(1) பக்கங்களின் எண்ணிக்கை 70+4 Map+4

(2) புதுக்கித் திருப்பிய நாள் 2/89

(3) ஆதாரங்குறிப்பவர் சுருக்கொப்பம்

தமிழ்நாடு ஆவணக் காப்பகம்.

தமிழ்நாடு அரசு

P.W துறை

அரசாணை எண்.
மு. கோப்புத் தாள் எண். 479 W அச்சகம்
பலவகை

நாள் : 14.2.1890 ~~198~~.

ண்டபடி கையாளவோ கூடாது

,000—15-8-87.

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Civil Works.

Read—the following paper:—

From the Chairman, Madras Harbour Trust Board, dated 28th January 1890, No. 307.

Endorsement thereon in the Marine Department, dated 1st February 1890.

Abstract.—Submitting, for the information of Government, progress reports upon the Madras Harbour Works during the months of July and August 1889.

Order—dated 14th February 1890, No. 479 W., Public Works.

Recorded.

2. His Excellency the Governor in Council is of opinion that the monthly progress report submitted for the information of Government under G.O., No. 1062 W., dated 18th April 1889, need not be in such elaborate detail as the quarterly report prepared for transmission to the Secretary of State, and that a brief statement of the work done during the month, unaccompanied by the usual return of work and statement of expenditure, will be sufficient for the purposes of the Government. The Chairman is requested to submit a form for approval and is reminded that the monthly report, to be of practical value, should be submitted as soon as possible after the end of the month to which it relates.

(True Extract.)

Captain, R.E.,
Under-Secy. to Govt., P.W.D.

To the Chairman, Madras Harbour Trust Board.
" Marine Department.

Exd. J. Moses.
Spare Copies

BUILDINGS AND ROADS.
CIVIL WORKS.

Govt. of {1890} Madras.

PUBLIC WORKS.

Dated February, 14th.

Recd. Encl.

G.O., 14th Feb. 1890, No. 479 W.

FEBRUARY.

Madras Harbour Works

Progress reports of the — for the months of July and August 1889, recorded with remarks.

No. 1214

From

The ENGINEER,
HARBOUR TRUST BOARD,
MADRAS.

RECEIVED
17 JAN 90

HARBOUR TRUST BOARD,
MADRAS.
17 JAN 90
Register No. 541

To

The Chairman
Harbour Trust Board
Madras

Madras, 9th January 1890.
Sept 16

Sir,

Enclosures
1 Plan (triplicate)
1 Statement of Expenditure (triplicate)

I have the honor to forward a report upon the progress made on these Works during the month of July accompanied with a Lithographed plan in triplicate shewing in red the length of Pier built and other work done in the month.

2 With this report is submitted a return of work done during the month, and a complete Statement of the Expenditure on the Works in construction to the 31st July as compared with the sanctioned estimate

North Pier Works
Superstructure.

3 At the North Pier Blocksetting was carried on to the evening of the 11th of July, by which date 30 blocks had been set ~~in~~ the Superstructure making an advance of 18½ lineal feet.

4 From this date all building was stopped at the north arm in accordance with the Chairman's letter No. 2487 dated 12th July - pending the decision as to whether the Abutment blocks were to be "set" or not, but as no orders were received till August, a working month's progress was lost to the works.

Concrete Blockmaking 5 For want of sufficient stone from the Quarries, the work of Blockmaking had to be stopped from the 13 to 29th of July, so that only 142 large blocks were made in the early part of the month showing an outturn of 2556 cubic yards of concrete.

Pallavaram Quarries 6 The Pallavaram Quarries were maintained in good order and repair during the month. The quantity of stone supplied from the Quarries was little more than half the required quantity for Blockmaking the cause being that the Coolies ran away finding better wages could be earned at ploughing &ca. The result was that, only 19 trains were despatched from the Quarries during July, which contained 3615½ tons of chips for Blockmaking.

South Pier Works 7 The work of Blocksetting at the South Pier was commenced on the 5th July, but owing to the confused state of the sea caused by the ruins of the old wall, the progress was limited to an advance of 24¾ lineal feet, by setting at intervals 36 superstructure blocks.

Stores from England 8 The following vessels arrived during the month of July with stores for the Madras Harbour Works as follows:-

	Tons cwt. qr. lbs.
By the S.S. "India" 790 cask, containing of Portland Cement in good order also	150.18.3.20
33 coils of Manilla rope weighing	3.0.3.15

24 Guernseys for Divers, 3 gross coach screws and 1 set of speaking apparatus for Divers

By the S.S. "Manora" 1500 casks containing Tons cwt qr lb 286.12.0.16

From Gopaulpore

By the S.S. "Africa" 1200 sawn salwood slabs 14" × 5" × 2" for lewis boxes used in blockmaking.

Return of Work for July 1889.

Surveys The South Pier Iron beacon was shifted two feet to the South and a survey of the High Water mark North and South of the Harbour was taken.

Railway Lines On the North Pier 46 Running feet temporary Broad gauge lines were laid - On the South Pier, 807 Running feet temporary Broad gauge lines were laid - The sand line at the South Arm was extended 139 Running feet - In the South Pier yard 420 Running feet of mixed gauge line was laid and 200 Running feet of Broad gauge and 375 Running feet single line was taken up

385 Running feet Metre gauge & 480 Running feet of single line was laid in North Pier yard leading to the Running Shed and 723 Running feet Broad Gauge lines were laid in connection with the Beach Improvements for facilitating the loading of Coal &ca

Quarries Nineteen trains worked in the month bringing stone from Pallavaram

Rubble - None received

Chips	Total quantity received up to 31st July 1889	145068 1/4
	do. 30 June 1889	141452 3/4
	Received in July	3615 1/2

Ballast - None received

North Pier Surf Bank	Nothing done since	30 Nov/88
" Rubble Base	do.	30 Apl/89
" Superstructure.		

Blocks set up to 31st July 1889.	1240.-	20009 10/27
do. 30 June 1889.	1210.	19522 19/27
In July	30.	486 2/3

Running feet new wall built up to 31 July 89.	811 3/4
do. 30 June "	793 1/2
In July.	18 1/4

Total length of wall completed from	B	2861 3/4
do.	F	811 3/4

North Pier Supplementary Works	nothing done since	30 Apl/89
" Capping	do.	30 June/89
" Cramps.	do.	30 April/89
South Pier Surf Bank	do.	do. /88.
" Rubble Base.	do.	do/89.
" Superstructure.		

	No.	C yds.
Blocks set up to 31 July 1889.	1763-	28,735 7/9
do. 30 June "	1727.	28,145 1/9
In July	36.	590 2/3

Running feet new wall built up to 31 July 1889.	1156 3/4
do. 30 June "	1132
In July.	24 3/4

Total length of wall completed from E 3543¾
do. G 1156¾

South Pier Supplementary Works nothing done since 30 Apl 89
" Capping do — 30 June
" Cramps. do. 30 Apl

Protective Works nothing done

Concrete blocks.

Description of Blocks.	Made up to 30th June/89	Made in July 1889	Made up to 31 July 1889	Placed in Work		In hand	Remarks.
				up to 30 June 89	up to 31 July 89		
Old Walls	806	"	806	806	806	.	
Wave Breaker blocks	3365	142	3507	3064	3064	443	
Superstructure							
N. Pier Bottom Block	227	"	227	216	222	5	
" Middle "	750	"	750	728	740	10	
" Top. "	248	"	248	239	244	4	
S Pier Bottom "	477	"	477	340	346	131	
" Middle "	1343	.	1343	949	977	366	
" Top. "	523	.	523	335	344	179	
Special "	71	-	71	71	71	"	
Counterbalance.	1	-	1	"	"	1	
Special abutment	46.	"	46	-	"	46.	

2556 cubic yards of concrete was made in the month. Blockmaking was commenced on the 2nd, was stopped on the 13th and resumed on the 29th.

642 Tons of Portland Cement

was the balance at the end of the month.

Miscellaneous The running shed was extended 24 ft. for the metre gauge engine, which was repaired and used for shunting the stone trains in Blockmaking — The Divers started work at the South Pier on the 17th to level the rubble base preparatory to protecting it with concrete instead of concrete in bags

Tools and Plant

one Crushers. Two new shoots were made and nine hooks and two bars were repaired

No 1 A new jaw was supplied and the set plates refitted.

No 2 A new spout was fitted and the bands of the moveable jaw were shrunk —

No 3 The bands of the moveable jaw were shrunk and two new keys and set plates fitted

No 5 A new eccentric jaw and shaft were supplied and keys for coupling and fly wheel re-fitted

Elevators Three boxes were repaired

Concrete Two hammers were made —

Mixers

No 1 A new door catch was supplied and a new trap door fitted to hopper

No 5 was dismantled and a new box,

a large spur wheel, an intermediate spur wheel with pin, a new pinion and a plumber block bearing were fitted.

Mixing Platform.

No 1 Crane (new) was supplied with new handles

No 2. Crane (new) was supplied with two new handles

No 3 Crane. was dismantled and the Iron work was made and supplied for fine sand parahs.

Concrete Skips. Four were repaired

No 1 Goliath Crane. Two new brass brake blocks were supplied

No 2 Goliath Crane. A new piston leather was supplied

Miscellaneous A portable forge and a chimney in the Smith's Shop was repaired - Twenty 1¼" bolts and sixty cotters were repaired and two hundred 3/8" rivets and twenty four washers for lewis pins were made for the block frames - Fifty eye screws were made and eight pickaxes and six crowbars repaired for the block ground - Fifty 3/4" trenails were supplied and two 7/8" and two 3/4" spanners were made for platelaying - A riding trolly was repaired and six shackles made for a Marine Survey buoy - Three brass nuts were also made for the divers air pumps.

10 Ton Jib Crane. A new jib, two new tie rods, two brass bearings for rollers and feathers for the double gear pinion were fitted.

No 3 Loco: Engine The joints of the R. H. front and back cylinder cover joints were re-made.

No 13 Block Truck was rebuilt and painted

Sand Wagons

No 3 was supplied with a new tail board hinge.

No 4 was supplied with a shackle and pin

No 9 was fitted with a pair of new wheels shackle and pin

Iron Pier Thirty nine (39) feet for the half width of the decking and two bays of 10 ft each at the pier head, the fender work was was renewed throughout. Nine feet of the main water pipe was renewed and a small stand pipe for drinking purposes was fixed. New davits for the ladders and a staging for the North Doty lamp were in hand

No 26 Truck was thoroughly repaired

No 50

No 50 Truck	was supplied with a new brake handle
North Goods Shed (tiled)	Two windows were fixed, for the Ordnance and the Public Works Departments
Harbour Trust Office	The Staircase was repaired
B Class Cranes	Six pipe bolts were made
Nos. 1 & 2 D Stationary Cranes.	were dismantled and under repairs
Beach Improvements.	A new siding Broad Gauge was laid for the Madras Railway Co for loading Coal. - Two man holes covers were made for the main Intercepting Sewer.

