, which threatens to be permanent in consequence of the determination arrived at by Government to appropriate some four lakhs of the Provincial assignment for public works to other purposes, the Chief Engineer has abstained from recommending any action in the direction of an attempt to keep open the Cooum bar permanently, knowing how precarious the chance of success is and how insufficient the data on which to ground a scientific scheme of operations. He entirely approves of the engineering grounds on which Mr. Clark's proposal of 12th February 1875 is based, but that gentleman's calculations are admittedly rough. And, seeing that his proposals for the drainage of Madras will, if carried out in a few years, effectually prevent the defilement of the Cooum, and that the Government of Madras have not got money to spare in experimenting on improving the river during those few years when its condition may be rendered tolerable by attending to the cutting of the bar annually and to the conservancy of its bed and banks. Major-General Walker has preferred concentrating what little influence he may possess on the advocacy of immediate action in carrying out the drainage scheme, leaving it to be settled hereafter in what proportions its cost should be borne by the Government and the Municipality respectively. There is no rival scheme; Madras must be drained, and there can be no good, but must be great harm, in deferring action against so really gigantic an evil.

3. Should it, however, be deemed necessary, and funds be made available, to attempt something towards keeping the Cooum Bar permanently open on Mr. Clark's scheme, the Chief Engineer would prefer throwing out a northern groyne in a line with the north abutment of the bridge to a length of about 300 feet, and from its end another groyne of about the same length at right angles to it in a southerly direction towards the south groyne, which might be lengthened 100 feet, the groyne running athwart the river-mouth for two-thirds of its length being kept down to low water level. In this manner he considers that the principle of Mr. Clark's scheme will be maintained without decrease of the waterway of the bridge, which is to be deprecated. The cost of this work might be—

	RS.
Northern Groyne	8,000
Lengthening Southern "	5,000
Cross Groyne	7,000
Total	20,000

But the Chief Engineer would rather see that or double that sum laid out in deepening shoals of the Cooum and training its banks, to do which satisfactorily, and to have a record of its present state for comparison at later dates, it is necessary that sections referred to permanent bench-marks should be taken along the stream, with which view he recommends that action be first taken in providing the Presidency District Engineer with a survey establishment.

OOTACAMUND, (Signed) G. W. WALKER, Major-General, R.E.,
20th July 1876. Chief Engineer, P.W.D.

No. 89. ORDER THEREON, 3rd August 1876, No. 1,992.

CIVIL WORKS, No. 10.

IN his letter of the 27th March 1876 Mr. Woolley proposes (1) to undertake the maintenance of the Northern and Southern Canals for five years for a monthly sum equivalent to one-twelfth of the average annual expenditure of the last five years; (2) to open the Ennore and any other bars and keep clear all side channels connecting the canals with the salt-pans on the same terms and for the same period.

2. Mr. Woolley proposes to use dredges worked either by steam power or manual labor.

3. His Grace the Governor in Council is disposed to entertain favorably the proposals submitted, which he understands as covering the maintenance of the canals to a minimum depth of 3 feet at the lowest tide level, and of a width of 30 feet at the bottom, and of the towing paths in proper condition for use.

4. The Chief Engineer will prepare, in communication with the Government Solicitor, a form of contract for approval.

5. The Collector of Chingleput will be requested to submit a statement of actual outlay for each of the last five years on maintenance of the canals and of the branches to the salt-pans, as well as of any outlay that may have been incurred in each year in opening the Ennore and other bars.

6. The proposals made in Mr. Woolley's letter of the 28th March for the conservancy of the Northern Canal south of the Basin Bridge and of portions of the Cooum River cannot at present be entertained.

7. The application of the District Engineer, Presidency, for a Survey Establishment to prepare plans and sections, on a large scale, of the Cooum below Harris' Bridge, and the request from the President of the Madras Municipal Commission that Mr. Clark's proposal for permanently opening the Cooum Bar, recorded with G.O., No. 208, dated 25th February 1875, be at once carried out, are not sanctioned. The Governor in Council, however, resolves to order the immediate execution of the measures recommended by the Committee appointed in G.O., No. 727, dated 6th July 1876 (Public Department), for ameliorating the condition of the river. The Cooum Bar will accordingly be cut down to low-water level for a width of one hundred feet, the cutting being kept open to the depth named until heavy rain falls and the river assumes its monsoon condition. The approximate estimate of the cost of the cutting is given at Rupees 500, and that of keeping it open at Rupees 15 per

diem. The filling in of the pond near the Marine Villa with the sand from the bar recommended by the Committee will also be carried out. In addition to these measures settling tanks are also to be constructed above the mouths of the Mount Road and Chintadrepettah sewers near Government House Bridge to trap sewer contents and intercept them before they reach the Cooum. The settling tanks should be emptied daily and their contents removed by the Municipality.

8. It is satisfactory to observe that the instructions given* to the District Engineer, Presidency, to maintain the level of the Cooum as high as possible by means of one of the dams at the General Hospital Bridge have been so far successful. The dam will continue to be maintained at a height of 20.5 feet above the zero assumed for these calculations, which is 20 feet below mean sea level. The results of the measures ordered to be adopted in G.O., No. 43, dated 7th January 1876, for the conservancy of the Cooum banks and the mouths of the Triplicane and Mylapore Creeks have, it is observed with satisfaction, been successful, and have been carried out at a moderate cost.

9. The proposed† increase to the conservancy establishment to admit of the continuance of the operations and of the complete cleaning of the banks from all offensive deposit or accumulations till the setting in of the next monsoon is sanctioned.

10. The District Engineer, Presidency, will in due course submit formal estimates for the outlay authorized in these Proceedings, when specific grants of money will be made.

(True Extract.)


Colonel,
Offg. Under Secy. to Govt., P.W.D.

To the District Engineer, Presidency.

To Mr. R. Woolley.

To the Revenue Department. ✓

„ Marine Department.

„ Examiner of Public Works Accounts.

Exd. J. W. Fischer.

70 Spare Copies

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Rev. 1876-247

Govt. of 1876: Madras.

PUBLIC WORKS.

To
THE DISTRICT ENGINEER,
PRESIDENCY,
&c., &c., &c.

Dated August 3rd.

Issued

Recd. 6 26th

Encl.

G. O., 3rd August 1876, No. 1,992.

AUGUST.

Nos. 88-89.

Para 5 of 91

Conservancy of the Cooum, &c., &c.—Pass-
ing orders on the subject of the measures to
be taken for effecting the — and on the
proposals of Mr. Woolley for maintaining
in good order the Northern and Southern
Canals.

Communicated to the H.
of Rev.

28 August 1876

Recd. 979/27

14. 8. 76. (Dated 28. 8. 76. 10/11)

DEPARTMENT

G.O. No.
B.P. No.

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