(1) பக்கங்களின் எண்ணிக்கை 42.

(2) புதுக்கித் திருப்பிய நாள் 1.90

(3) ஆதாரங்குறிப்பவர் சுருக்கொப்பம் [illegible]

தமிழ்நாடு ஆவணக் காப்பகம்.

தமிழ்நாடு அரசு

(76)

P. W. D துறை

அரசாணை எண். 3596 அச்சகம்
மு. கோப்புத் தாள் எண். பலவகை

நாள் : 18 - 12 - 1889 19[illegible].

படிக்கவோ கண்டபடி கையாளவோ கூடாது

21 Sheets

ஆவண கா-1—18,008—15-6-87.

Progress Report for the quarter ending the 30th September 1888.

The annexed tabular statement and index plan show the progress made on the works during the quarter under review.

The arrangements for carrying on the head works are well advanced, and will admit of the foundations being taken in hand early during the ensuing season.

Sixty feet Lock.—Nearly all the brickwork in the southern and middle sections is well advanced towards completion, and the excavation for the intervening sections will now be commenced.

Eighty feet Entrance.—The open cutting for the entrance is nearly finished, and the timbering for the foundation trenches will be taken in hand shortly.

Double Entrance.—The whole of the open cutting was finished during the quarter under review, and timbering for the foundation trenches will be commenced during October.

Graving Dock.—The open cutting is also nearly finished, and timbering has been commenced at the East end of the Dock.

Dock Walls—The length of wall founded during the quarter was 212 lineal feet. The progress of the work was somewhat retarded in consequence of the unusually heavy rain which fell during the latter end of August and the beginning of September last.

Boat Canal.—Arrangements are now being made for commencing the brickwork in the Road Bridges and the Boat Lock.

P SOUTTER,
Offg. Superintending Engineer, Dock Works.

The 29th October 1888.

Health return compiled from the monthly reports of the Medical Officer for the months of July, August, and September 1888.

Month, 1888.	Daily average number of workmen.	Daily average number of cases under Medical treatment.			Deaths. In hospital.			Deaths. Out of hospital.			Total deaths.	Mortality per 1,000 of population per annum.
		Cholera.	Other diseases.	Total.	Cholera.	Other diseases.	Total.	Cholera.	Other diseases.	Total.		
July ...	10,439	1·25	52·25	53·5	5	3	8	......	4	4	12	13·7
August ...	9,003	1·50	57·00	58·5	......	2	2	2	3	5	7	9·3
September	8,011	0·20	64·30	64·5	2	3	5	......	4	4	9	13·4
Average total divided by 3 months.	9,151	0·98	57·85	58·83	2·3	2·7	5	0·6	3·7	4·3	9·3	12·1

MOHENDNO NATH BISWAS,
Medical Officer.

O. C. RAYE,
Surgeon.

P. SOUTTER,
Offg. Supdg. Engineer.

Statement detailing the expenditure on the Dock Works to the end of September 1888.

Particulars.	Amount.	Total Amount.	Remarks.
	Rs. A. P.	Rs. A. P.	
Works ..	84,32,350 12 3		
Land ...	24,15,359 2 6	1,08,47,709 14 9	
Total Rs. ...	......	1,08,47,709 14 9	

P. SOUTTER,
Offg. Superintending Engineer, Dock Works.

The 24th October 1888.

KIDDERPORE DOCK WORKS.

Progress Report for the quarter ending 30th September 1888.

Estimate.	Sub-head.	Estimated quantity.	Executed to end of previous quarter.	Executed during the quarter.	Total executed up to end of quarter.	Percentage of whole estimated quantity.		
						Done during the quarter.	Done up to end of quarter.	Remaining to be done.
Sixty Feet Lock ...	Excavation ... C. ft.	7,306,077	4,364,046	50,000	4,414,046	0·7	60·4	39·6
	Masonry ... "	2,229,490	711,109	195,477	906,586	8·7	40·6	59·4
	Square feet of foundation ... S. ft.	73,900	37,960	Nil	37,960	Nil	52·0	48·0
Eighty Feet Entrance...	Excavation ... C. ft.	2,697,168	Nil	830,000	830,000	30·7	30·7	69·3
	Masonry ... "	711,071	Nil	Nil	Nil	Nil	.....	.....
	Square feet of foundation ... S. ft.	27,000	Nil	Nil	Nil	Nil	.....	.....
Tidal Basin	Quay wall foundation ... R. ft.	2,140						
	Quay wall masonry C. ft.	2,011,600	1,535 1,287,859	Nil 166,718	1,535 1,454,577	Nil 8·3	71·7 72·3	28·3 27·7
	Excavation including that for quay wall foundation "	23,601,352	9,713,691	580,158	10,293,849	2·5	43·6	56·4
Double Entrance to Dock No. 1.	Excavation ... C. ft.	4,101,750	117,600	2,094,742	2,212,342	51·1	53·9	46·1
	Masonry ... "	1,161,334	Nil	Nil	Nil	Nil	.....	.....
	Square feet of foundation ... S. ft.	70,000	Nil	Nil	Nil	Nil	.....	.....
Dock No. 1	Quay wall foundation... ... R. ft.	6,435	4,654	212·50	4,866·50	3·3	75·6	24·4
	Quay wall masonry C. ft.	5,820,110	3,720,895	356,273	4,077,168	6·1	70·0	30·0
	Excavation including that for quay wall foundation... "	72,000,150	29,732,758	1,121,861	30,854,619	1·5	42·8	57·2
Boat Canal...	Excavation ... C. ft.	41,977,980	22,336,000	490,000	22,826,000	1·2	54·4	45·6
	Masonry ... "	1,068,048	Nil	Nil	Nil	Nil	.....	.....
Graving Dock	Excavation ... C. ft.	5,830,720	150,000	800,000	950,000	13·7	16·3	83·7
	Masonry ... "	1,228,160	Nil	Nil	Nil	Nil	.....	.....

The 4th October 1888.

P. Soutter,
Offg. Superintending Engineer, Dock Works.

C. E. G—Reg No. 622C—66 -10-12-88.

(1)

3596

KIDDERPORE DOCKS.

Sixth Quarterly Report of Inspection by Messrs. H. Cloëte *and* W. Connan, *of the works in progress in connection with the Kidderpore Dock Scheme.*

Dated Calcutta, the 29th November 1888.

From—Messrs. H. Cloëte and W. Connan,
To—The Secretary to the Government of Bengal, Public Works Department.

We have the honour to report that in accordance with the instructions contained in the Government of Bengal's letter No. 1882M,, dated 5th instant, we made the fifth quarterly inspection of the works at the Kidderpore Docks as shown in the progress report submitted by the Superintending Engineer of the Docks on the 20th idem.

2. The Index plan with tabular statement showing work done during the quarter under report, and the total quantity of work executed from the commencement of the Docks, which have been prepared by the Superintending Engineer in charge of the works, are with Government.

3. The progress of the works was considerably retarded by the heavy rain which fell during the latter end of August and at the beginning of the month of September.

PERMANENT WORKS.

Sixty feet Lock.—About two lacs of cubic feet of masonry were done in the Southern and middle sections during the quarter, bringing these portions nearly up to their full height. Half a lac of cubic feet of earth was removed, and preparations were made for starting the excavations for the remaining portions of the Lock.

EIGHTY FEET ENTRANCE.

The excavation of the open cutting was started, and during the quarter about $8\frac{1}{8}$ lacs of cubic feet of earth were taken out. On our inspection the timbering for the foundation trenches was well in hand.

TIDAL BASIN.

The portions of the quay walls on which work had before been in progress were brought up to their full height, and on these 166,718 cubic feet of masonry were built. About $5\frac{3}{4}$ lacs of cubic feet of earthwork were also excavated.

Graving Dock.—The excavation for this part of the work was started, and eight lacs of cubic feet of earth were removed.

The timbering of the foundation trenches at the East end was begun.

Double Entrance.—The excavation of the open cutting which was started at the end of last quarter was completed, and nearly 21 lacs of cubic feet of spoil were taken away. The timbering of the trenches for laying the foundations was well in hand on our inspection.

Dock No. 1.—Two hundred and twelve lineal feet of quay wall were founded, and the masonry of the portions previously in hand was proceeded with, and 356,273 cubic feet of masonry were built, and 1,121,861 cubic feet of earth were removed.

Boat Canal.—The excavation of the earth of this work was proceeded with, and nearly 5 lacs of cubic feet of spoil were excavated.

The masonry of overbridges and of lock was about to be started.

Expenditure.—The total expenditure up to the end of the quarter was reported to be Rs. 1,08,47,709, of which Rs. 84,32,350 were spent on account of works, and Rs. 24,15,359 for land.