I have the honour to be,

Sir

Your most obedient Servant,

A. Lee Pogson

Engineer, Harbour Trust Board.

P.16-lu.3
1068/91

Marine Rec. 89 79°

No. 1215

HARBOUR TRUST BOARD
MADRAS
17 JAN 90
Register No. 542

From
The ENGINEER,
HARBOUR TRUST BOARD,
MADRAS.

RECEIVED
17 JAN 90

To

The Chairman
Harbour Trust Board
Madras

Madras, 9th Jany 1889
Despd 16th

Enclosures

1 Plan (triplicate)
1 Statement of Expenditure (triplicate)

Sir,

I have the honor to submit the following report upon the Progress made on these Works during the month of August 1889.

2. A Lithographed Plan showing the months progress in red, and a Statement of the Expenditure upon the Works for August are herewith submitted in triplicate.

Surveys

3. A Survey of the Harbour and Roadstead was commenced on the 13th August and with the assistance of Mr. R. W. Thompson I am happy to state the extensive Surveys of 1882 and 1886 have been most carefully repeated on exactly the same lines. This Survey when plotted will prove that no sand bank exists in front of the Iron Pier as reported from the Deputy Conservators Office, and

as far as the plotting has gone the general contour lines from 5 fathoms outwards are identical with the Survey of 1886

North Pier Works

Rubble Base - 4 At the North Pier the Rubble Base deposited two years back had slightly settled during the several Cyclones it has had to weather; without the protection of the Superstructure and Wavebreaker blocks; so it was necessary to deposit 205½ tons of rubble to bring the base up to it's proper section, previous to levelling the base for the Superstructure.

Superstructure 5. At the North Pier very satisfactory progress was made at advancing the Superstructure notwithstanding the swell at times interfering with the Divers, and at High Water washing the lines out of gauge upon which the heavy blocks had to travel. Every care was taken to prevent accidents and the result of 21 working days was that 184 blocks or 19 courses were set, adding a length of 112¼ lineal feet to the Superstructure which on the 31st August had reached 2974 feet from the first course set on shore.

Concrete Blockmaking

6 The work of making Concrete blocks was carried on steadily throughout the month; and August was the first month the Contractor had the chance of showing what the machinery was capable of turning out. The former average was 8 to 9 blocks made a day, but the average of August exceeded 11 blocks per day, and I anticipate an increase on this, when a steady and larger supply of Stone can be received from the Quarries. As it was 293 large blocks were made which represented 5176¾ Cubic yards of concrete.

South Pier Works
Rubble Base

7 At the South Pier good progress was made with the Pontoon, which recovered 10 of the old Pier Head blocks and placed them in suitable positions, where 5 of them were blasted with Dynamite, shattering them into material equal to an addition of 135 tons of rubble base. Since I constructed this pontoon it has not only removed an

obstacle

in the way of a mound of overthrown blocks which Mr. Parkes anticipated could not be removed, in the face of a continual wave motion, but has shown a saving in his original Estimate by again utilizing them as rubble in the bases and raising others which have been again deposited as Wave-breakers, showing a saving under that heading also.

Superstructure. 8 The Progress at the South Pier, which if not equal to that of the North Pier was nevertheless rapid and regular throughout August.

9. The Cranes and Railway line were all in order and a fair start made at Blocksetting on the 7th of August, and by the 29th 144 Superstructure blocks had been set by Divers – which added a length of 87½ lineal feet to the South Arm bringing up the total length of the Pier from the first block set on shore to 3631¼ lineal feet on the 31st August 1888.

Pallaveram Quarries. 10 The Quarries were kept at work with regularity during August, and the quality and quantity of stone was a great improvement on past months work. The total outturn was 5086 tons of stone which was sent down to Madras in twenty five trains; of this supply 4880½ tons were chips for Blockmaking and the remainder rubble for the North Pier base mentioned in para 4 of this report.

Protection to Rubble Base - 11. From 2900 feet on the South Pier the rubble base is to receive a protection, (under Mr. Parkes design) so as to prevent all chance of scouring. This protection was proposed to be made by covering the rubble with concrete in bags, but how this was to be done was a question the Trustees referred to Mr. Parkes, who made no reply. In course of private correspondence he informed me the matter would have to be reconsidered, and this led to a proposal of mine, to consolidate the base with Concrete, as it appeared to be a cheaper and more effectual way of securing the rubble without hindrance to construction or requiring the extra machinery necessary for depositing concrete in bags. As an experimental measure and to test its suitability under the seas of a N.E. monsoon, a length of 50 feet of the base was thus protected, and the concrete, looked as solid a piece of work as the Superstructure itself. As soon as work is resumed this season I will examine and report upon the subject separately as it is important that the foundations should receive some protection before May 1890.

Stores from England -

12. There arrived during August the following vessels with stores for the Works viz

By the S.S. "Goorkha" - 2400 Casks of Portland Cement containing - 458 Tons - 11 cwt - 1 qr - 20 lb also 4 Steel crossings for 75 lb Rails thirty two Fish bolts and nuts, Twenty four fang bolts, and one case 4 Cwts of Rivets and 1 Cwts of Iron Washers -

By

Stores from England. By the S.S. "Chyebassa" - 1920 Casks of Portland Cement contg:- 366-17-0-16 (Tons cwt qrs lbs) also 6 dozens Railway beaters.

From Gopaulpore By the S.S. "Canara" 1695 Salwood Slats for Lewis bolts
" " "Malda" 1800 " " "
" " "Lawda" - 1000 " " "
" " "Patna" - 800 " " "

Return of work for August 1889

Surveys A Marine Survey of the Harbour and roadstead was commenced.

Railway lines On the North Pier 500 Running feet temporary Metre Guage lines were laid of which 150 Running feet were Broad Guage lines taken up during the Season - On the South Pier 102 Running feet temporary Broad Guage lines were taken up and relaid. At the "coal siding" the Broad Guage lines of Railway were extended 649 feet. At the Madras Railway Sidings "in the fields" an additional point, and crossing was fixed to connect 102 Running feet Broad Guage line laid by the Madras Railway Company into the Harbour Works Main line.

Quarries - Twenty five trains worked during the month, delivering the following stone from the Pallaveram Quarries.

Rubble

Total quantity received up to 31st Augt. '89 - 360,528 1/4 Tons
——— do ——— 30th April 89 - 360322 3/4

Received in August 205 1/2

Chips

Total quantity received up to 31st August '89. 149948 3/4 Tons
——— do ——— 31st July '89 - 145,068 1/4

Received in August 4880 1/2

Ballast none received

North Pier Surf bank. Nothing done since 30th Novr. '88

North Pier Rubble Base.

Foreshore

	Large rubble under Wave breaker	Widening Foreshore	Base
Total quantity deposited up to 31st August '89 Tons	14286 1/2	54151	119531
— do. — 30th April '89 -	14286 1/2	54051 1/4	119425 1/4
Deposited in August	"	99 3/4	105 3/4

North Pier Superstructure

	Nos	Cubic Yards
Blocks set up to 31st August '89	1424	23045 10/27
——— do 31st July '89	1240	20009 10/27
In August	184	3036 10/27

Running feet new wall built up to 31st August '89 - 924

———— do ———— 31st July '89 - $811\frac{3}{4}$

In August. $112\frac{1}{4}$

Total length of wall completed from B - 2974 feet

———— do ———— F - 924 "

North Pier Supplementary Works - Nothing done since 30th April '89

North Pier Capping ———— do —— 30th June '89

North Pier Cramps ———— do —— 30th April '89

South Pier Surfbank ———— do —— 30th April '88

South Pier Rubble Base

Foreshore

	Large rubble under Wave-breaker	Widening Foreshore	Base
Total quantity up to 31st August '89 -	$120161\frac{1}{2}$	$38389\frac{3}{4}$	$122822\frac{1}{4}$
do 30th April '89	$120161\frac{1}{2}$	$38389\frac{3}{4}$	$122687\frac{1}{4}$
In August	"	"	θ 135

θ 5 old blocks @ 27 tons were removed by the Pontoon from site of old work and blasted by Dynamite. In addition to these 6 others were removed and placed on the base but not blasted

South Pier Superstructure -

	No.	cubic yards
Blocks set up to 31st August '89 -	1907 -	$31113\frac{1}{9}$
———— do —— 31st July '89 -	1763 -	$28735\frac{7}{9}$
In August -	144 -	$2377\frac{1}{3}$

Rg.

Running feet new wall built up to 31st Augt '89 - 1244¼
———— do ———— 31st July '89 - 1156¾

In August. 87½

Total length of wall completed from E. 3631¼
———— do ———— C. 1244¼

South Pier Supplementary Works - Nothing done since 30th April '89
South Pier Capping. ———— do ——— 30th June '89
South Pier Cramps ———— do ——— 30th April '89
South Pier Apron blocks

For a length of fifty six feet × 20 feet in width the base was protected with a layer of Concrete 2 feet deep and the rubble consolidated with Concrete for a further depth of 2 to 3 feet as an experimental measure.

Protective Works - Nothing done

Concrete blocks

Description of blocks	Made up to 31st July '89	Made in August '89	Made up to 31st Augt '89	Placed in work		In hand
				Up to 31st July '89	Up to 31st Augt '89	
Old blocks	806	"	806	806	806	"
Wavebreaker blocks Superstructure	3507	281	3788	3064	3064	724
North Pier bottom blocks	227	"	227	222	223	4
" middle "	750	"	750	740	743	7
" top "	248	"	248	244	244	4
South Pier bottom "	477	"	477	346	412	65
" middle "	1343	7	1350	977	1171	179
" top "	523	1	524	344	408	116
Special "	71	"	71	71	71	"
Counterbalance "	1	"	1	"	"	1
Special Abutment "	46	"	46	"	"	46
Test weight "	"	4	4	"	"	4

5176 $\frac{7}{9}$ Cubic yards of Concrete was made in the month. Blockmaking was suspended on the 10 and 12th for want of chips

91 Wavebreaker blocks were transferred from the North to South block grounds, and 12 Superstructure blocks were removed from the South block ground to the North Pier and placed in the North Pier Superstructure.

Miscellaneous. No. 1 buoy in the Harbour was renewed and moored to the in-shore mooring chains

Tools and Plant

Stone Crushers. Two moveable and two eccentric Jaws (spare) were fitted up, and twelve hooks and the iron work of two shoots repaired.

— do — No. 2. Two new Jaws, a new key for the moveable jaw, and two new side wedges were fitted, the grooves for the set plates were chipped, and set plates and shoot fixed

— do — No. 3. Set plates were fixed.

