M.R.O. 1—20,002—12-8-65.

(1) Number of Pages 6.

(2) Date of repair 9-10-68.

(3) Initials of the Referencer [illegible]

MADRAS RECORD OFFICE

GOVERNMENT OF MADRAS

Revenue DEPARTMENT

G.O. No.	1042.	Press
B.P. No.		Mis.

Dated 18-5-1875 196 .

Not to be folded or roughly handled

Read again letter from E. H. H. COLLEN, Esq., Secretary, Special Ordnance Commission, No. 364, dated 24th November 1874, recorded in G. O., No. 80, dated 12th January 1875.

Read again Petition from certain residents of Perambore and Veysarpaudy, dated 31st December 1874, recorded in G. O. No. 180, dated 21st January 1875.

No. 107. Read also the following Report from the Committee appointed to report on the floods at the Gun Powder Factory, to Colonel G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Fort St. George, 6th April 1875, No. 346-B :—

No. 80, 12th January 1875.
„ 180, 21st do.

We have the honor to report as follows on the subjects referred for our consideration in the orders of Government as per margin.

2. The possible effect of the Railway embankments on the flood levels at the Gun Powder Factory have been, after an inspection of the line, considered, and we are of opinion that there is direct evidence to show that these embankments can have exercised no appreciable effect, there having been, so far as can be judged from an examination of the culverts and bridges, no ponding up of water, and it is said also that the current through the openings, as at the two span bridge near Cochrane's basin, was very slight, though here the water rose* to the top flange of the girders. Moreover, the representations of the residents of Veysarpaudy indicate that on both sides of the line of Railway about similar inconvenience was experienced.

* October 1874.

3. The ground on which the Gun Powder Factory to the south of the Railway and Veysarpaudy, close by on the north side, stand is very low, and liable to inundation after every slight fall of rain. In years like 1872 and 1874, the inundations must unavoidably have been serious, owing to the heavy falls of rain which occurred.

4. While thinking that the Railway embankments, in which the drainage openings appear to be generally ample, have had no material influence on the flood levels, we are disposed to believe that the general tendency of the improvements in the way of communications during the last 25 years or more has almost unavoidably been to obstruct drainage more or less. The result, however, is more marked in ordinary seasons than during high floods, because on the occurrence of the latter all these roadways are submerged to a considerable depth. In moderate floods, however, the tendency is to make a longer time necessary for getting rid of the drainage.

5. The Otery nullah, which drains the ground in this neighbourhood and passes between the Gun Powder Factory and the Railway, is a good deal silted up, and much advantage would probably result from deepening and widening it from the bridge on the road leading from the Perambore station to the Poonamallee road near Egmore down to the East Coast Canal. Moreover, just above its outfall into the canal, it is bunded to retain fresh water for the Government chunam kilns, and the result must be the more frequent flooding of the low-lying land on which the Gun Powder Factory and Veysarpaudy stand. If the retention of fresh water be a necessity, a masonry weir with a crest, the full width of the nullah, should be substituted for the bund, and the level of the crest should not be higher than 2 inches above H.W. springs, while in the crest wall there should be about 12 feet of sluice opening which should be opened at ebb tide whenever there is water flowing down the nullah.