SANITARY.

The health of the workpeople was very satisfactory. The average number employed was 9,151, among whom there was a death rate of only 12·1 per thousand per annum.

GENERAL REMARKS.

We are of opinion that, taking into consideration the season of the year covered by this report, fair progress has been made with the works, and that, so far as we have been able to judge from our inspection, the character of the work is satisfactory.

C. E. G.—Reg. No. 622C—48—10-12-88.

(2)

KIDDERPORE DOCK WORKS.

Progress Report for the quarter ending 31st December 1888.

The annexed tabular statement and index plan show the progress made on the works during the quarter under review :—

Sixty-feet Lock.—The brickwork in the northern, southern and middle sections has been built up to coping level, and the dressing of the quoins and sill of the inner bay being completed, the erection of the gates will shortly be proceeded with. The founding of the intervening sections was commenced, and 2,500 s. feet of foundation were got in.

Eighty-feet Entrance.—The open cutting was completed and 5,440 square feet of foundation in timbered trenches were put in.

Double Entrance to Dock No. 1.—The excavation of the open cutting was completed, and an area of 17,200 s. feet of foundation in timbered trenches were founded.

Graving Dock.—The open cutting was completed and 7,840 s. feet of foundation were executed.

Tidal Basin.—No progress was made on the quay walls, as the portion remaining to be done cannot be undertaken until the 80-feet and double entrance have made further progress.

Dock No. 1.—A length of 251½ feet of quay wall was founded during the month. Now that four-fifths of the works has been done, the monthly progress is of course much slower than when almost the whole length of wall was in hand at once.

Boat Canal.—The piers and abutments for the road bridges were commenced, and good progress was made with them, and excavation for the foundations for the lift lock and siphon culvert was commenced.

The annexed tabular statements show the quantities of work done, money expended, number of men employed, and the sanitary condition of the latter.

J. H. APJOHN,
Superintending Engineer Dock Works.

The 7th January 1889.

Health return compiled from the monthly reports of the Medical Officer for the months of October, November and December 1888.

Month, 1888.	Daily average number of workmen.	Daily average number of cases under medical treatment.			Deaths.							Mortality per 1,000 of population per annum.
					In hospital.			Out of hospital.			Total deaths.	
		Cholera.	Other diseases.	Total.	Cholera.	Other diseases.	Total.	Cholera.	Other diseases.	Total.		
October	7,680	2	61	63	4	4	8	6	1	7	15	23·4
November	8,529	1·5	52·5	52·5	4	11	15	3	2	5	20	28·16
December	10,723	4·5	53·5	58	14	10	24	23	1	26	50	55·9
Average total divided by three months ...	8,974	2·6	55·7	58·3	7·3	8·3	15·6	11·4	1·3	12·7	28·3	35·83

MOHENDRO NATH BISWAS, *Medical Officer.* O. C. RAYE, *Surgeon.* J. H. APJOHN, *Supdg. Engineer, Dock Works.*

Statement detailing the expenditure on the Dock Works to the end of December 1888.

Particulars.	Amount.	Total.	Remarks.
	Rs. A. P.	Rs. A. P.	
Works ...	93,83,902 7 2		
Land ...	25,67,350 0 11	1,19,51,252 8 1	
Total ..	.....	1,19,51,252 8 1	

J. H. APJOHN,
Superintending Engineer, Dock Works.

The January 1889.

KIDDERPORE DOCK WORKS.

Progress Report for the quarter ending 31st March 1889.

THE annexed tabular statement and index plan show the progress made on the works during the quarter under review.

Sixty-feet Lock.—The founding of the portion of the walls remaining to be done was almost completed. The erection of the inner gates was begun and considerable progress made.

Eighty-feet Entrance.—Foundations of the walls to half width were got in all round this work, and the half walls were built up to level of bottom of open cutting: the excavation of the earth in centre was nearly completed. This work may now be considered safe, and beyond the likelihood of any accident to interfere with its prompt completion.

Double Entrance to Dock No. 1.—Rapid progress was made with this work, and up to the end of the quarter 67 per cent. of it had been duly founded.

Tidal Basin.—Four per cent. of the quay walls were founded, the 24 per cent. still remaining to be done has to wait on the 80-feet entrance and graving dock.

Graving Dock.—Good progress was made on this work: 23 per cent. of the foundation were founded during the quarter, bringing the total percentage of the whole done up to 36 per cent. All difficulties have now been surmounted.

Dock No. I.—Only 19 per cent. of the quay walls remain to be done, and this remainder must wait on the double entrance and bridge to dock. No. 2. The excavation of dumpling and training it away was pushed on vigorously, and about one lakh of cubic feet a day was removed and run to spoil.

Boat Canal.—The foundation of the lift lock were completed; also those of the bridge for conveying the Diamond Harbour road across the canal. The foundation for the Tallygunge road bridge were all got in except those of the abutments where difficuly has been experienced in consequence of very bad soil and much water being met with, but means have been adopted to ensure the prompt completion of this work. With the syphon culvert also much difficulty has been experienced in consequence of superabundance of water.

The annexed tabular statements show the quantities of work done, money expended, number of men employed, and the sanitary condition of the same.

KIDDERPORE DOCK WORKS.

Health Return compiled from the monthly reports of the Medical Officer for the months of January, February, and March 1889.

MONTH.	Daily average number of workmen.	DAILY AVERAGE NUMBER OF CASES UNDER MEDICAL TREATMENT.			DEATHS.							Mortality per 1,000 of population per annum.
					In hospital.			Out of hospital.			Total deaths.	
		Cholera.	Other disease.	Total.	Cholera.	Other disease.	Total.	Cholera.	Other disease.	Total.		
1889.												
January	11,042	5	46·5	51·5	5	7	12	15	.....	15	27	27·12
February	11,541	4	43	47	2	4	6	14	3	17	23	23·0
March	10,838	2·5	45	47·5	6	4	10	5	.....	5	15	16·6
Average total divided by three months.	11,440	3·8	44·8	48·6	4·3	5·0	9·3	11·3	1	12·3	21·6	22·54

MOHENDRO NATH BISWAS, *Medical Officer.*

O'C. RAYE, M.D., *Surgeon.*

J. H. APJOHN, *Engineer, Port Trust.*

Statement detailing the Expenditure on the Dock works to the end of March 1889.

PARTICULARS.	Amount.		Total amount.		REMARKS.
	Rs.	A. P.	Rs.	A. P.	
Works ...	1,07,53,989	1 11			
Land ...	25,70,389	1 8			
Total ...	.....		1,33,24,378	3 7	
			1,33,24,378	3 7	

Dated the 13th April 1889.

J. H. APJOHN,
Engineer, Port Trust.

KIDDERPORE DOCK WORKS.

Progress Report for the quarter ending 31st March 1889.

ESTIMATE.	SUB-HEAD.		Estimated quantity.	Executed to end of previous quarter.	Executed during the quarter.	Total executed up to end of quarter.	PERCENTAGE OF WHOLE ESTIMATED QUANTITY. Done during the quarter.	Done up to end of quarter.	Remaining to be done.
Sixty-feet Lock ...	Excavation	c. ft.	7,306,077	4,760,227	778,786	5,538,993	10·6	75·8	24·2
	Masonry	"	2,229,420	1,055,686	232,385	1,291,051	10·4	57·9	42·1
	Square feet of foundation	s. ft.	70,000	40,400	11,355	51,755	13·5	70·9	29·1
Eighty-feet entrance ...	Excavation	c. ft.	2,637,168	1,488,453	281,366	1,769,819	10·4	65·6	34·4
	Masonry	"	711,071	58,300	240,908	297,208	23·9	41·8	58·2
	Square feet of foundation	s. ft.	27,000	5,440	7,729	13,169	28·7	48·8	51·2
Double entrance to Dock No.	Excavation	c. ft.	4,101,750	2,769,983	1,046,563	3,816,546	25·5	93·0	7·0
	Masonry	"	1,705,471	284,870	442,528	727,398	25·9	42·6	57·4
	Square feet of foundation	s. ft.	70,000	17,280	29,820	47,100	42·6	67·3	32·7
Tidal Basin ...	Quay wall foundation ...	r. ft.							
	Ditto masonry ...	c. ft.	2,140	1,535	87·5	1,622·5	4·1	75·8	24·2
	Excavation, including that for quay wall foundation.	"	2,011,660	1,489,677	116,121	1,605,798	5·4	79·8	20·2
			23,601,352	10,923,556	220,084	11,142,940	0·9	47·2	52·8
Graving Dock ...	Excavation								
	Masonry	"	58,30,720	1,359,767	685,745	2,545,512	11·7	43·6	56·4
	Square feet of foundation	s. ft.	12,28,160	129,692	236,806	366,498	19·3	29·8	70·2
			60,000	7,840	13,938	21,778	23·1	36·2	63·8
Dock No. I ...	Quay wall foundation ...	r. ft.	6,435	5,118	74	5,192	1·2	89·7	10·3
	Ditto masonry ...	c. ft.	5,826,110	4,317,514	111,233	4,428,747	1·9	76·1	23·9
	Excavation including that for quay wall foundation.	"							
			72,000,150	34,257,077	6,753,869	41,010,946	9·3	56·9	43·1
Boat canal ...	Excavation	c. ft.	41,977,989	24,377,302	2,614,071	26,991,373	6·2	64·3	35·7
	Masonry	"	1,068,948	26,053	184,642	210,695	17·3	19·7	80·3

N.B.—An error in the estimated quantity of masonry in double entrance somehow got into the form which was corrected in the Progress Report for February 1889.