— do — No. 5. Side wedges were fitted

Elevators Two boxes were repaired

—do— No 2 A new stay rod was fitted to the upright and a bar to the wall timber

—do— No 5. A new stay rod was fitted to the upright and also a bar to the wall timber.

Concrete Mixers— Nos 1, 2 & 3 The catches were eased and bolts tightened up—

—do— No 4. The catch was eased, bolts tightened up and a hammer was made and supplied.

—do— No 6— A new door catch was fitted a hammer made and supplied, and the striking gear was repaired

—do— No 7— Was supplied with a new door catch.

—do— No 8— The water cock was fitted with a new plug, and a hammer made and supplied. No 1 mixer pump was supplied with four new values and the foot values were repaired

Goliath Crane No 1. The cylinder cover joints were remade and brass bearings closed of large engine. Two new slide blocks, a new gudgeon pin, a crank pin, and a key for fly wheel were made and fitted. The piston gland was rebushed and the cylinder cover joints made of small engine only.

Light Traveller No. 2. Two new foot steps were fixed

—do— No. 4 Two tail boards were repaired

South Pier Titan. A stud was made and fitted to the pall & handle.

Skip Trucks. Four pair of wheels were keyed.

Miscellaneous. The doors and windows of the extended portion of the running shed were painted and No. 2 hand pump was fixed and pump shed fitted up. A new spanner for the water pipe for the air pump was made, and seventeen shackels, four 1" sling chains, and a 1/2" chain were repaired for the Divers. Six shackles and two bands for barrel buoys, an iron tiller for boat "Coromandel" were made for Marine Survey work. The Iron work for twenty ends of block frames were made and five 1¼" bolts repaired. Nine distance pieces and a crossing repaired for Railway lines and fifteen crowbars and thirty nine pickaxes were repaired for use in the block grounds. A mould was made for protecting the base at the South Pier and two new shoes were made for the sounding and setting rods.

Loco Engine No 1. Was undergoing thorough repairs.

— Do — No 2. The brass bearings of connecting and coupling rods were closed. The waste water cocks were ground and set. The blow through cock of water gauge column was repaired. The boiler cocks were ground. Two new lead washers were fitted to the front washout plugs and the L.H. front cylinder cover joints were made and ferrules fitted to the spring balance to reduce the pressure to 90 lbs per square inch

Loco Engine No 3 The brass bearings of the connecting and coupling rods were closed, boiler cocks ground and two new lead washers were fitted to the front washout plugs. The waste water cocks were ground and set and gearing, set and straightened. A new R. H. Gudgeon pin and a new volute spring for front draw hook was fitted. The tank and L.H. dummy glad joints were remade and ferrules fitted to the spring balances to reduce the pressure to 90 lb per square inch.

Block Truck No 10 - A coupling chain was supplied.

—do—— 15 Was dismantled and the repairs were in hand.

—do — 18. A new key was fitted to a wheel, the brass bearings eased and the Keeps were filled with waste, grease, and the truck painted throughout.

Sand Wagons Nos 4+16 - Were supplied with new shackles and pins

- No 12 - Was fitted with a draw Hook.

The South Pier Titan stood at the end of the new work and the Wavebreaker crane at 2158' at the end of the month. The North Pier Titan was turned in position for depositing Wavebreaker blocks on the 31st and stood at 2958¾' at the end of the month.

Iron Pier. 40 lineal feet of the decking for the half width of the timber work was renewed and 25 feet of the length was widened 2 feet over the former width. A portion 14 feet in length was widened 6'-8" to receive a cabin for the tally clerk. At the T end of the pier two bays of timberwork were dismantled and partly renewed, and three new pile caps were fixed. Three patterns were made for special pile caps (one 6" and two 8") for the T ends of the pier

No. 5B Portable Crane. This Crane was undergoing thorough repairs

No. 22 Truck. The wheels were repaired and the truck tarred.

North Goods Shed (tiled) - A partition was being fitted up for the Commissariat Department.

Cassimode - The repairs to the market buildings were in hand.

I have the honour to be,
Sir
Your most obedient Servant,
A. Lee Pogson
Engineer, Harbour Trust Board.

Pl. Encl
10-5-90

Marine No 89 7/90
2

Marine C. No 89.

Harbour Trust Board Office,

MADRAS 28th January 1890.

No. 307

FROM
Geo: McWatters Esquire M.A.C.S.
CHAIRMAN, HARBOUR TRUST BOARD,
MADRAS.

TO
The Hono: Mr J. Grose M.A.C.S.
Ag CHIEF SECRETARY TO GOVERNMENT,
Marine Department.
Fort Saint George.

Sir

I have the honor to submit for the information of Government progress reports upon the Madras Harbour Works during the months of July and August 1889, together with statement (in duplicate) showing expenditure to date compared with the sanctioned estimate.

I have the honor to be
Sir
Your most obedient Servant

G McWatters
Chairman
Harbour Trust Board

Recd

ccy

P.W. [illegible]
1068[illegible]

p 220 – 21 – 9 – 185 R
p 246 – 7 – 12 – 185 R

PW C No 1068

C. No 89

MARINE DEPARTMENT.

N

D/ 1st July 1890
Transferred to the Public Works Dept.
J Gore
Ag Chief Secretary.

1/2

GOVERNMENT
-3
MADRAS

From

THE CHAIRMAN,
Harbour Trust Board,
MADRAS.

To

The Chief Secretary to Government,
Marine Department.

Fort Saint George.

Dated 28th January 1890.
Received 29th
Recd 3-2-90
Enclosure No 6
No. 307
(+2 in [illegible])

29 JAN 90

CHIEF SECRETARY
GOVERNMENT OF MADRAS

No 19/3660W d/ 26-12-89
" 3660W " 26-12-89
" 2448W " 4-9-89
" 1396W " 27-5-89
" 1062W " 18-4-89

SUBJECT.

Submitting for the information of Government progress reports upon the Madras Harbour Works during the months of July and August 1889

Transferred.

C. A. W.

31

Perhaps it would be as well to hand over to T. for custody the plan connected with G. O. No 479 W of 14-2-90 –
D. P.
5-3-90 –

C. A. W.

The plans have been folded to foolscap size and put up –
C W T
6-3-90

R M

The plans are not required in T Sec, & as they have now been folded they may be placed in records.
6/3 [illegible]

Df 6-3-90

PUBLIC WORKS DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

UNDER date the

READ the following

Print abstract
Ord

From the Chairman Madras Harbour Trust Bd No 307 d 28.1.90
Endt thereon in the Marine Dept. d 1-2-90.

Recorded.

2. H.E. the Governor in Council considers that the quarterly progress reports submitted for transmission to the Secy. of State contain sufficient information for the purposes of the Govt and resolves to direct, in modification of G.O. No 1062 W dated 18th April 1889, that the submission of monthly reports of progress be discontinued.

3. The Govt. trusts that the Quarterly reports will be submitted punctually in future.

4.2.90

4.2.90

Ought not there to be a monthly report of some sort though not so elaborate as this, & not submitted long in arrear of the Q.y Reports.

7 Feb

Note. The report for the 3rd quarter will be sent to the S. of S. by the [illegible] mail, & the report for the 2nd Quarter of 1889 is now in the press.

479W

Chairman M. H. T. Bd

Marine Depart.

Cr.

Home 2/90

1068

33

Our

This current contains the monthly progress report of the Madras Harbour for July & August 1889.

We have now received quarterly progress reports up to 31st Decr 1889. The reports for the 2nd & 3rd Quarters of 1889 are now in the press.

The monthly reports are submitted for the information of the Govt., and the Quarterly reports are sent on to the Secy of State. The orders regarding the preparation of these reports are contained in G.O. No 1062 W of 18-4-89.

It seems a questi whether the quarterly report is not sufficie for the informati of this sort & whether the monthly report might not be discontinued.

If approved, an order will be drafte directing the discontinuance of the monthly reports.

As full information regarding progress up to 31 Dec 89 will soon be in print, it seems unnecessary to print in extenso the present report for ~~the~~ July & August 1889.

For orders.

WEG 4.2.90

CE 3.2.90

Approved. but it must be sent in print thoroughly

Certainly not necessary.

MADRAS HARBOUR WORKS.

Comparison of Expenditure to date with Sanctioned Estimate for the month of July 1889.