6. With regard to the improvement of the circumstances of this locality as regards drainage, we are of opinion that not much can be done. The discharge of flood waters must take place in a northerly direction to the Ennore backwater and out to sea at the bar, or in a southerly direction by the canal into the Cooum, and so to sea by the mouth of this river at the iron lattice bridge. In different years the condition of the Ennore and Cooum bars will unavoidably vary, and the mere circumstance of the land floods reaching their maximum at the time of high or at low water would make a considerable difference in their power of relieving the low-lying lands promptly. At present the Ennore bar is in a state highly favorable to the discharge of heavy freshes, and we do not think that any thing can be done to improve its position or capacity of discharge. Benefit will result from the removal of the calingulah and banks at the entrance of the Red Hills surplus channel into the Ennore backwater, as this channel is the natural outlet for all the drainage flowing in a north-easterly or northerly direction. The calingulah has been partly dismantled, and the banks connected with it on the east side have been to a considerable extent washed away and on the west extensively breached. They may with advantage be entirely removed. Drainage enters the East Coast Canal by the Otery nullah and at other points to the northward, and except by reflowing out of the canal at the points where it finds entrance, or by breaching the left bank, it cannot get to the northward, the canal being barred by the Shediankuppum lock. It now naturally, therefore, flows to the Cooum. When, however, this river is in heavy flood, it would appear to be more than probable that the best outlet for the Otery nullah drainage and for all the drainage to the north of the Railway would be into the Ennore backwater. The cheapest way of carrying out some improvement in this direction will, it is thought, be to leave low half a mile of the west bank of the canal which, if made 6 inches above H.W. springs, will let out flood water without doing any, or suffering much, damage. If the canal were deepened, its value as a drain would be much increased, while at the same time the navigation would benefit. Possibly further improvement of the Red Hills tank surplus channel would aid indirectly in relieving Veysarpaudy and its neighbourhood. The Ennore bar occasionally closes, but more frequently remains more or less open throughout the year; and in order to supply water for the salt manufacture, and to keep the canal efficient for navigation, it has been customary to artificially open the bar at intervals when necessary. The extension of the opening from a few yards to several hundred is the annual work of the freshes of the north-east monsoon, and the flood level in and above the Ennore backwater is determined by causes over which there is, and can be, but little control. The Cooum bar is usually opened artificially at ebb tide when the water inside the bar rises to a certain level* on the bar gauge, and the relief thus afforded is practically dependent upon the rapidity with which the impounded waters clear away the sand. It may, we think, be possible by judicious management so to time the cutting of the bar, with reference to the state of the weather or character of the rainfall at and near Madras, as to afford more speedy relief than by strict adherence to the rule which has hitherto regulated this operation. The difference cannot, however, be very great. It has to be remembered also that the opening of the Cooum and the lowering thereby of the water surface is not without its disadvantages, as by so doing large areas of mud banks are exposed, and the residents in the neighbourhood then complain of the effluvium

* 4 feet 6 inches.

Proceedings of the Madras Government, Public Works Department,
5th May 1875.

ch arises. The height of 4½ feet on the bar gauge was fixed with reference to the el of the low-lying parts of Madras, and it is probably the best that can be taken as uide; but under special circumstances there is nothing to prevent these being taken o account in deciding, in any particular monsoon, on the time of opening the bar.

7. In the foregoing remarks we have endeavoured to indicate that it is not in opinion practicable to do very much to alter the natural effect of the low level of lands near Cochrane's basin, and that their present condition is not materially fferent to what it has always been. The result of the normal formation of this coast which sand hills bar the direct way to the sea must be to necessitate drainage ding its way to an outfall by a longer route than would otherwise be requisite, and s when the lands to be drained are low must of itself not only make all the fference between good and bad drainage, but render effective drainage almost practicable. The improvements which we have suggested can at best have but a nited effect, and we desire to guard against any possible conclusion that the inevitable sults of natural position can be obviated to more than a very small extent.

8. On the specific causes of the extent of the inundations mentioned by the roprietors and residents of Perambore and Veysarpaudy and on the propositions made y them, we will now state our opinion. Four obstacles to free outlet of flood waters e referred to in paragraph 4 of their letter, and they are—

1*st.*—The main line of the Madras Railway with its insufficient waterways.

2*nd.*—The line to the Central Station and Salt Cotaurs, and especially the way in hich the bridge over the canal has been obstructed.

3*rd.*—The line from the Salt Cotaur to the basin bridge.

4*th.*—The bridge at the Cooum bar.

We think that the Railway embankments exercise little, if any, influence on the and drainage. At first sight it may look as though it were otherwise, but really the waterways are sufficient, and east, west, north, and south of the line the flood levels were practically the same. We could discover no sign of any action showing that there was any strong current flowing through any of them, except at the bridge over the canal south of the elephant gate bridge, and here the action is due to change of direction of the current which probably did not exceed the average velocity in the canal. The waterway of the bridge is very ample, much in excess indeed of the sectional area of the canal, and only in the event of the velocity of the water in the latter being so great as to occasion practically a diminution of waterway by creating difference of water level on the two sides of each span could this bridge as built prove to be obstructive. With low velocities the change of direction of the current is immaterial. We think that Mr. Fraser's objection to this bridge must have referred to obstruction to navigation, not to any deficiency of waterway. It is certainly an awkward bridge for a line of navigation. The Cooum bar bridge affords a waterway of 500 lineal feet, and this is in excess of the length of the Government House and Wallajah bridges, while the depth of water at the former is during the prevalence of freshes very much greater, so that it is clear that the outfall of the Cooum freshes into the sea cannot have been obstructed by the bar bridge.