The 13th April 1889.

J. H. APJOHN,
Engineer, Port Trust.

E. J. H.—Reg. No. 577C—69—23-4-89.

PUBLIC WORKS DEPARTMENT,—(MARINE).

NOTIFICATION.—No. 61Mne.

The 30th April 1889.—The following Report of the Eighth Quarterly Inspection of the Dock Works at Kidderpore, which are being carried out by the Commissioners for making Improvements in the Port of Calcutta, is published for general information.

W. B. BESTIC,
Under-Secy. to the Govt. of Bengal, P. W. Dept.

Quarterly Inspection of the Kidderpore Dock Works.

EIGHTH REPORT.

Calcutta, the 26th April 1889.

From—MESSRS. H. CLOËTE and W. CONNAN,
To—The Secretary to the Government of Bengal, Public Works Department.

WE have the honour to report that in accordance with the instructions contained in Government of Bengal's letter No. 881M., dated 22nd instant, we this day made the Eighth Quarterly Inspection of the works at the Kidderpore Docks as shewn in the progress reports submitted by the Engineer to the Port Trust.

Copies of the index plan and of the tabular statement showing works done during the quarter under report, and the total quantity of work executed from the commencement of the Dock Works, which have been prepared by the Engineer to the Port Trust in charge of the works, are with Government.

PERMANENT WORKS.

Sixty-feet Lock.—The founding of the portions of the walls which at the end of last quarter remained to be done was almost completed. Good progress has been made in the erection of the inner gates.

Two hundred and thirty-two thousand three hundred and sixty-five cubic feet of masonry were executed on this part of the work, and about 7¾ lakhs of cubic feet of earthwork were removed.

Eighty-feet Entrance.—The laying of the foundations to half width of the walls all round this portion of the works was completed, and these walls were built up to level of bottom of open cutting. In doing this 240,908 cubic feet of masonry were put in, and by the removal of over 2¾ lakhs of cubic feet of spoil the excavation of the earth in the centre was nearly completed.

Tidal Basin.—The laying of the foundations of all that portion of the quay wall that could be taken in hand was done, and 110,121 cubic feet of masonry put in, and about 220,000 cubic feet of earthwork were removed. The foundations of the remaining length of quay walls cannot be taken in hand till the 80-feet entrance and graving dock are further advanced.

Graving Dock.—Good progress was made in the work of putting in the foundations of this part of the work. About 685,745 cubic feet of earth were removed, and 236,806 cubic feet of masonry were executed.

Double Entrance.—This work was well pushed on during the quarter, 29,820 spoil feet of foundations were laid, over 10½ lakhs of cubic feet of soil were removed, and 442,528 cubic feet of masonry built.

Dock No. I.—A quantity of over 67½ lakhs of cubic feet of earth was removed from inside the dock and 111,233 cubic feet of masonry in quay walls were put in. A very small proportion of the work in the quay walls now remains to be done, and this must wait till the double entrance and bridge to Dock No. 2 are more advanced.

Boat Canal.—The foundations of the Lift Lock and of the bridge on the crossing of the Diamond Harbour Road over the canal were completed. The laying of the foundations of the bridge for the Tallygunge Road and for the Syphon culvert were pushed on, but great difficulties were encountered in these places owing to the nature of the soil and quantity of water met with. In this work over 26 lakhs of cubic feet of earth were removed, and 184,642 cubic feet of masonry laid.

Expenditure.—The total expenditure up to the end of the quarter under review was reported to be Rs. 1,33,24,378, of which Rs. 1,07,53,989 were reported on works, and Rs. 25,70,389 on account of land.

Sanitary.—The average number of workpeople employed was 11,440, being about 2,460 more than were at work during the previous quarter. Among the persons employed there were 21 deaths reported, which gives a death-rate of only 22·54 per thousand per annum.

General Remarks.—We are of opinion that very good progress has been made with the Dock Works during the quarter under report, and that, so far as we have been able to judge from our inspection, the character of the works is very satisfactory.

KIDDERPORE DOCK WORKS.

Health Return compiled from the monthly report of the Medical Officer for the months of April, May, and June 1889.

Month, 1889.	Daily average number of workmen.	Daily average number of cases under medical treatment.			Deaths.						Total deaths.	Mortality per 1,000 of population per annum.
					In Hospital.			Out of Hospital and Tollygunge.				
		Cholera.	Other diseases.	Total.	Cholera.	Other diseases.	Total.	Cholera.	Other diseases.	Total.		
April	11,706	5·5	45·5	51	11	3	14	14	...	14	28	28·7
May	10,141	1·5	45·5	47	4	2	6	4	1	5	11	13
June	8,235	1	42·5	43·5	1	1	2	...	2	2	4	5·82
Average total divided by 3 months	10,027	2·6	44·5	47·1	5·3	2	7·3	6	1	7	14·3	15·84

Mohendro Nath Biswas, *Medical Officer.* D. O'C. Raye, M.D., *Surgeon.* J. H. Apjohn, *Engineer, Port Trust.*

Statement detailing the Expenditure on the Dock works to the end of June 1889.

Particulars.	Amount.	Total amount.	Remarks.
	Rs. A. P.	Rs. A. P.	
Works	1,17,91,094 12 7		
Land	26,00,879 0 5		
Total ..	.....	1,43,91,973 13 0	

J. H. Apjohn, *Engineer, Port Trust.*

The 5th July 1889.

KIDDERPORE DOCK WORKS.

Progress Report for the quarter ending 30th June 1889.

Sixty-feet lock.—The founding of this work was almost completed, only 2 per cent. of foundation remaining to be done. The erection of the inner gates was completed.

Eighty-feet entrance.—The founding was completed, and only 35 per cent. of the brickwork remains to be done.

Tidal Basin.—But little was done during the quarter, as the small portion remaining must wait on the other works.

Double entrance to Dock No. I.—The excavation and founding was completed. Only 44 per cent. of the brickwork now remains to be done.

Graving Dock.—Ninety per cent. of the founding has been done and 61 per cent. of the brickwork.

Dock No. I.—Only 20 per cent. of the brickwork of the quay walls now remain to be done, but rapid progress cannot now be made as the work must to a certain extent wait on the double entrance and bridge to dock No. 2. The excavation of the dock and running the earth to spoil is nearly half done.

Boat Canal.—Much trouble has been experienced with the foundation of the works on the canal, especially with those of the Tollygunge Circular Road bridge and syphon culvert, but the difficulties are gradually being overcome.

The lift lock foundations were completed and the superstructure begun; also the foundation of the pumping engines. The syphon culvert was done for about three-fourths of its length, and the Diamond Harbour Road bridge almost built with the exception of the girders and bent rail arches. The foundation of the Tollygunge Road bridge was almost completed. The girders for both bridges were procured from England and brought to site.

The following was the state of iron work being manufactured in England as reported by Mr. Bruce on 31st May 1889:—

Steam Pumping-Engines, Boilers, &c.,—This machinery is entirely completed and delivered with the exception of a few pipes as reported in January last.

Sixty-feet gates and machinery.—The three pairs of sixty-feet gates, with their opening and closing machines, are completed, and have been delivered as stated in report above referred to.

Eighty-feet gates for river entrance.—The whole of the ribs, diaphragms, and skin plating is in place. The Greenheart timbers for the heel and metre posts have been fixed in place, and the rollers, roller carriages, and stem posts are being fitted into position. The sluice paddles and frames are also being fitted. The opening and closing machines have been delivered as already reported.

Eighty-feet gates for dock entrance.—About one-half the number of ribs are put together; the remainder are now being rivetted up. The plates for the skin plating are for the most part punched and planed, and the work in connection with the rollers, roller carriages, stem posts, &c., is ready for fitting on to the gates.