Sub-head of Work.		Quantity.	Rate.	Per.	Cost.	As per Revised Estimate No 1 (for completing Eastern Estimate) that accompanied Engineers letter No 909 dated 1st October 1888	As Executed. Quantity.	Rate.	Cost. Total up to 31st December 1884.	During the month.	Up to date.	Arrears not paid.	Grand Total as compared with Estimate.	Remarks.
1		2	3	4	5	5 A.	6	7	8	9	10	11	12	13
			Rs. A. P.		Rs.				Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
AS PER OLD ESTIMATE.														
1 Works		......	...	...	49,15,752		...	...	55,09,324 8 10	" " "	55,09,324 8 10	" " "	55,09,324 8 10	
2 Establishment		......	...	...	3,57,612		...	...	5,29,904 " "	" " "	5,29,904 " "	" " "	5,29,904 " "	
3 Tools and Plant		......	...	...	4,71,801		...	...	5,15,262 6 "	" " "	515,262 6 -	" " "	5,15,262 6 "	
Total...		......	...	...	57,45,165		...	...	65,54,490 14 10	" " "	65,54,490 14 10	" " "	65,54,490 14 10	
NEW ESTIMATE.														
4 Alteration and extension of block ground	...Prely...	......	...	...	8,000	5892	...	...	" " "	" " "	5,882 3 5	9 13 6	5,892 " 11	
NORTH PIER.														
Rubble Stone in Foreshore and Base.														
5 Ordinary deposited from break-water ...	Tons	5,532	1 8 0	Ton	8,297	4,865	2780	1 12 "	" " "	" " "	4,865 " "	" " "	4865 " "	
6 Do. from boats	,,	1,82,260	2 0 0	,,	3,64,520	417169	192,518½	1 15 8	" " "	2683 15 10	3,74,811 3 1	6358 1 2	3,81,169 4 3	
7 Large ordinary deposited under wave breaker from break-water	,,	14,750	1 12 0	,,	25,812	10513	11449¾	1 12 "	" " "	" " "	19,512 9 "	" " "	19512 9 "	
8 Concrete blocks for buildings	C. yds.	58,116	9 0 0	C. yd.	5,23,044	4,80,003	20046	10 8 7	" " "	5583 15 11	2,11,166 15 3	" " "	2,11,164 15 3	
9 Setting blocks at commencement of new work ...	,,	2,062	2 0 0	,,	4,124	5415	2615	2 1 1	" " "	" " "	5414 11 2	" " "	5414 11 2	
10 Do. from 2,200 to 3,600 feet	,,	35,245	2 8 0	,,	88,112	131,373	17429	2 8 4	" " "	3859 9 9	41,804 6 8	2122 13 2	43,927 3 10	
11 Do. at Pier head ...	,,	20,809	3 0 0	,,	62,427	58,837	"	" " "	" " "	" " "	" " "	" " "	" "	
12 Concrete in mass for filling ...	,,	500	10 0 0	,,	5,000	1188	263	4 8 3	" " "	" " "	1188 " 7	" " "	1188 " 7	
WAVE BREAKER.														
13 Built blocks	C. yds.	288	10 0 0	C. yd.	2,880	2692	288	9 5 7	" " "	" " "	2692 " "	" " "	2692 " 8	
14 Ordinary concrete blocks	,,	70,849	9 0 0	,,	6,37,641	718,255	38,708 23/36	10 5 4	" " "	" " "	3,99,950 2 8	" " "	3,99,950 2 8	
15 Depositing do.	,,	70,849	1 0 0	,,	70,849	91571	34,274 25/27	" 4 2	" " "	42 1 6	34744 2 8	24 7 8	34,768 10 4	
16 Apron blocks	,,	1,667	9 0 0	,,	15,003	10080	"	" " "	" " "	" " "	" " "	" " "	" "	
17 Setting do.	,,	1,667	4 0 0	,,	6,668	4480	"	" " "	" " "	" " "	" " "	" " "	" "	
18 Concrete in bags	,,	742	12 0 0	,,	8,904	17387	"	" " "	" " "	" " "	" " "	" " "	" "	
19 Cramps	No.	330	10 0 0	Each	3,300	18151	136	2 8 9	" " "	" " "	338 12 11	" " "	338 12 11	
20 Concrete capping	C. yds.	22,400	10 0 0	C. yd.	2,24,000	148,982	348	18 4 2	" " "	62 " 10	6,302 7 9	70 2 "	6,373 9 9	
Total for North Pier ...		......	...	...	20,50,581	2113,625			" " "	12,231 11 10	11,02,841 7 9	8575 8 "	11,11,416 15 9	
SOUTH PIER.														
Rubble Stone in Foreshore and Base.														
21 Ordinary deposited from break-water ...	Tons	675	1 8 0	Ton	1,013	"	"	" " "	" " "	" " "	" " "	" " "	" "	
22 Do. from boats	,,	1,69,517	2 0 0	,,	3,39,034	439,063	164,088	2 9 4	" " "	3704 12 7	418,365 12 1	7,054 " 10	423,419 12 11	
23 Large, deposited from break-water	,,	15,038	1 12 0	,,	26,317	15,076	8614¼	1 12 "	" " "	" " "	15,075 13 "	" " "	15075 13 "	
24 Concrete blocks for building	C. yds.	52,153	9 0 0	C. yd.	4,69,377	438,184	28,785	10 10 2	" " "	6777 4 7	3,05,658 10 11	" " "	3,05,658 10 11	
25 Setting blocks at commencement	,,	2,062	2 0 0	,,	4,124	7912	2556	3 1 6	" " "	" " "	7911 13 3	" " "	7911 13 3	
26 Do. from 2,550 to 3,700 feet	,,	29,282	2 8 0	,,	73,205	106,837	26,179	3 4 10	" " "	2252 11 11	84,157 1 "	2322 6 9	86,179 7 9	
27 Do. at Pier head ...	,,	20,809	3 0 0	,,	62,427	58,837	"	" " "	" " "	" " "	" " "	" " "	" "	
Concrete in mass for filling	,,	500	10 0 0	,,	5,000	4833	602	7 9 1	" " "	" " "	4554 14		4554 11	
WAVE BREAKER.														
29 Concrete blocks	C. yds.	57,066	9 0 0	C. yd.	5,13,594	415,612	29251	10 13 8	" " "	" " "	317,510 13 9	" " "	317,510 13 9	
30 Depositing blocks	,,	57,066	1 0 0	,,	57,066	53,477	27,389	1 3 3	" " "	259 5 8	35,295 7 3	129 3 11	35,424 11 2	
31 Apron do.	,,	1,667	9 0 0	,,	15,003	10080	"	" " "	" " "	" " "	" " "	" " "	" "	
32 Setting do.	,,	1,667	4 0 0	,,	6,668	4480	"	" " "	" " "	" " "	" " "	" " "	" "	
33 Concrete in bags	,,	742	12 0 0	,,	8,904	14365	"	" " "	" " "	" " "	" " "	" " "	" "	
34 Cramps	No.	275	10 0 0	Each	2,750	1364	143	3 7 3	" " "	" " "	493 12 4	" " "	493 14 4	
35 Concrete capping	C. yds.	19,200	10 0 0	C. yd.	1,92,000	[illegible]	645-5	[illegible]	[illegible]	388 13 1	[illegible]	[illegible]	[illegible]	

Rs 30,33,478-5-7
" 2,18,238-7-5
Rs 32,51,716-13-0

July 1889

	Total for South Pier	17,76,482	1760251 ✓			〃 〃 〃	13392 15 10	1198068 6 〃 ✓	10745 14 2	12,08814 4 2 ✓
		3,19,529	4,53,646 ✓	〃		〃 〃	1968 7 3	✓390479 7 〃 ✓	150 1 6 ✓	390629 8 6 ✓
36	Tools and Plant	3,19,529	4,53,646 ✓							390629 8 6 ✓
		3,19,529	4,53,646 ✓			〃 〃	2692 12 4 ✓	62,586 〃 〃 ✓	7127 7 11 ✓	69723 7 11 ✓
37	Contingencies at 2½ per cent.	1,03,865	2.49,889 ✓							69,723 7 11 ✓
		1,03,865	2.49,889 ✓	〃						〃 〃 ✓
38	Lighting entrance	20,000	20,000 ✓				4412 10 7 ✓	323,953 15 〃 ✓	167 〃 4 ✓	324120 15 4 ✓
39	Establishment	3,11,594	4,65,830 ✓							324,120 15 4 ✓
		3,11,594	4,65,830 ✓	18917 2/9 ✓	11 15 〃 ✓	〃 〃 〃	24716 9 3 ✓	203157 2 1 ✓	22,618 5 6 ✓	225,775 7 7 ✓
40	Materials at site (concrete blocks in yards) ... C. yds.	...	〃	〃	〃	〃 〃	12 13 8 ✓	4983 12 1 ✓	〃 〃 〃	4983 12 〃 ✓
41	Advances to work-people	...					〃 〃 〃	36,090 8 4 ✓	53,217 6 8 ✓	89,307 15 〃 ✓
42	Other stores	...								
	Total of Estimate and value of work done	45,90,051	50,69,133 ✓			〃 〃	59,428 〃 9 ✓	3328042 13 8 ✓	102,621 9 7	34,30664 7 3 ✓
						〃 〃 〃	-2693 12 9 ✓	40235 8 4 ✓	〃 〃 〃	40235 8 4 ✓
	Deduct Probable recoveries due to sales of Tools and Plant.	...	96,537 ✓				56734 4 〃	✓32,87,807 5 4	102,621 9 7	33,90428 14 11 ✓
	Total	45,90,051	49,72,596 ✓	...			......	......	......	102,621 9 7 ✓
	Deduct Arrears due	...		...			......	......	......	32,87,807 5 4 ✓
	Total Outlay to date by books	...		...			......	......	......	×3033478 5 7 ✓
	Deduct Total Outlay to end of last year	...		...			......	......	......	254,328 15 9 ✓
	Total	...		...			......	......	......	36,090 8 4 ✓
	Deduct Value of Stock	...		...			......	......	......	×218,238 7 5 ✓
	Total	...		...			......	......	......	30,842 5 11 ✓
	Add Net Debits to Suspense Heads during the year	...		...			......	......	......	1,87,396 1 6 ✓
	Net Debits of the year	...		...			......	......	......	
	Grant for 188 -8 , Rupees									

Abstract

× Outlay on Works up to 31st March 1889 —

Do — during the current year from A

Total Net outlay up to 31st July 1889

MADRAS,
21st January 1890.

Accountant
M H Works Office

Engineer, Harbour Trust Board.

Marine C. No. 89890
4

P.W. Lue 4
1068/90

MADRAS HARBOUR WORKS.

Comparison of Expenditure to date with Sanctioned Estimate for the month of August 1889