G H B	...	...	323 feet.
W B	...	...	155 „
	Total ...		478

9. The enlargement of the Red Hills and Cholaveram tanks, and their connection with the Cortiliar, may have had some effect upon the quantity of water thrown into the surplus channel of the former. It must be remembered however that, though these tanks now retain water throughout the year, they hold so much more than formerly, that it is by no means certain that the surplus discharged is much in excess of what it used to be. Moreover, the supply from the Cortiliar is under regulation; no water can pass from the Cholaveram to the Red Hills tank except through the regulating sluices in the bund of the former, and the circumstances are consequently very different from those supposed in the marginal note to paragraph 8 of the letter. It is a mistake also to suppose that the water in the surplus channel of the Red Hills lake enters the East Coast Canal south of the Shediankuppum lock and then flows southwards; it passes into the Ennore backwater, which is its natural outfall, and it will do so more freely after the calingulah and banks across this channel near the lock have been removed. If the tank surplus rise to a high level, it must obstruct drainage in the neighbourhood, but the circumstances would not be materially different were there no Red Hills tank, or had that reservoir not been enlarged.

Letter, paragraph 7.

10. In paragraph 8 of the letter it is proposed that a new outfall to the sea should be carried from Cochrane's basin along some open ground immediately north of where the north walls of Black Town formerly stood. The formation of such an outlet would be effective, but it would involve a costly bridge on the beach road, and we consider it more than doubtful whether the benefit which would result would at all compensate for the expense. If the Otery nullah water ever found its way into the sea at or near this point, it must have been at a period prior to the Trigonometrical Survey, on which the nullah is clearly shown as terminating at Cochrane's, or, as it is called on the atlas sheet, Lord Clive's Canal.

11. In conclusion we have to express the opinion that the evils complained of by the proprietors and residents of Perambore and Veysarpaudy are certainly serious enough, but that they are due mainly to the natural circumstances and level of the ground on which the houses have been constructed, and that under similar conditions of rainfall to those of October 1874 extensive inundations and much inconvenience must be inevitable. We think, moreover, that were the Railway and all its works, the canal bridge and the Cooum bar all removed, but little, if any, benefit would result.

(Signed) J. H. M. SHAW-STEWART, Lieut.-Col., R.E.,
Consulting Engineer for Railways.
(„) J. GODDARD, Lieut.-Colonel, R.E.,
District Engineer, Presidency.
(„) JOHN MULLINS, Lieut.-Colonel, R.E.,
Chief Engineer for Irrigation.

No. 108. ORDER THEREON, 5th May 1875, No. 1,270.

CIVIL WORKS, No. 7A.

ORDERED to be communicated to the Special Ordnance Commission and to the Petitioners.

1042
3

Proceedings of the Madras Government, Public Works Department,
5th May 1875.

2. With reference to paragraph 5 of the Committee's Report, the District Engineer, Presidency, is directed to discontinue the practice of bunding the nullah just above its outfall into the canal. And he will take early steps to send in an estimate for deepening and widening the length of nullah specified, accompanied by longitudinal levels and cross sections referred to bench marks.

3. His Excellency the Governor in Council observes that the proposal contained in paragraph 6 of the Report has been anticipated by Government Orders having been issued on the 2nd April for the removal of the calingulah at the junction of the surplus channel of the Red Hills tank near the Shediankuppum lock. And the Superintending Engineer will now be directed to carry out the suggestion as regards laying low half a mile of the west bank of the canal, and to keep in view the desirability of deepening the canal whenever funds are available.

4. The present practice of opening the Cooum bar when the water rises inside the bar to 4 feet 6 inches on the bar gauge meets with the general approval of the Committee; and the Governor in Council, therefore, considers it unnecessary to order any change in that practice.

(True Extract.)

[redacted] Colonel, R.E.,
Secretary to Government.

To the Secretary, Special Ordnance Commission.
To Messrs. Gantz, Church, Grant, on behalf of Petitioners.
To the Superintending Engineer, Chingleput.
„ District Engineer, Presidency.
„ Consulting Engineer for Railways.
„ Chief Engineer for Irrigation.
„ Revenue Department.
„ Public Department.
Editor's Table.

Exd. A. Grubert.
Spare Copies 20 sent to Printing Office

Rec. 1875: 8 Sept
No. 1816

Govt. of [1875] Madras.

PUBLIC WORKS.

To

THE SECRETARY, SPECIAL ORDNANCE

COMMISSION,

&c., &c., &c.

Dated May 5th.

Issued

Recd. June 17th.

Entd.

G. O., 5th May 1875, No. 1,370.

Dr. Mem

MAY.

Nos. 107 108

14 Sept 1875 Govt Order on 24 June 25

Floods at the Gun Powder Factory and in Perambore and Veysarpaudy.—Passing orders on Report from the Committee appointed to inquire into and report regarding the rise of —,

No 1942
Comm^r & the
Board of Revenue

16 June 75