The opening and closing machines have been delivered as previously reported.

Hydraulic pipes and valves.—See last report.

Thirty-five cwt. cranes.—See last report.

Five-ton cranes.—The plates and angles for these cranes have all been received from the mills, and the castings and forgings are in hand.

Sluices and sluice machines.—The 6′ × 4′ sluices with their machines have been delivered as previously reported. The 6′ × 8′ sluices are nearly completed; eleven out of the twelve paddles have been put together, and the last one is now in hand.

Bridge machinery.—The turning cylinders, resting-gear cylinders, rollers, roller-path segments, and centre pivot are cast and machined. The forgings are being made, and the rams are in hand at the foundry.

Floor plates for engine-house.—These plates are in hand at the foundry.

Capstans and fair leads.—The patterns for these are made, and the work is now in hand.

The annexed tabular statements show the quantity of work done, money expended, number of men employed, and the sanitary condition of the latter.

The 6th July 1889.

J. H. Apjohn,
Engineer, Port Trust.

KIDDERPORE DOCK WORKS.

Progress Report for the quarter ending 30th June 1889.

Estimate.	Sub-head.	Estimated quantity.	Executed to end of previous quarter.	Executed during the quarter.	Total executed up to end of quarter.	Percentage of whole Estimated quantity.		
						Done during the quarter.	Done up to end of quarter.	Remaining to be done.
Sixty-feet lock ...	Excavation ... ...C. ft.	7,366,677	5,538,993	651,096	6,190,089	8·9	84·7	15·3
	Masonry ... ... ,,	2,229,400	1,291,051	315,073	1,606,124	14·1	72·0	28·0
	Square feet of foundation S. ft.	73,000	51,755	19,904	71,659	27·2	98·1	1·9
Eighty-feet entrance.	Excavation ... ...C. ft.	2,697,168	1,769,819	332,996	2,102,815	12·3	77·9	22·1
	Masonry ... ... ,,	7,11,071	297,208	165,000	462,208	23·2	65·0	35·0
	Square feet of foundation S. ft.	27,000	13,169	14,876	28,045	55·2	Completed.	
Double entrance to Dock No. I.	Excavation ... ...C. ft.	4,101,750	3,816,546	·212,916	4,029,456	5·2	Ditto.	
	Masonry ... ... ,,	1,705,471	727,398	235,060	962,598	15·8	56·4	43·6
	Square feet of foundation... S. ft.	70,000	47,100	15,113	62,213	21·6	Completed.	
Tidal basin ...	Quay wall foundation ... R. ft.	2,140	1,622·5	35·5	1,658	1·7	80·6	19·4
	Ditto masonry ... C. ft.	2,011,000	1,590,698	32,554	1,623,252	1·6	77·5	22·5
	Excavation, including that for quay wall foundation ,,	23,691,353	11,142,940	138,528	11,281,468	0·6	47·3	52·2
Graving dock ...	Excavation ... ... ,,	5,830,720	2,545,512	698,560	3,244,072	12·0	55·6	44·4
	Masonry ... ... ,,	1,228,100	368,498	387,387	753,885	31·5	61·3	38·7
	Square feet of foundation S. ft.	60,000	21,778	31,743	53,521	53·0	89·2	10·8
Dock No. I ...	Quay wall foundation ... R. ft.	6,435	5,192	354	5,546	5·5	86·2	13·8
	Ditto masonry ... C. ft.	5,820,110	4,428,747	201,561	4,630,308	3·5	79·6	20·4
	Excavation, including that for quay wall foundation ,,	72,000,150	41,910,946	5,629,813	46,640,759	7·9	64·8	35·2
Boat canal ...	Excavation ... ... ,,	41,977,980	26,991,373	1,251,074	28,242,447	3·0	67·3	32·7
	Masonry ... ... ,,	1,068,048	210,695	256,286	466,981	24·0	43·7	56·3

The 5th July 1889.

J. H. Apjohn,
Engineer, Port Trust.

E. J. H.—Reg. No. 3681C—94—26 8-89

1902 Jun 20-8-

3596

PUBLIC WORKS DEPARTMENT,—(MARINE.)

NOTIFICATION—No. 123Mne.

The 16th August 1889.—The following report of the ninth quarterly inspection of the Dock Works at Kidderpore, which are being carried out by the Commissioners for making Improvements in the Port of Calcutta, is published for general information.

C. W. I. Harrison, *Lieut.-Col.*, R.E.,
Offg. Joint-Secy. to the Govt. of Bengal, P. W. Dept.

Dated Calcutta, the 13th August 1889.

From—Major A. D. McArthur, R.E., and W. H. Nightingale, Esq., M.I.C.E.,
To—The Secretary to the Government of Bengal, Public Works Department.

Quarterly Inspection of the Kidderpore Dock Works.

We have the honour to report that, in accordance with the instructions contained in the Government of Bengal's letter No. 1581Marine, dated the 17th July 1889, we made the ninth quarterly inspection of the works at the Kidderpore Docks, as shown in the progress report submitted by the Superintending Engineer of the Docks on the 5th July last.

2. The index plan with tabular statement showing work done during the quarter under report, and the total quantity of work executed from the commencement of the Docks, which have been prepared by the Superintending Engineer in charge of the Works, are with Government.

Permanent Works.

Sixty-feet Lock.—About 6½ lakhs of excavation were taken out and over 3 lakhs masonry and 19,904 square feet of foundation were done during the quarter. The two end and centre sections of the lock have been built up to coping level. The founding of the intervening sections was well in hand on our inspection, and arrangements were being made for the erection of the gates.

Eighty-feet Entrance.—Over 3 lakhs of excavation were taken out, and 165,000 cubic feet of masonry and 14,876 square feet of foundation were done during the quarter. The foundation of this work is now well in hand.

Tidal Basin.—Over 1½ lakhs of excavation, including that for quay wall foundation, were taken out. Work on the quay walls was stopped pending further progress on the eighty-feet and double entrances.

Graving Dock.—This work is now well in hand, and good progress may be expected. During the quarter, about 7 lakhs of excavation were removed and nearly 4 lakhs of masonry and 31,743 square feet of foundation were done.

Double Entrance.—Over 2 lakhs of excavation were taken out and nearly 2½ lakhs of masonry and 15,113 square feet of foundation were done. This work is now in good progress.

Dock No. 1.—Up to date about 80 per cent. of the total quay wall masonry has been completed and about half the total excavation taken out. During the quarter, 354 running feet foundation and 201,561 cubic feet masonry were done, and 56¼ lakhs of excavation removed.

Boat Canal.—The piers and abutments for the road bridges were commenced, and good progress was made with them, and excavation for the foundations for the lift lock and syphon culvert was commenced.

Expenditure.—The total expenditure up to end of the quarter was reported to be Rs. 1,43,91,973, of which Rs. 1,17,91,094 were spent on account of works and Rs. 26,00,879 for land.

Sanitary.

The average number of work people employed was 10,027, among whom there were 14·3 deaths (5·3 of these being from cholera), showing a death-rate of 15·84 per thousand per annum.

General Remarks.

We are of opinion that fair progress has been made with the works, and that, so far as we have been able to judge from our inspection, the character of the work is satisfactory.

W. LeB.—Reg. No. 3704C—50—23-8-89.

Statement detailing the expenditure on the Dock works to the end of September 1889.

Particulars.	Amount.	Total amount.	Remarks.
	Rs. A. P.	Rs. A. P.	
Works	1,26,33,707 3 1		
Land	26,29,529 0 11		
Total ...	.....	1,52,63,236 4 0	
		1,52,63,236 4 0	

The 28th October 1889.

J. H. Apjohn,
Engineer, Port Trust.

KIDDERPORE DOCK WORKS.