	Sub-head of Work.		As per sanctioned Estimate.				As per revised Estimate (for completing Eastern Entrance) that accompanied Engineer's letter No 909 d/ 1 October 1889.	As Executed.					Arrears not paid.	Grand Total as compared with Estimate.	Remarks.
			Quantity.	Rate.	Per.	Cost.		Quantity.	Rate.	Cost. Total up to 31st December 1884.	Cost. During the month.	Cost. Up to date.			
	1		2	3	4	5	5-A	6	7	8	9	10	11	12	13
				Rs. A. P.		Rs.				Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
	AS PER OLD ESTIMATE.														
1	Works ...		......	... ...	...	49,15,752		...	......	55,09,324 8 10	. . .	55,09,324 8 10	. . .	55,09,324 8 10	
2	Establishment ...		......	... ...	...	3,57,612		...	......	5,29,904 . .	. . .	5,29,904 . .	. . .	5,29,904 . .	
3	Tools and Plant ...		......	... ...	...	4,71,801		...	......	5,15,262 6 .	. . .	5,15,260 6 .	. . .	5,15,260 6 .	
	Total...		......	... ...	...	57,45,165		...	...	65,54,490 14 10	. . .	65,54,490 14 10	. . .	65,54,490 14 10	
	NEW ESTIMATE.														
4	Alteration and extension of block ground ...Prely...		......	... ...	...	8,000	5,892	...		. . .	. . .	5,882 3 5	9 13 6	5,892 . 11	
	NORTH PIER.														
	Rubble Stone in Foreshore and Base.														
5	Ordinary deposited from break-water ...	Tons	5,532	1 8 0	Ton	8,297	4,865	2780	1 12 .	. . .		4,865 . .		4,865 .	
6	Do. from boats ...	„	1,82,260	2 0 10	„	3,64,520	4,17,169	1,92,724	1 15 9	. . .	500 9 4	3,75,311 12 5	6,605 . 9	3,81,996 13 2	
7	Large ordinary deposited under wave breaker from break-water ...	„	14,750	1 12 0	„	25,812	19,573	11,149 3/4	1 12 .	. . .		19,513 9 .		19,513 9 .	
8	Concrete blocks for buildings ...	C. yds.	58,116	9 0 0	C. yd.	5,23,044	4,28,003	23,081 18/27	10 11 6	. . .	36,346 10 9	2,47,413 10 .	. . .	2,47,413 10 .	
9	Setting blocks at commencement of new work ...	„	2,062	2 0 0	„	4,124	6,415	2,615	2 1 1	. . .		5,414 11 2		5,414 11 2	
10	Do. from 2,200 to 3,600 feet	„	35,245	2 8 0	„	88,112	1,31,373	20,466	2 6 4	. . .	3,610 4 1	45,414 10 9	3,658 1 5	49,072 12 2	
11	Do. at Pier head ...	„	20,809	3 0 0	„	62,427	58,887	„		. . .	. . .	. .	. .	. .	
12	Concrete in mass for filling ...	„	500	10 0 0	„	5,000	1,183	263	4 3 3	. . .	. . .	1,133 . 7	. .	1,133 . 7	
	WAVE BREAKER.														
13	Built blocks	C. yds.	288	10 0 0	C. yd.	2,880	2,692	283				2,692 . .		2,692 . .	
14	Ordinary concrete blocks ...	„	70,849	9 0 0	„	6,37,641	7,18,250	38,708	9 6 7	. . .	. .	3,94,050 3 8	61 5 8	3,99,951 3 8	
15	Depositing do. ...	„	70,849	1 0 0	„	70,849	91,571	39,274	10 5 4	. . .	294 . .	34,773 3 3	. .	34,804 8 10	
16	Apron blocks ...	„	1,667	9 0 0	„	15,003	10,080	„	. 14 2	. . .	. .	. .	. .	. .	
17	Setting do. ...	„	1,667	4 0 0	„	6,668	4,420	„	. . .	. . .	. .	. .	. .	. .	
18	Concrete in bags ...	„	742	12 0 0	„	8,904	17,387	„	. . .	. . .	. .	. .	. .	. .	
19	Cramps ...	No.	330	10 0 0	Each	3,300	1,816	136	2 13 9	. . .	. .	383 12 11	. .	383 12 11	
20	Concrete capping ...	C. yds.	22,400	10 0 0	C. yd.	2,24,000	1,48,980	348	10 4 2	. . .	70 8 .	3,573 9 9	. .	3,573 9 9	
	Total for North Pier ...		......	... ...	...	20,50,581	2,11,362			. . .	40,456 11 2	11,48,293 2 11	10,204 7 4	11,53,702 10 3	
	SOUTH PIER.														
	Rubble Stone in Foreshore and Base.														
21	Ordinary deposited from break-water ...	Tons	675	1 8 0	Ton	1,013	„	„	. . .	. . .					
22	Do. from boats ...	„	1,69,517	2 0 0	„	3,39,034	4,59,063	1,62,230	2 9 5	. . .	1,731 1 1	4,17,096 13 2	7,223 2 5	4,24,322 . 7	
23	Large, deposited from break-water ...	„	15,038	1 12 0	„	26,317	15,076	8,614 3/4	1 12 .	. . .	. . .	15,075 13 .	. .	15,675 13 .	
24	Concrete blocks for building ...	C. yds.	52,153	9 0 0	C. yd.	4,69,377	4,38,184	21,113	10 11 9	. . .	22,379 6 9	3,34,058 1 7	. .	3,34,058 1 7	
25	Setting blocks at commencement ...	„	2,062	2 0 0	„	4,124	7,912	3,356	3 1 6	. . .	. .	7,911 13 6	. .	7,911 13 3	
26	Do. from 2,550 to 3,700 feet	„	29,282	2 8 0	„	73,205	1,06,357	28,357	3 3 1	. . .	2,457 . 7	84,600 . 7	2,653 5 9	91,380 7 4	
27	Do. at Pier head ...	„	20,809	3 0 0	„	62,427	58,337	„		. . .	. .	. .	. .	. .	
28	Concrete in mass for filling ...	„	500	10 0 0	„	5,000	4,535	682	. 9 1	. . .	. .	4,554 14 4	. .	4,534 14 4	
	WAVE BREAKER.														
29	Concrete blocks ...	C. yds.	57,066	9 0 0	C. yd.	5,13,594	4,15,612	39,251 11/27	10 13 8	. . .	215 3 9	3,17,510 13 9	. .	3,17,510 13 9	
30	Depositing blocks ...	„	57,066	1 0 0	„	57,066	58,477	29,389	1 3 5	. . .	. .	35,510 11 .	2,219 14 4	35,730 9 4	
31	Apron do. ...	„	1,667	9 0 0	„	15,003	10,080	„	. . .	. . .	1,655 2 6	1,655 5 6	550 11 7	2,205 14 1	
32	Setting do. ...	„	1,667	4 0 0	„	6,668	4,480	„	. . .	. . .					
33	Concrete in bags ...	„	712	12 0 0	„	8,904	14,365	604	3 7 .	. . .					
34	Cramps ...	No.	275	10 0 0	Each										

Rs 30,33,478-5-7
„ 2,93,334-15-9
Rs 33,26,413-5-4

	... C. yds.	19,200	19 0 0	C. yd.	1,92,000	1,40,909	210 9/12	20 12 10	179 8 .	10,722 10 1	. ✓	10,722 10 1
	Total for South Pier	......	...	...	17,76,482	17,60,257			34610 5 7	1232678 12 7	11,718 3 1	12,44,396 15 8
36	Tools and Plant	......	...	...	3,19,529	4,53,646			816 14 10	391,296 5 10	1,555 3 2	392,857 9 .
					3,19,529	4,53,646						392857 9 .
37	Contingencies at 2½ per cent.	......	...	...	1,03,865	2,49,889			205 11 10	63791 11 10	7190 14 6	69982 10 4
					1,03,865	2,49,889						69982 10 4
38	Lighting entrance ...	...	...	...	20,000	20,000						- 4
39	Establishment	......	...	...	3,11,594	4,65,830			5170 3 6	329104 2 6	436 4 9	329,560 7 3
					3,11,594	4,65,830						329,560 7 3
40	Materials at site (concrete blocks in yards) ... C. yds.	......	...	...	...	-	18680 8/7	11 13 11	- - -	197,246 1 4	24358 10 7	221,704 11 11
41	Advances to work-people	......	...	...	...	-			- - -	4970 14 5	- -	4970 14 5
42	Other stores	......	...	...	...	-			- - -	10426 10 .	80990 10 3	91,417 4 3
	Total of Estimate and value of work done ..	......	...	...	45,90,051	50,69,133			75,436 1 6	3377815 . 10	136664 3 2	3514479 4 .
	Deduct Probable recoveries due to sales of Tools and Plant.		...		...	96,537			2439 9	[illegible]	- - -	40675 1 6
	Total	......	...	...	45,90,051	49,72,596			74,996 8 4	3337139 15 4	136664 3 2	3473,804 2 6
	Deduct Arrears due	......	...	...	...		......	......	......	......	......	136664 3 2
	Total Outlay to date by books	......	...	...	...		......	......	......	......	......	3337139 15 4
	Deduct Total Outlay to end of last year	......	...	...	...		......	......	......	......	......	30,33,478 5 7
	Total	......	...	...	...		......	......	......	......	......	303,661 9 9 ✓
	Deduct Value of Stock	......	...	...	...		......	......	......	......	......	10426 10 . ✓
	Total	......	...	...	...		......	......	......	......	......	293234 15 9 ✓
	Add Net Debits to Suspense Heads during the year	......	...	...	...		......	......	......	......	......	-58534 14 5 ✓
	Net Debits of the year	......	...	...	...		......	......	......	......	......	234,700 1 4 ✓
	Grant for 188 -8 , Rupees	......	...	...	...		......	......	......	......	......	

Abstract.

Outlay on Works up to 31st March 1889

Do. during the current year from April to 31st Aug

Total Net Outlay up to 31st August 1889

MADRAS,
21st January 1890.

Accountant
M H Works Office

Engineer, Harbour Trust Board.

Marine No. 89 of 90
6

Original

MADRAS HARBOUR WORKS.

Comparison of Expenditure to date with Sanctioned Estimate for the month of July 1889.