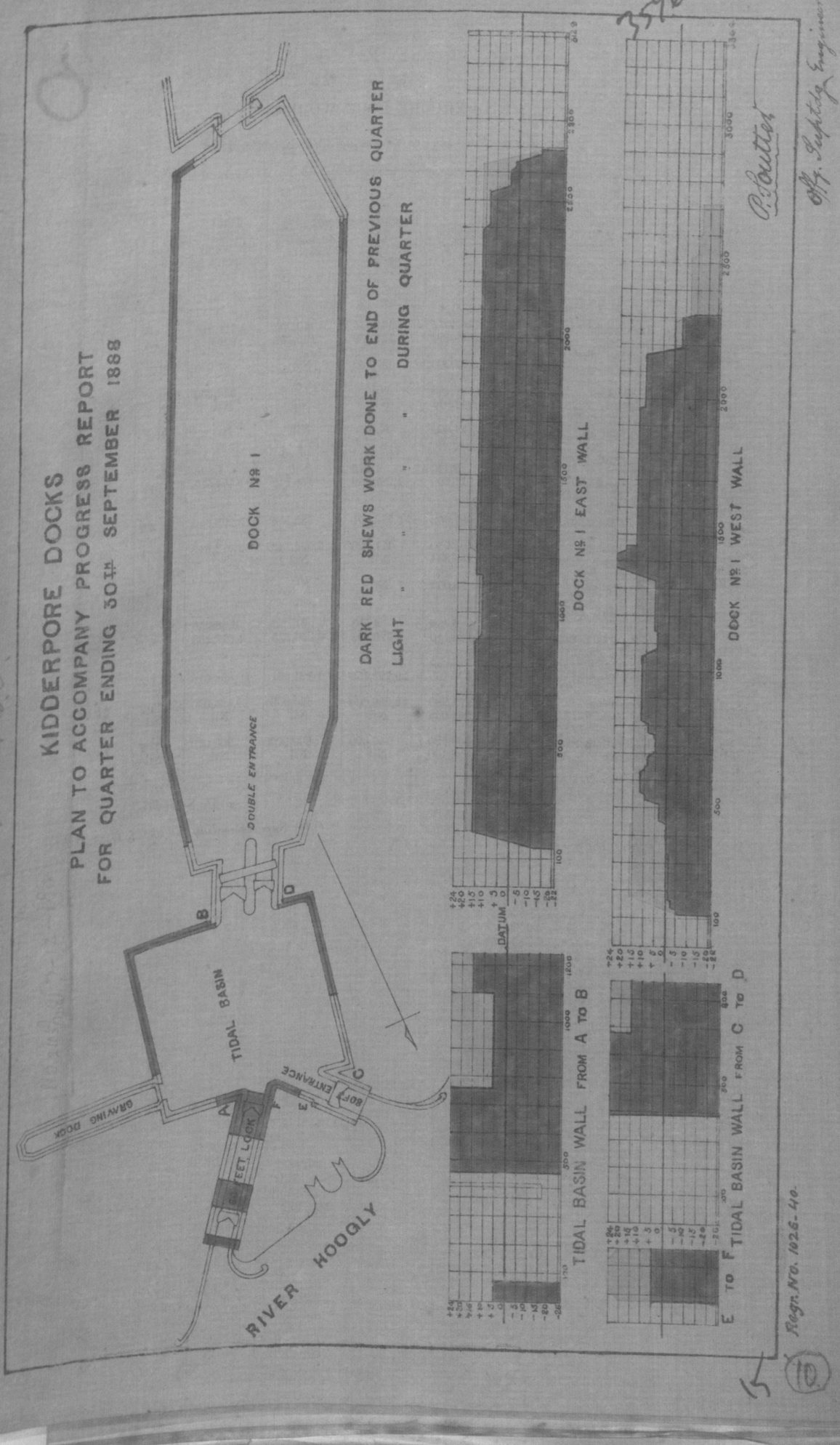
Progress Report for the quarter ending 30th September 1889.

Estimate.	Sub-head.	Estimated quantity.	Executed to end of previous quarter.	Executed during the quarter.	Total executed up to end of quarter.	Percentage of whole estimated quantity: Done during this quarter.	Done up to end of quarter.	Remaining to be done.
Sixty-feet Lock ...	Excavation ... ... C. ft.	7,306,077	6,190,089	94,287	6,284,376	1·3	86·0	14·0
	Masonry ... ... S. ft.	2,229,460	1,606,124	277,183	1,883,307	12·4	84·5	15·5
	Square feet of foundation... "	73,000	71,059	6,704	78,363	9·2	Completed.	
Eighty-feet Entrance ...	Excavation ... ... C. ft.	2,097,168	2,102,815	Nil	2,102,815	Nil	77·9	22·1
	Masonry ... ... S. ft.	711,071	462,208	100,000	562,208	15·0	79·0	21·0
	Square feet of foundation... "	27,000	28,045	Nil	28,045	Completed.		
Double Entrance to Dock No. I.	Excavation ... ... C. ft.	4,101,750	4,029,456	Nil	4,029,456			
	Masonry ... ... S. ft.	1,705,471	962,398	289,602	1,252,000	17·9	73·4	26·6
	Square feet of foundation... "	70,000	62,213	Nil	62,213	Completed.		
Tidal Basin	Quay wall foundation ... R. ft.	2,140	1,658	Nil	1,658	Nil	77·5	22·5
	Ditto masonry ... ... C. ft.	2,011,600	1,623,232	Nil	1,623,232	Nil	80·6	19·4
	Excavation including that for quay wall foundation "	23,601,352	11,281,468	141,665	11,423,133	0·6	48·4	51·6
Graving Dock ...	Excavation ... ... "	5,830,720	3,244,012	34,571	3,278,583	0·6	56·2	43·8
	Masonry ... ... "	1,228,160	753,885	116,115	870,000	9·5	70·8	29·2
	Square feet of foundation ... S. ft.	60,000	53,521	Nil	53,521	Nil	89·2	10·8
Government Graving Dock.	Excavation ... ... C. ft.	2,404,500	Nil	80,000	80,000	3·3	3·3	96·7
Dock No. I	Quay wall foundation ... R. ft.	6,435						
	Ditto masonry ... ... C. ft.	5,820,110	5,546	444	5,990	0·9	83·1	0·9
	Excavation including that for quay wall foundation "	72,000,150	4,630,308	291,788	4,922,096	5·0	84·6	15·4
Boat Canal	Excavation ... ... "	41,977,980	46,640,759	4,367,008	51,007,767	6·9	70·8	29·2
	Masonry ... ... "	1,998,048	28,243,447	366,679	28,609,126	0·9	68·2	31·8
			466,951	162,632	629,613	15·2	58·9	41·1

The 25th October 1889.

J. H. Apjohn,
Engineer, Port Trust.

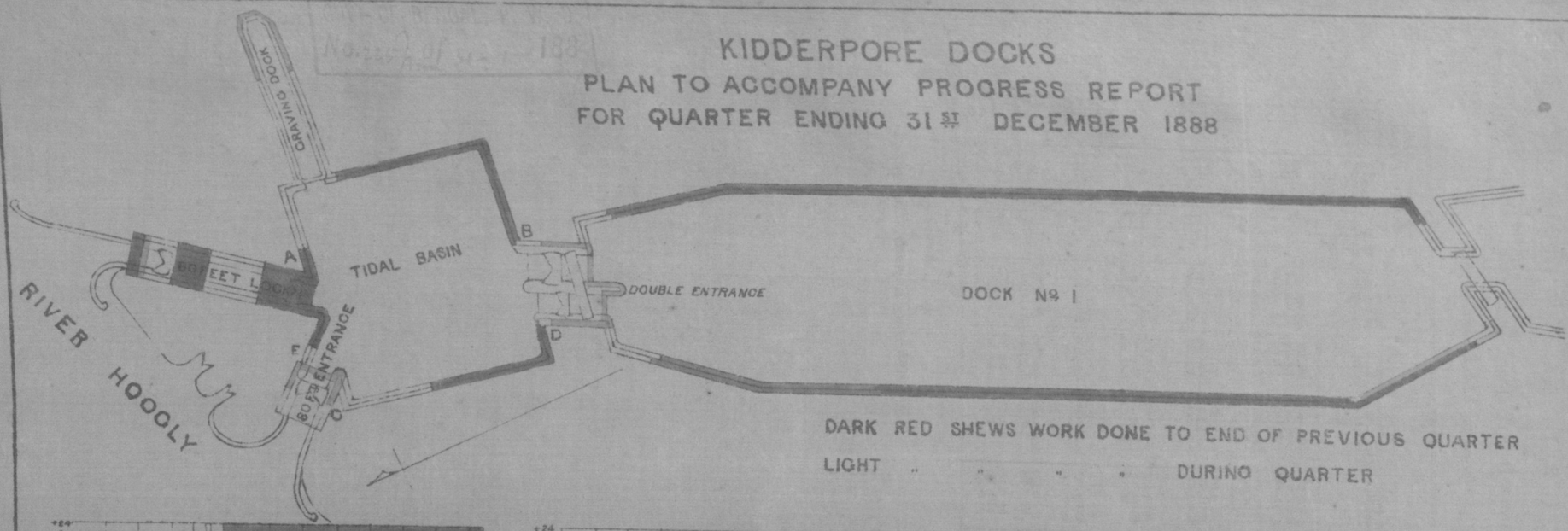
E. J. H.—Reg. No. 7131C.—111—7-12-89.



12.

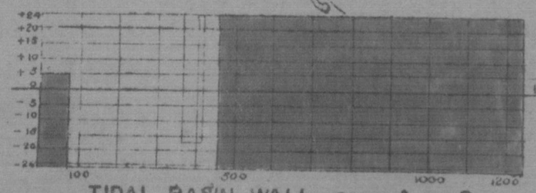
KIDDERPORE DOCKS

PLAN TO ACCOMPANY PROGRESS REPORT FOR QUARTER ENDING 31ST DECEMBER 1888

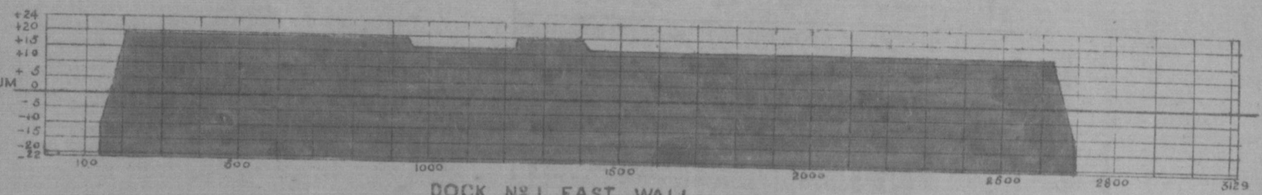


DARK RED SHEWS WORK DONE TO END OF PREVIOUS QUARTER

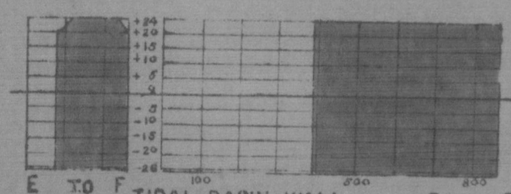
LIGHT " " " " DURING QUARTER



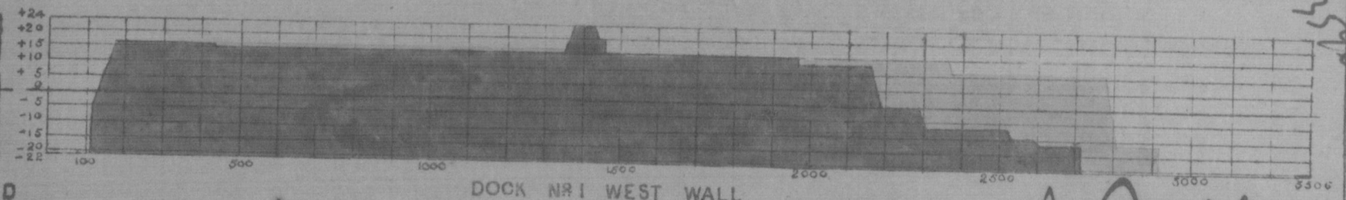
TIDAL BASIN WALL FROM A TO B



DOCK Nº 1 EAST WALL



E TO F TIDAL BASIN WALL FROM C TO D



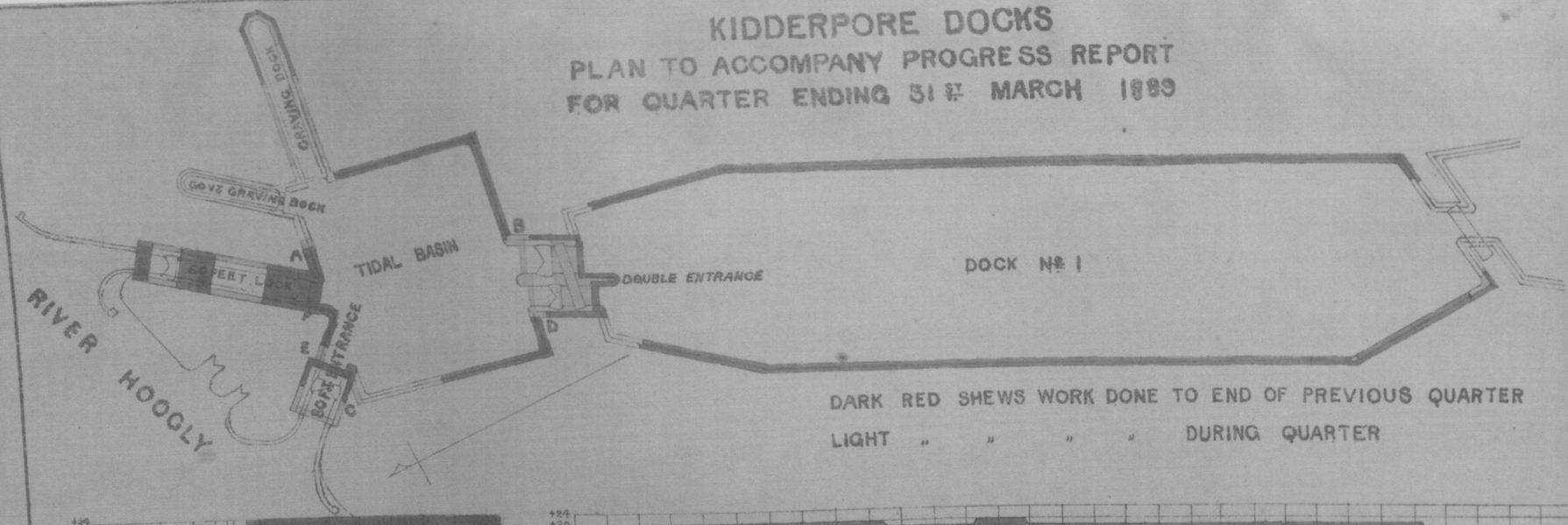
DOCK Nº 1 WEST WALL

Superintending Engineer

Regr No. 1204. 100 by 28-12-88.