	Sub-head of Work. 1		As per Sanctioned Estimate. Quantity. 2	Rate. 3 Rs. A. P.	Per. 4	Cost. 5 Rs.	As per Revised Estimate No. 1 (for completing Eastern Entrance that accompanied Engineer's letter No. 909 dated 1st October 1888) 5A	As Executed. Quantity. 6	Rate. 7	Cost. Total up to 31st December 1884. 8 Rs. A. P.	During the month. 9 Rs. A. P.	Up to date. 10 Rs. A. P.	Arrears not paid. 11 Rs. A. P.	Grand Total as compared with Estimate. 12 Rs. A. P.	Remarks. 13
	As per Old Estimate.														
1	Works ...		......	...	...	49,15,752		...	......	55,09,324 8 10	" " "	55,09,324 8 10	" " "	5509324 8 10	
2	Establishment ...		......	...	...	3,57,612		...	......	6,29,934 " "	" " "	6,29,904 " "	" " "	6,29,904 " "	
3	Tools and Plant ...		......	...	...	4,71,801		...	......	5,15,262 6 "	" " "	5,15,262 6 "	" " "	5,15,262 6 "	
	Total...		......	...	...	57,45,165		...	......	65,54,490 14 10	" " "	65,54,490 14 10	" " "	65,54,490 14 10	
	New Estimate.														
4	Alteration and extension of block ground	...Prely...	......	...	...	8,000	5892	...	......	" " "	" " "	5,882 3 5	9 13 6	5,892 " 11	
	North Pier.														
	Rubble Stone in Foreshore and Base.														
5	Ordinary deposited from break-water ...	Tons	5,532	1 8 0	Ton	8,297	4865	2780	1 12 "	" " "		4865 " "		4865 " "	
6	Do. from boats ...	"	1,82,260	2 0 0	"	3,64,520	417169	192518½	1 15 8	" " "	2,683 15 10	3,74,811 3 1	6358 1 2	3,81,169 4 3	
7	Large ordinary deposited under wave breaker from break-water ...	"	14,750	1 12 0	"	25,812	19513	11149½	1 12 "	" " "	" " "	19512 9 "	" " "	19512 9 "	
8	Concrete blocks for buildings ...	C. yds.	58,116	9 0 0	C. yd.	5,23,044	480003	20045	[illegible] 8 7	" " "	5583 15 4	2,11,166 15 3	" " "	2,11,166 15 3	
9	Setting blocks at commencement of new work ...	"	2,062	2 0 0	"	4,124	5415	2615	2 1 1	" " "	" " "	5414 11 2	" " "	5414 11 2	
10	Do. from 2,200 to 3,600 feet ...	"	35,245	2 8 0	"	88,112	1,31,373	17429	2 8 4	" " "	3859 9 9	41,804 6 8	2122 15 2	43,927 3 10	
11	Do. at Pier head ...	"	20,809	3 0 0	"	62,427	58837	"	" " "	" " "	" " "	" " "	" " "	" " "	
12	Concrete in mass for filling ...	"	500	10 0 0	"	5,000	1188	263	4 8 3	" " "	" " "	1188 " 7	" " "	1188 " 7	
	Wave Breaker.														
13	Built blocks ...	C. yds.	288	10 0 0	C. yd.	2,880	2692	288		" " "	" " "	2692 " "		2692 " "	
14	Ordinary concrete blocks ...	"	70,849	9 0 0	"	6,37,641	718,255	38708	9 5 7	" " "	" " "	3,99,950 2 8	" " "	399950 2 8	
15	Depositing do. ...	"	70,849	1 0 0	"	70,849	91,571	39274 25/27	10 5 4	" " "	42 7 6	34,744 2 8	24 7 8	34768 10 4	
16	Apron blocks ...	"	1,667	9 0 0	"	15,003	10,080	"	" 14 2	" " "	" " "	" " "	" " "	" " "	
17	Setting do. ...	"	1,667	4 0 0	"	6,668	4480	"	" " "	" " "	" " "	" " "	" " "	" " "	
18	Concrete in bags ...	"	742	12 0 0	"	8,904	17,387		" " "	" " "	" " "	" " "	" " "	" " "	
19	Cramps ...	No.	330	10 0 0	Each	3,300	1816	136	" " "	" " "	" " "	388 12 11	" " "	388 12 11	
20	Concrete capping ...	C. yds.	22,400	10 0 0	C. yd.	2,24,000	448982	348 5/9	2 13 9	" " "	62 " 10	6303 7 9	70 2 "	6373 9 9	
	Total for North Pier ...		......	...	...	20,50,581	2113625		18 4 2	" " "	12,231 11 10	1102841 7 9	8575 8 "	11,11,416 15 9	
	South Pier.														
	Rubble Stone in Foreshore and Base.														
21	Ordinary deposited from break-water ...	Tons	675	1 8 0	Ton	1,013	"	"	" " "	" " "	" " "	" " "	" " "	" " "	
22	Do. from boats ...	"	1,69,517	2 0 0	"	3,39,034	4,39,063	164088	2 9 4	" " "	3704 12 7	416,865 12 1	7054 " 10	4,23,919 12 11	
23	Large, deposited from break-water ...	"	15,038	1 12 0	"	26,317	15,076	8614¾	1 12 "	" " "	" " "	15075 13 "	" " "	15075 13 "	
24	Concrete blocks for building ...	C. yds.	52,153	9 0 0	C. yd.	4,69,377	488184	28735	10 10 2	" " "	6777 4 7	305,658 10 11	" " "	305558 10 11	Rs. 30,33,478-5-7 " 2,18,238-7-5 Rs. 32,51,716-13-"
25	Setting blocks at commencement ...	"	2,062	2 0 0	"	4,121	7912	25561	3 1 6	" " "	" " "	7911 13 3	" " "	7911 13 3	
26	Do. from 2,550 to 3,700 feet ...	"	29,282	2 8 0	"	73,205	106337	26179	4 10	" " "	2252 11 11	84,157 1 "	2322 6 9	86,479 9 9	
27	Do. at Pier head ...	"	20,809	3 0 0	"	62,427	53357			" " "	" " "	" " "			
28	[illegible] filling ...	"	500	10 0 0	"	5,000	4555	602	7 9 1	" " "	" " "	4,557 14 4	" " "	4554 14 4	
	Wave Breaker.														
29	Concrete blocks ...	C. yds.	57,066	9 0 0	C. yd.	5,13,594	415612	29251 0/27	14 13 8	" " "	" " "	3,17,510 13 9	" " "	3,17,510 13 9	
30	Depositing blocks ...	"	57,066	1 0 0	"	57,066	53477	29359 14/169	1 3 3	" " "	259 5 8	35,295 7 3	139 3 11	35,434 7 2	
31	Apron do. ...	"	1,667	9 0 0	"	15,003	10080	"	" " "	" " "	" " "	" " "	" " "	" " "	1st July 1889
32	Setting do. ...	"	1,667	4 0 0	"	6,668	4480	"	" " "	" " "	" " "	" " "	" " "	" " "	
33	Concrete in bags ...	"	742	12 0 0	"	8,904	14365	"	" " "	" " "	" " "	" " "	1051 10 8	1351 10 8	
34	Cramps	No.	375	10											

	... C. yds.	19,200	10	0	0	C. yd.	1,92,000	140909	515 5/12	70	12	10	"	"	"	398	13	1	10,544	2	1	178	8	"	10,722	10	1
	Total for South Pier...	......					17,76,482	1760251					"	"	"	13392	15	10	11,98,068	6	"	10745	14	2	12,08814	4	2
36	Tools and Plant	......					3,19,529	453,646	"				"	"	"	1968	7	3	390479	7	"	150	1	6	390629	8	6
																									390629	8	6
37	Contingencies at 2½ per cent.	......					3,19,529	453646	"				"	"	"	2692	12	4	62586	"	"	7137	7	11	69,723	7	11
							1,03,865	249889																	69,723	7	11
38	Lighting entrance ...	......					1,03,865	249889	"				"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
39	Establishment	......					20,000	20000	"				"	"	"	4412	10	7	32,3953	15	"	167	"	11	324,120	15	4
							3,11,594	465,830	"				"	"	"										324,120	15	4
40	Materials at site (concrete blocks in yards) ... C. yds.						3,11,594	465,830					"	"	"	24,716	9	3	203157	2	1	22,618	5	6	22,5475	7	7
41	Advances to work-people	......							18,917 2/9	11	15	"	"	"	"	12	13	8	4983	12	1		"	"	4983	12	1
42	Other stores	......					...	"	"				"	"	"	"	"	"	36090	8	4	53217	6	8	89,307	15	"
		......					...	"					"	"	"												
	Total of Estimate and value of work done...	......					45,90,051	50,69,133	"				"	"	"	59,428	"	9	33,28,042	13	8	102,621	9	7	3430,664	7	3
	Deduct Probable recoveries due to sales of Tools and Plant.	......											"	"	"	-2693	12	9	-40235	8	4	"	"	"	40,235	8	4
	Total	......					...	96,537	"				"	"	"	56,734	4	"	3287807	5	4	1,02,621	9	7	3,39,0428	14	11
	Deduct Arrears due	......					45,90,051	4972596								......			......			......			1,02,621	9	7
	Total Outlay to date by books	......					...		...							......			......			......			32,87,807	5	4
	Deduct Total Outlay to end of last year	......					...		...							......			......			......			3033,478	5	7
	Total ...	......					...		...							......			......			......			254,328	15	9
	Deduct Value of Stock	......					...		...							......			......			......			36,090	8	4
	Total ...	......					...		...							......			......			......			218,238	7	5
	Add Net Debits to Suspense Heads during the year ...	......					...		...							......			......			......			-30,842	5	11
	Net Debits of the year	......					...		...							......			......			......			1,87,396	1	6
	Grant for 188 -8 , Rupees	......					...		...							......			......			......					

Abstract

Outlay on Works up to 31st March 1889 ——

—— Do. —— during the Current year from April 18

Total to date outlay up to 31st July 1889 ——

MADRAS,
21st January 1890.

Accountant
M H Works Office

A. Lee Popm
Engineer, Harbour Trust Board.

Marine No 89770
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[illegible]

37

MADRAS——HARBOUR WORKS.

Comparison of Expenditure to date with——Sanctioned Estimate for the month of August 1889.

	Sub-head of Work.		As per sanctioned Estimate. Quantity.	Rate. Rs. A. P.	Per.	Cost. Rs.	As per Revised Estimate No. for completing Eastern Entrance that accompanied Engineer's letter No. 9[illegible] d/1st Oct. 188[illegible]	As Executed. Quantity.	Rate.	Cost. Total up to 31st December 1884. Rs. A. P.	During the month. Rs. A. P.	Up to date. Rs. A. P.	Arrears not paid. Rs. A. P.	Grand Total as compared with Estimate. Rs. A. P.	Remarks.
	1		2	3	4	5	5 A	6	7	8	9	10	11	12	13
	As per Old Estimate.														
1	Works ...		......	...	...	49,15,752		...		55,09,324 8 10		55,09,324 8 10		55,09,324 8 10	
2	Establishment ...		......	...	...	3,57,612		...		5,29,904 . .		5,29,904 . .		5,29,904 . .	
3	Tools and Plant ...		......	...	...	4,71,801		...		5,15,262 6 .		5,15,262 6 .		5,15,262 6 .	
	Total...		......	...	...	57,45,165		...		65,54,490 14 10		65,54,490 14 10		65,54,490 14 10	
	New Estimate.														
4	Alteration and extension of block ground	...Prely...	......	...	...	8,000	5,892	...				5,882 3 5	9 13 6	5,892 . 11	
	North Pier.														
	Rubble Stone in Foreshore and Base.														
5	Ordinary deposited from break-water ...	Tons	5,532	1 8 0	Ton	8,297	4,865	2780	1 12 .			4,865		4,865 . .	
6	Do. from boats ...	,,	1,82,260	2 0 0	,,	3,64,520	417,169	149724	1 13 9		500 9 4	375,311 12 5	6,685 . 9	381,996 13 2	
7	Large ordinary deposited under wave breaker from break-water ...	,,	14,750	1 12 0	,,	25,812	19,518	11149¾	1 12 .			19,518 9 .		19,518 9 .	
8	Concrete blocks for buildings ...	C. yds.	58,116	9 0 0	C. yd.	5,23,044	480,003	23001 16/37	0 11 6		36,246 10 9	247,413 10 .		247,413 10 .	
9	Setting blocks at commencement of new work ...	,,	2,062	2 0 0	,,	4,124	5,415	2613	2 1 1			5,414 11 2		5,414 11 2	
10	Do. from 2,200 to 3,600 feet ...	,,	35,245	2 8 0	,,	88,112	131,373	20466	2 6 4		2,610 4 1	45,414 10 9	3,658 1 5	49,072 12 2	
11	Do. at Pier head ...	,,	20,809	3 0 0	,,	62,427	58,867								
12	Concrete in mass for filling ...	,,	500	10 0 0	,,	5,000	1,183	263	4 9 3			1,183 . 7		1,183 . 7	
	Wave Breaker.														
13	Built blocks ...	C. yds.	288	10 0 0	C. yd.	2,880	2,692	288				2,692 . .		2,692 . .	
14	Ordinary concrete blocks ...	,,	70,849	9 0 0	,,	6,37,641	718,255	38708 22/36	9 5 7			399,950 2 3		399,950 2 3	
15	Depositing do. ...	,,	70,849	1 0 0	,,	70,849	91,571	39214	10 5 4			84,773 3 8	61 5 2	84,834 8 10	
16	Apron blocks ...	,,	1,667	9 0 0	,,	15,003	10,080		. 14 2		29 1 .				
17	Setting do. ...	,,	1,667	4 0 0	,,	6,668	4,480								
18	Concrete in bags ...	,,	742	12 0 0	,,	8,904	17,387					388 12 11		388 12 11	
19	Cramps ...	No.	330	10 0 0	Each	3,300	1,815	136	2 10 9			6,373 9 9		6,373 9 9	
20	Concrete capping ...	C. yds.	22,400	10 0 0	C. yd.	2,24,000	148,982	3408	13 4 2		40 2 .				
	Total for North Pier ...		......	...	...	20,50,581	21,13,625				40,456 11 2	11,42,298 2 11	10,404 7 4	11,52,702 10 3	
	South Pier.														
	Rubble Stone in Foreshore and Base.														
21	Ordinary deposited from break-water ...	Tons	675	1 8 0	Ton	1,013									
22	Do. from boats ...	,,	1,69,517	2 0 0	,,	3,39,034	439,063	164,223	0 9 5		731 . 1	447,596 13 2	7,325 3 6	454,922 . 7	
23	Large, deposited from break-water ...	,,	15,038	1 12 0	,,	26,317	15,076	8614	1 12 .			15,075 13 .		15,075 10 .	
24	Concrete blocks for building ...	C. yds.	52,153	9 0 0	C. yd.	4,69,377	438,134	51,113	10 11 9		28,579 6 8	334,033 1 7		334,033 1 7	
25	Setting blocks at commencement ...	,,	2,062	2 0 0	,,	4,121	7,912	2550	3 1 6			7,911 13 3		7,911 13 3	
26	Do. from 2,550 to 3,700 feet ...	,,	29,282	2 8 0	,,	73,205	106,337	28,557	3 3 1		3,457 . 7	87,603 1 7	3,622 5 9	91,230 7 4	
27	Do. at Pier head ...	,,	20,809	3 0 0	,,	62,427	58,337								
28	Concrete in mass for filling ...	,,	500	10 0 0	,,	5,000	4,555					4,554 14 11		4,554 14 4	
	Wave Breaker.														
29	Concrete blocks ...	C. yds.	57,066	9 0 0	C. yd.	5,13,594	415,617	29,251	10 12 8			317,510 13 9		317,510 13 9	
30	Depositing blocks ...	,,	57,066	1 0 0	,,	57,066	53,477	79,309	1 7 5		215 3 9	35,510 11 .	219 14 4	35,730 9 4	
31	Apron do. ...	,,	1,667	9 0 0	,,	15,003	10,080				1,655 2 6	1,655 2 6	550 11 7	2,205 14 1	
32	Setting do. ...	,,	1,667	4 0 0	,,	6,668	4,480								
33	Concrete in bags ...	,,	742	12 0 0	,,	8,904	14,365	62¼	35 7 .						
34	Cramps ...														

Rs 30,33,478 - 5 - 7
" 2,93,234 - 15 - 9
Rs. 33,26,713 . 5 . 4

ust/89

	Concrete capping ... C. yds.	19,200	10 0 0	C. yd.	1,92,000	140,909 ✓	575 5/12 ✓	20 12 10 ✓	– . .	178 8 . ✓	10,722 10 1 ✓	. . .	10,722 10 1 ✓
	Total for South Pier...	......	...	...	17,76,482	1760,257 ✓				34,610 6 7 ✓	12,32,673 12 7 ✓	11,718 3 1 ✓	12,44,396 15 8 ✓
36	Tools and Plant ...	......	...	...	3,19,529	453,646 ✓			. . .	316 14 10 ✓	3,91,296 5 10 ✓	1,555 3 2 ✓	3,92,851 9 . ✓
					3,19,529	453,646 ✓			. . .				3,92,851 9 . ✓
37	Contingencies at 2½ per cent.	......	...	...	1,03,865	249,380 ✓			. . .	205 11 10 ✓	62,791 11 10 ✓	7,190 4 6 ✓	69,982 10 4 ✓
38	Lighting entrance ...				1,03,865	249,380 ✓			– . .				69,982 10 4 ✓
39	Establishment	......	...	...	20,000	20,000 ✓			. . .	. . .	– . .	– – .	. . .
		......	...	...	3,11,594	465,800 ✓			. . .	5170 3 6 ✓	3,29,124 2 6 ✓	436 4 9 ✓	3,29,560 7 3 ✓
					3,11,594	465,330 ✓			. . .				3,29,560 7 3 ✓
40	Materials at site (concrete blocks in yards) ... C. yds.	......	...	...	...	–	1,86,80 2/37 ✓	11 13 11 ✓	– – .	– 5,811 . 9 ✓	1,97,346 1 4 ✓	24,358 10 7 ✓	2,21,704 11 11 ✓
41	Advances to work-people	......	...	...	...	–			. . .	– 12 13 3 ✓	4970 14 8 ✓	. .	4970 14 5 ✓
42	Other stores	......	...	...		–			– . .		10,426 10 .	80,990 10 3 ✓	91,417 4 3 ✓
	Total of Estimate and value of work done...	......	...	...	45,90,051	50,60,133 ✓			– . .	75,436 1 6 ✓	33,77,815 . 10 ✓	1,36,664 3 2 ✓	35,14,479 4 . ✓
	Deduct Probable recoveries due to sales of Tools and Plant.		...	...	...	96,537 ✓			– . .	– 439 9 2 ✓	– 40,675 1 6 ✓		– 40,675 1 6 ✓
	Total	......	...	...	45,90,051	49,72,596 ✓			– . 1	74,996 8 4 ✓	33,37,139 15 4 ✓	1,36,664 3 2 ✓	34,73,804 2 6 ✓
	Deduct Arrears due ...	......	...	...	...		...	......	......	......	......	......	1,36,664 3 2 ✓
	Total Outlay to date by books ...	......	...	...	...		...	......	......	......	......	......	33,37,139 15 4 ✓
	Deduct Total Outlay to end of last year ...	......	...	...	...		...	......	......	......	......	......	30,33,478 5 7 ✓
	Total ...	......	...	...	...		...	......	......	......	......	......	3,03,661 9 9 ✓
	Deduct Value of Stock ...	......	...	...	...		...	......	......	......	......	......	10,426 10 . ✓
	Total ...	......	...	...	...		...	......	......	......	......	......	2,93,234 15 9 ✓
	Add Net Debits to Suspense Heads during the year ...	......	...	...	...		...	......	......	......	......	......	– 58,534 14 5 ✓
	Net Debits of the year ...	......	...	...	...		...	......	......	......	......	......	2,34,700 1 4 ✓
	Grant ~~for 188~~ -8 , Rupees ...	......	...	...	...		...	......	......	......	......	......	

Abstract-

Outlay on Works up to 31st March 1889.

Do. during the current year from April to 31st Au

Total Net Outlay up to 31st August 1889.

MADRAS,
21st January 1890.

Accountant
M. H. Works Office

Engineer, Harbour Trust Board.

Marine No. 87770
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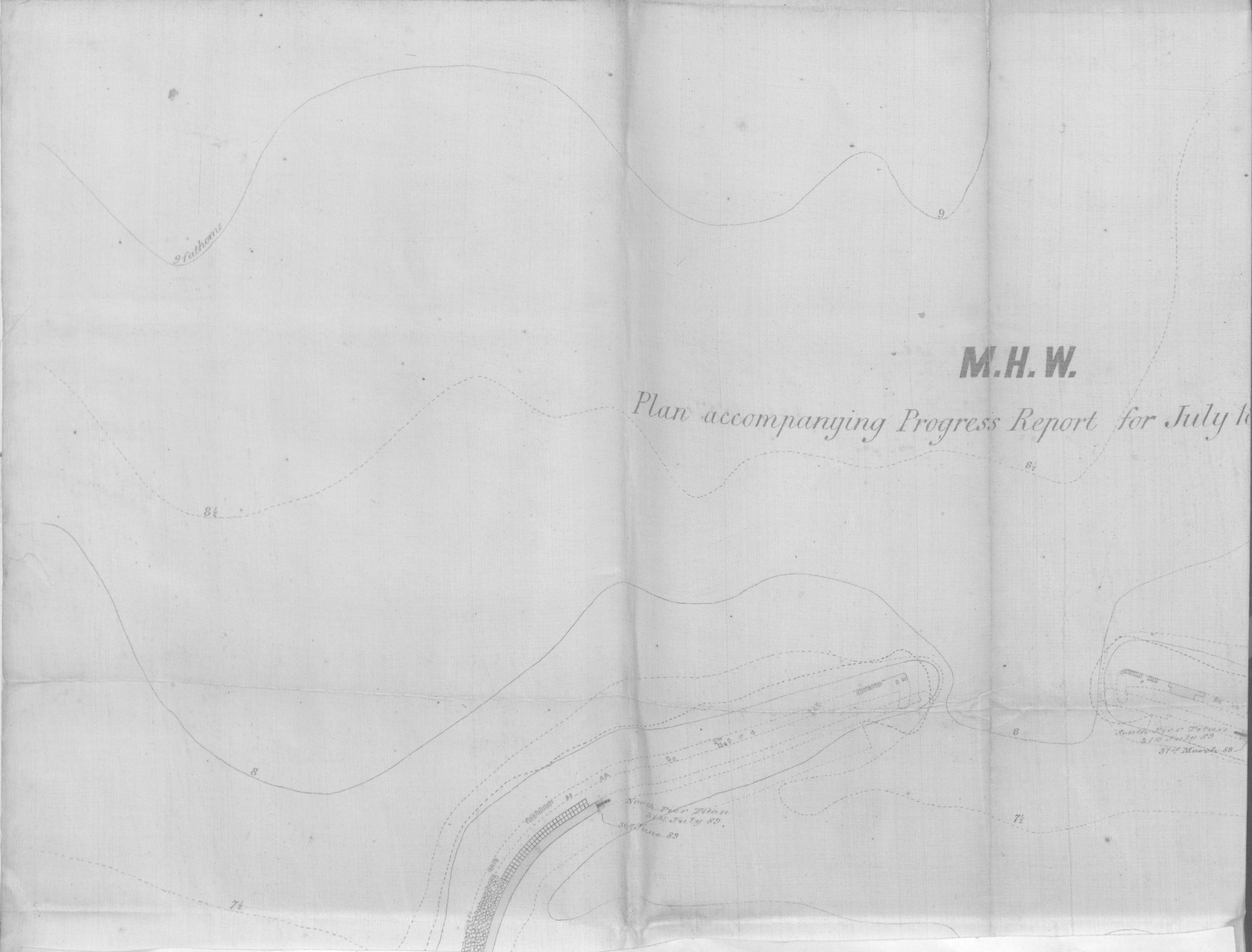
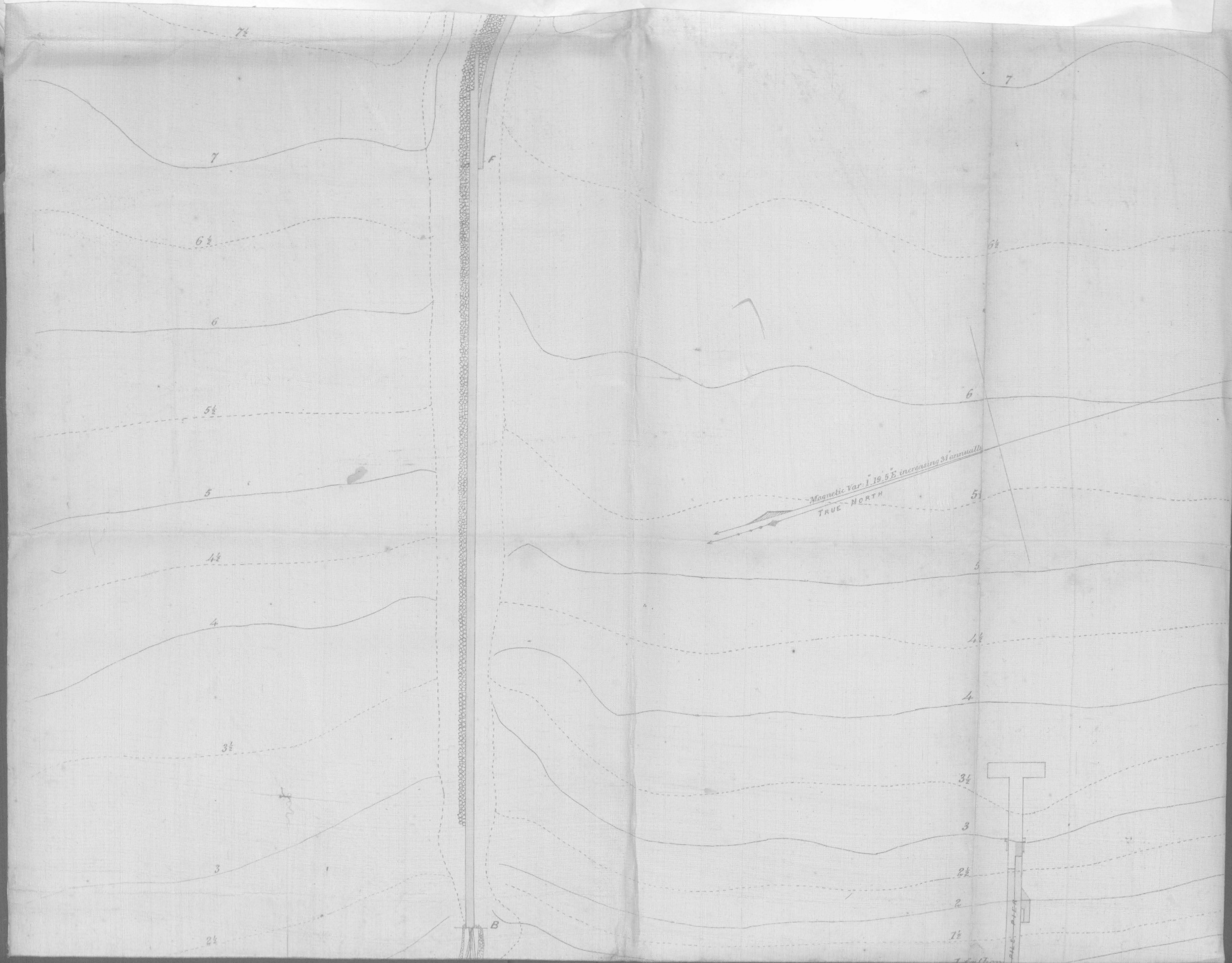
[illegible]