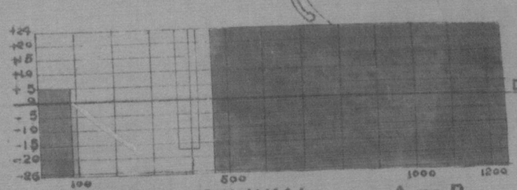
KIDDERPORE DOCKS

PLAN TO ACCOMPANY PROGRESS REPORT FOR QUARTER ENDING 31ST MARCH 1889

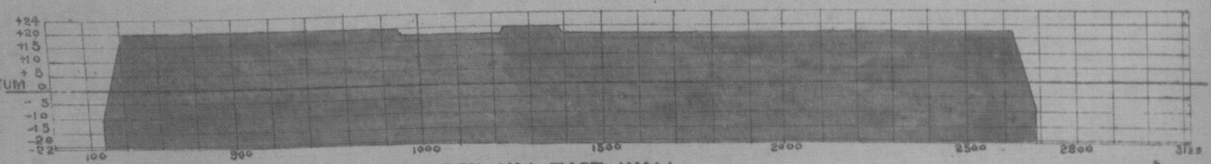


DARK RED SHEWS WORK DONE TO END OF PREVIOUS QUARTER

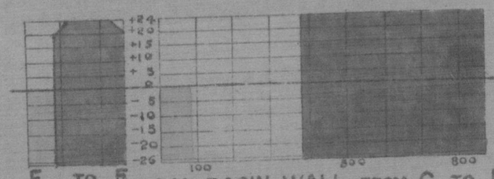
LIGHT " " " " DURING QUARTER



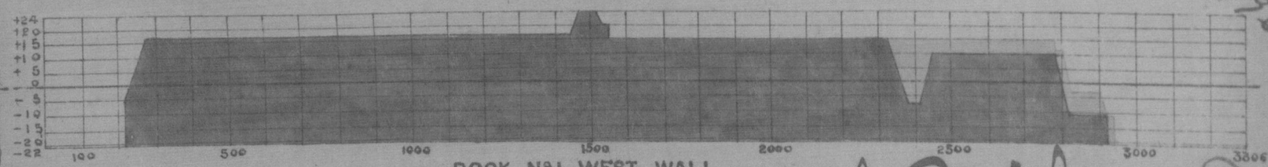
TIDAL BASIN WALL FROM A TO B



DOCK Nº1 EAST WALL



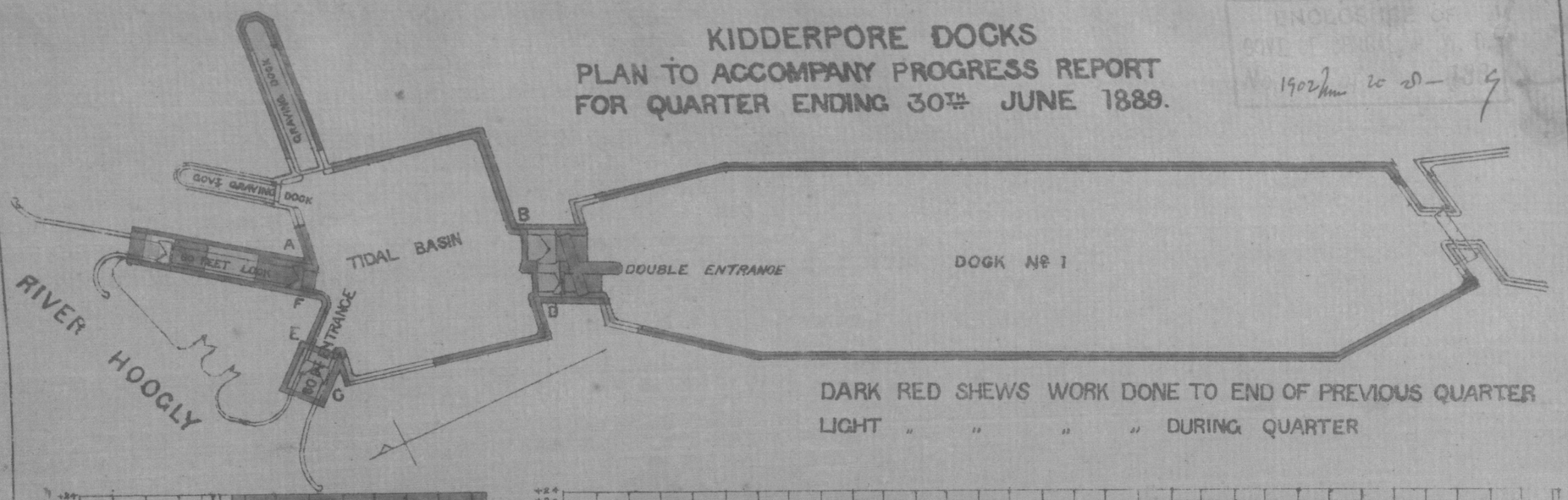
E TO F TIDAL BASIN WALL FROM C TO D

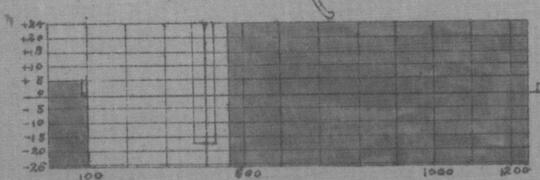


DOCK Nº1 WEST WALL

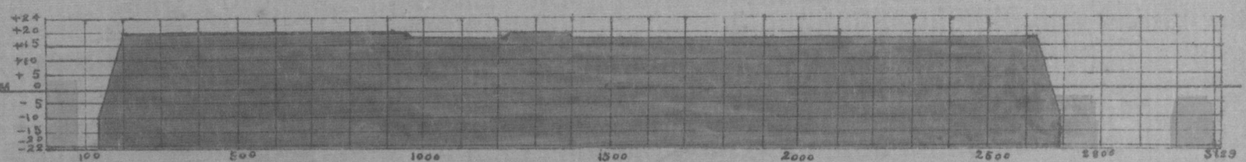
Engineer
Port Trust

KIDDERPORE DOCKS
PLAN TO ACCOMPANY PROGRESS REPORT FOR QUARTER ENDING 30TH JUNE 1889.

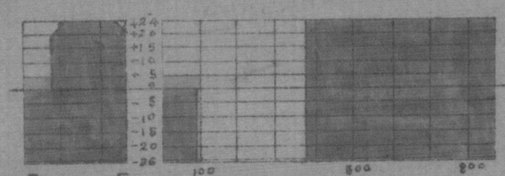




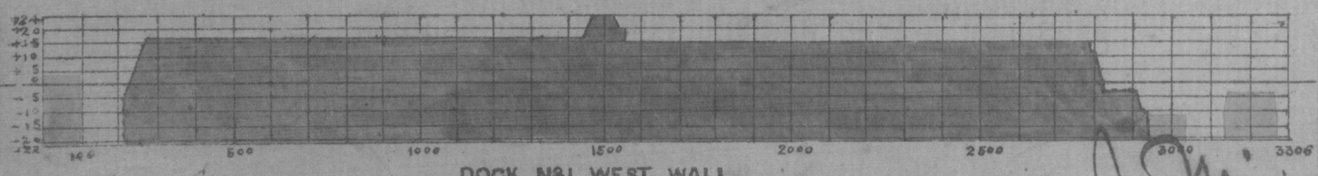
TIDAL BASIN WALL FROM A TO B



DOCK Nº1 EAST WALL



E TO F TIDAL BASIN WALL FROM C TO D

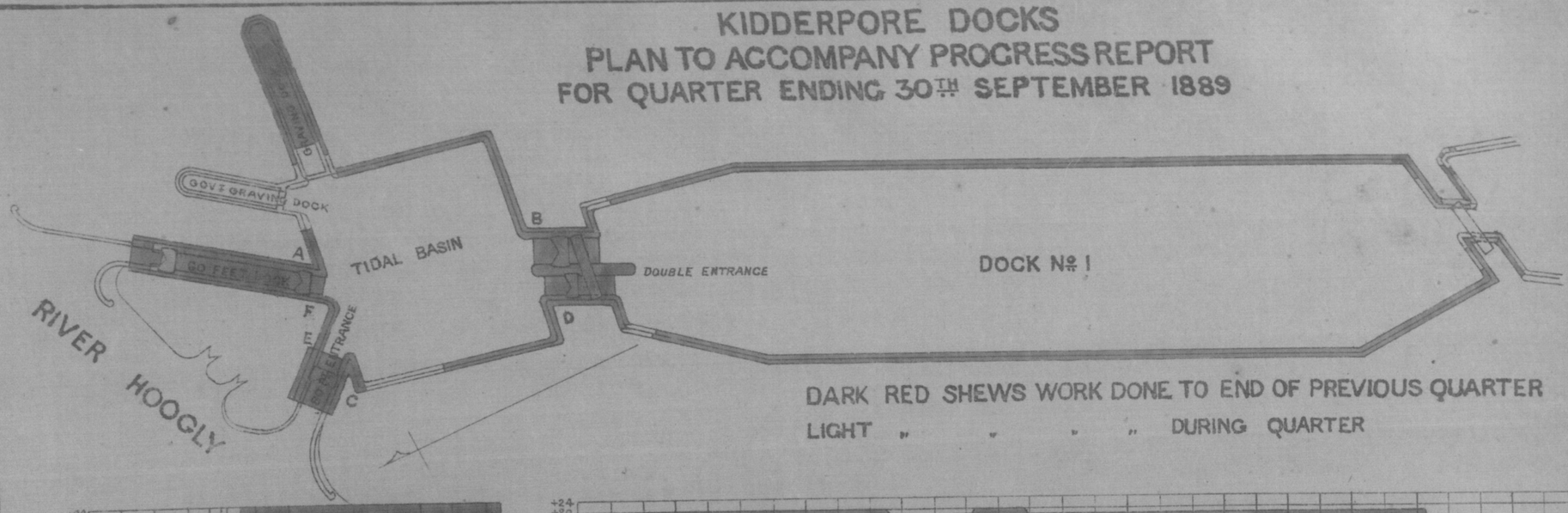


DOCK Nº1 WEST WALL

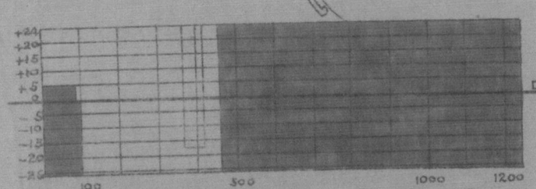
Engineer
Calcutta Port Trust.

Regr No. 237-80-2-7-89.

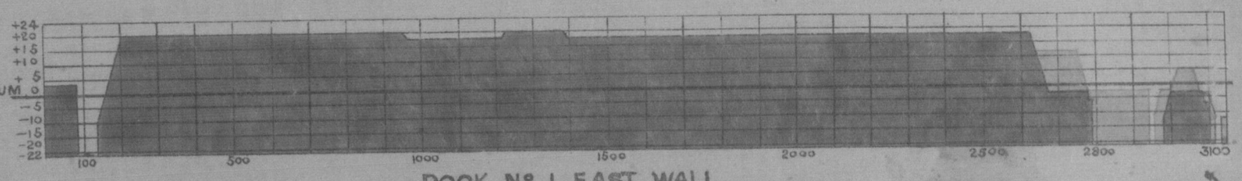
KIDDERPORE DOCKS
PLAN TO ACCOMPANY PROGRESS REPORT
FOR QUARTER ENDING 30TH SEPTEMBER 1889



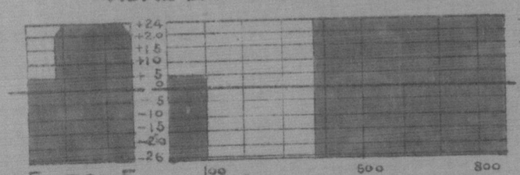
DARK RED SHEWS WORK DONE TO END OF PREVIOUS QUARTER
LIGHT " " " " DURING QUARTER



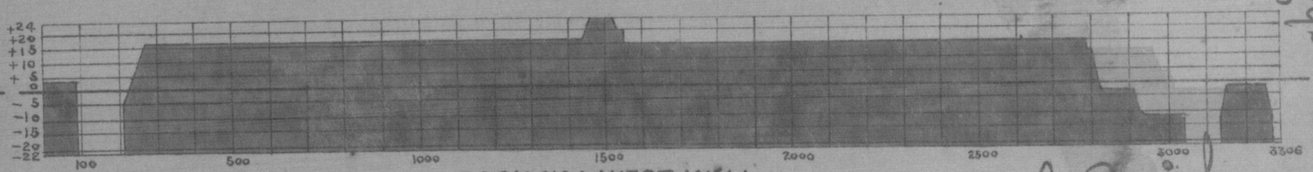
TIDAL BASIN WALL FROM A TO B



DOCK Nº 1 EAST WALL



E TO F TIDAL BASIN WALL FROM C TO D



DOCK Nº 1 WEST WALL

Engineer
Calcutta Port Trust

Regn No. 393-80-13-9-89.

enclos. 3
P.W.C 1196

(15)

No. 2105 Marine

Government of Bengal.

PUBLIC WORKS DEPARTMENT.

All communications should be addressed to the Secretary

SECRETARY TO GOVERNMENT 27 DEC 88 P.W. DEPARTMENT, MADRAS

3596

To

P. W. Dept.

THE Secretary to the Government of Madras
Public Works Department

Dated Calcutta, the 7th December 1888.

Sir,

I am directed by the Lieutenant-Governor to forward for the information of the Government of Madras the accompanying copy of the report with plan and statement of the Sixth quarterly inspection of the Dock Works at Kidderpore, which are being carried out by the Commissioners for making improvements in the Port of Calcutta.

I have the honor to be,
Sir,
Your most obedt servt

W. D. Rubie
Under Secretary

Accompaniments
Report (with plan & statement)

EDR

C. A. P.—Reg. No. 7200F—2,000—16-8-88.
Beng. P. W. D.—Letter Form No. 30.

(15)

B No. 30 W d/ 9.1.89

Copy forwarded to the Chairman Madras Harbour Trust Board for information in contn of G. O. No. 2687 W d/ 23rd Augt/88.

WCB
7.1.89

W.W.
7/1/89

Chairman M. H. T. Bd. with 1 set of enclos.

D 9/1

N

P 14/1

FC
405 W 13-2-89

No. 30 W d/ Jan. 9. 1889

(12)

No. 225 Marine

SECRETARY TO GOVERNMENT, P. W. DEPARTMENT, MADRAS. -9 FEB. 89

All communications should be addressed to the Secy.

Government of Bengal.

PUBLIC WORKS DEPARTMENT

3596

P. W. DEPT.

TO

THE Secretary to the Government of Madras, Public Works Department

Dated Calcutta, the 31st January 1889.

Issued on 4th Feby

Sir,

I am directed by the Lieutenant Governor to forward, for the information of the Government of Madras, the accompanying copy of the report, (with plan and statement), of the 7th quarterly inspection of the dock works at Kidderpore which are being carried out by the Commissioners for making improvements in the Port of Calcutta.

I have the honor to be,
Sir,
Your most obedt. Servant

W. W. Duke

Under Secretary

C. A. P.—Reg. No. 7200F—2,000—16-8-88.
Beng. P. W. D.—Letter Form No. 30.

EWD.

Accompaniment
Inspection report
(with plan and statement)

30 W 9/1/89

No 325 W d/ 13-2-89

B.

Copy forwarded
Copy forwarded
to the Chairman Madras
to the Chairman Madras
Harbour Trust Board
Harbour Trust Board,
for information, in con-
for information, in con-
=firmation of G.O. No 30 W
=firmation of G.O. No 30 W
d 9 Jany 1889
d 9 January 1889

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11.2.89

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11/2/89

Recd 1320 S

Reg 11/2/89

Enc 3 (1 S.C. of Enc. No. 1 & 2)
1 S.C. of Enc No 3 & plan

FC

1282 W/14-5-89

No. 405 W d/ 13-2-89.

Ch. M. H. T. Board
Ch. M. H. T. Bord
with 1 set of Enclos.
with 1 set of enclos

[illegible] 13/2

[illegible] 20/2 [illegible] 15/2

[illegible]

(19)

No. 958 Marine 3596

Government of Bengal.

PUBLIC WORKS DEPARTMENT.

All communications should be addressed to the Secy:

P. W. Dept.

To

The Secretary to the Govt. of Madras,
Public Works Department.

Dated Calcutta, the 2nd May 1889.

Sir,

I am directed by the Lieutenant Governor to forward, for the information of the Government of Madras, the accompanying copy of the report (with plan and statement) of the eighth quarterly inspection of the dock works at Kidderpore which are being carried out by the Commissioners for making improvements in the Port of Calcutta.

of each

I have the honor to be,
Sir,
Your most obdt. Servt.

[illegible]

Under Secretary

Accompts:
Copy of report (with plan and statement) 3 [illegible]

7 (19)

O. Bro. 405 w a/ 13.2.89
" " 30 w a/ 9.1.89
" " 2607 w a/ 22.8.88
" " 1668 w a/ 7.6.88
" " 502 w a/ 11.2.88

PWC No. 47861

(10)

No. 1282 W.d/ 14th May 1889

B

Copy forwarded to the Ch: M.H. & Bd. for information in confirmation of G.O. No. 405 W. d. 13 Feb. 89

Copy forwarded to the Ch: M.H. & Bd. for information in confirmation of G.O. No. 405. W. d. 13. Feb. 89

F.C.
2484 W 6-9-89

W.M.B.
9.5.89

Rg 8.5.89

Red.
10.5.89

(7.1.5.6.7 enc.)

No. 1282 W.d/ 14th May 1889

Ch. M.H. & Bd. ✓ with 1 set of encs.

Ch. M.H. & Bd. with 1 set of enclo.

Desd
14/5/89

O.G.S. 53/5. M 11/5. 9/5

18/5

With order

No. 1902 C Marine

3596

(20)

Government of Bengal.

PUBLIC WORKS DEPARTMENT.

All communications should be addressed to the Secretary

P. W. Dept.

To

The Secretary to the Govt. of Madras, Public Works Deptt.

Dated Calcutta, the 20th August 1889

Issued on 26th

Sir,

I am directed by the Lieutenant Governor to forward for the information of the Government of Madras the accompanying copy of the report (with plan and statement) of the 9th quarterly inspection of the Dock Works at Kidderpore, which are being carried out by the Commissioners for making improvements in the Port of Calcutta.

Recd.

I have the honor to be,
Sir,
Your most obedt. Servt.

(20)

Sd. W. Curran
Offg. Under Secretary

Accompaniments

Report (with plan + statement)

E.R.O.

H. L. G.—Reg. No. 21—4,000—4.4.89.
Beng P. W. D.—Letter Form No. 29.

(21)

No. 2732 Marine

Government of Bengal.

PUBLIC WORKS DEPARTMENT.

Communications should be addressed to the Secy.

P. W. Dept.

To

The Secretary to the Govt. of Madras
Public Works Department

Dated Calcutta, the 5th December 1889.

Sir,

I am directed by the Lieutenant-Governor to forward for the information of the Government of Madras the accompanying copy of the report (with plan and statement of the 10th quarterly inspection of the Dock works at Kidderpore which are being carried out by the Commissioners for making improvements in the Port of Calcutta.

I have the honor to be,
Sir,
your most obedt. Servant

W. Coman
Offg: Under Secretary

W. M. D'C.—Reg. No. 1510F—4,000—11-7-89.
Beng. P. W. D.—Letter Form No. 29.

Accompaniment report & plan & statement

(21)

P.W.C. No: 11960

No 3596 W. d/ 18 Dec
B 1889

Copy forwarded to the Chairman M. H. T. Board for information in continuation of No: 2484 W d/ 6th Sept 1889

WCB
17.12.89

encloss: 3
(1 S.R copy of each)
(1 Plan)

Recd: 14-12-89

(21)

Ansell
17.12.89

Nos 2484W. 6.9.89.
1282W. 14.5.89
405W - 13.2.89
30W. 9-1.89.

Ch: M. H. T. Bd
with one set of encloss
14/12

Wthrsden

22C 20/12.
20/12