M.H.W.

Plan accompanying Progress Report for July 1


7½
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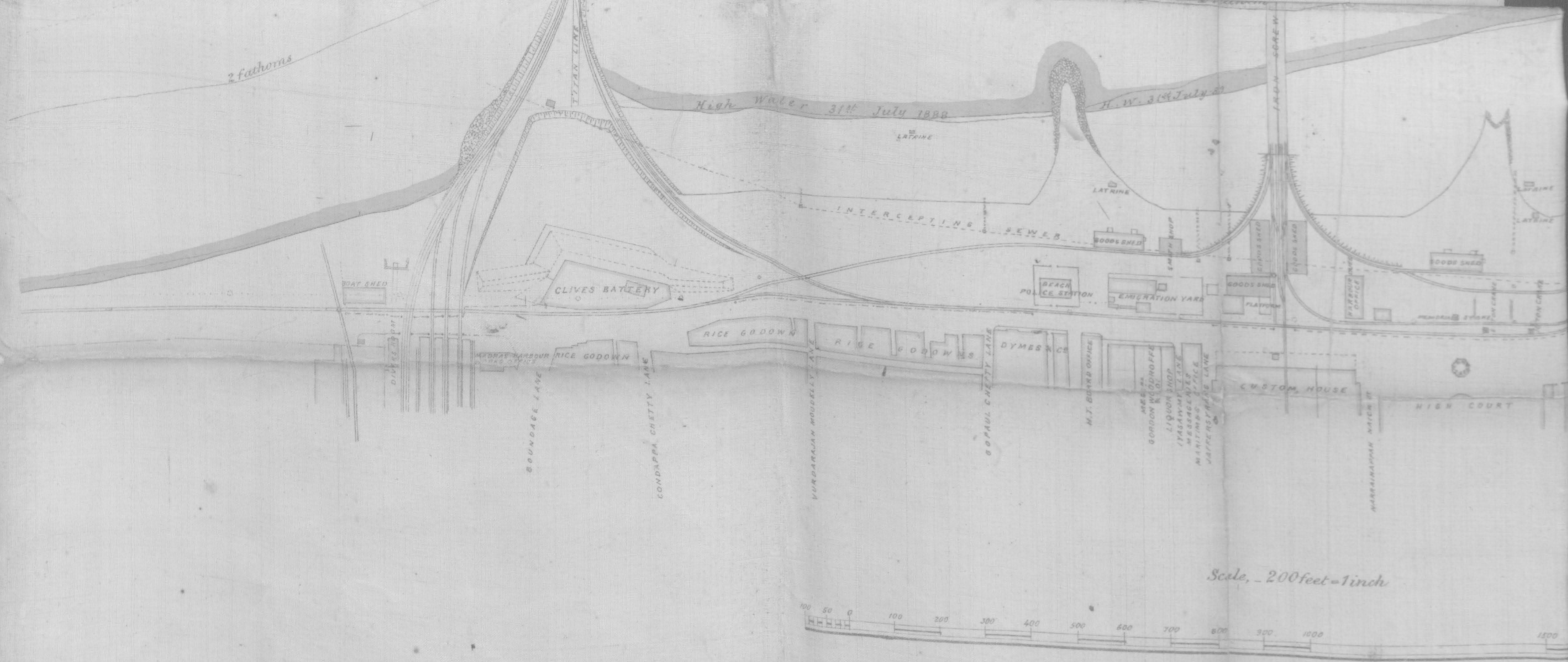
PILE PIER
Magnetic Var: 1° 19.5' E increasing 31" annually
TRUE NORTH

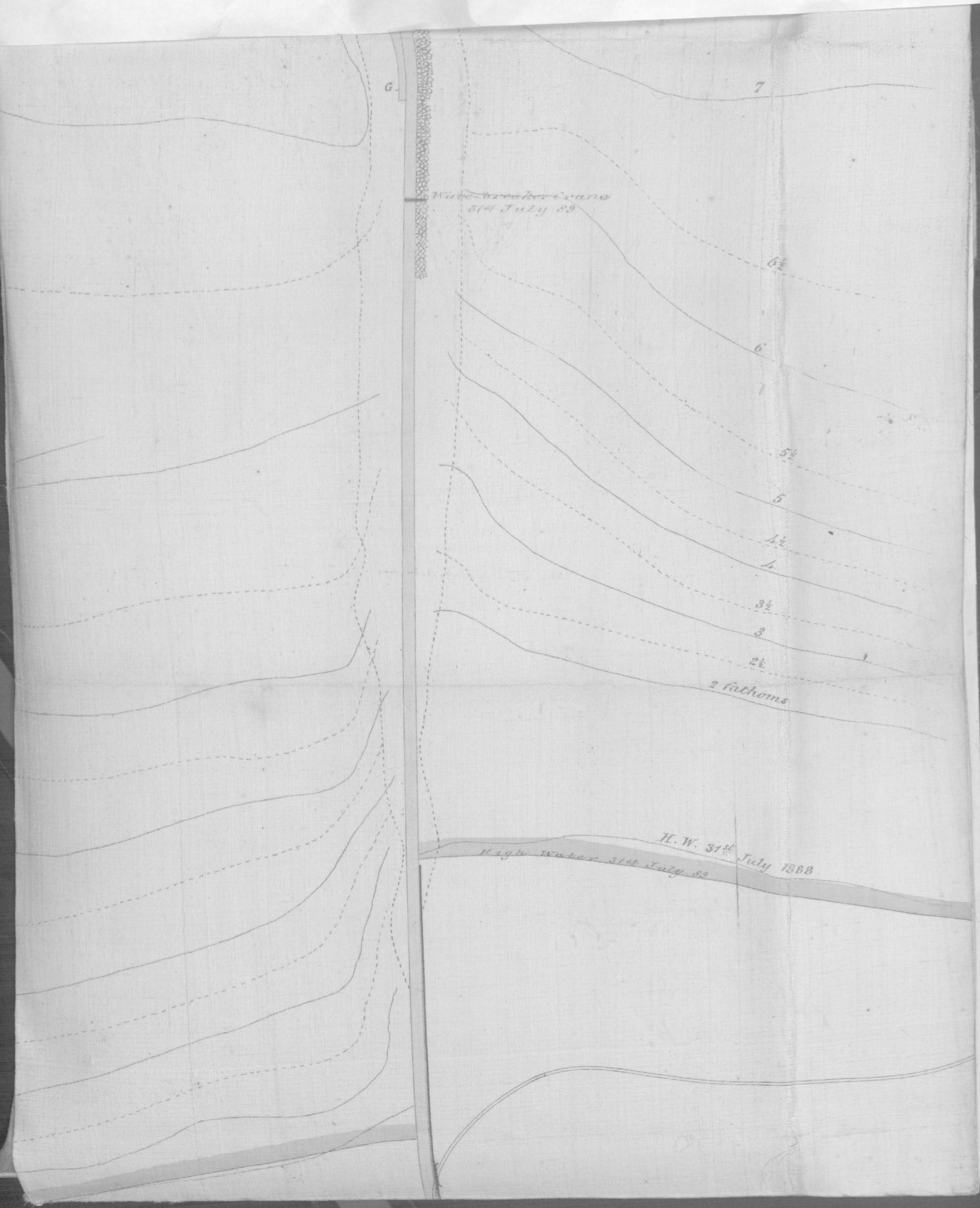


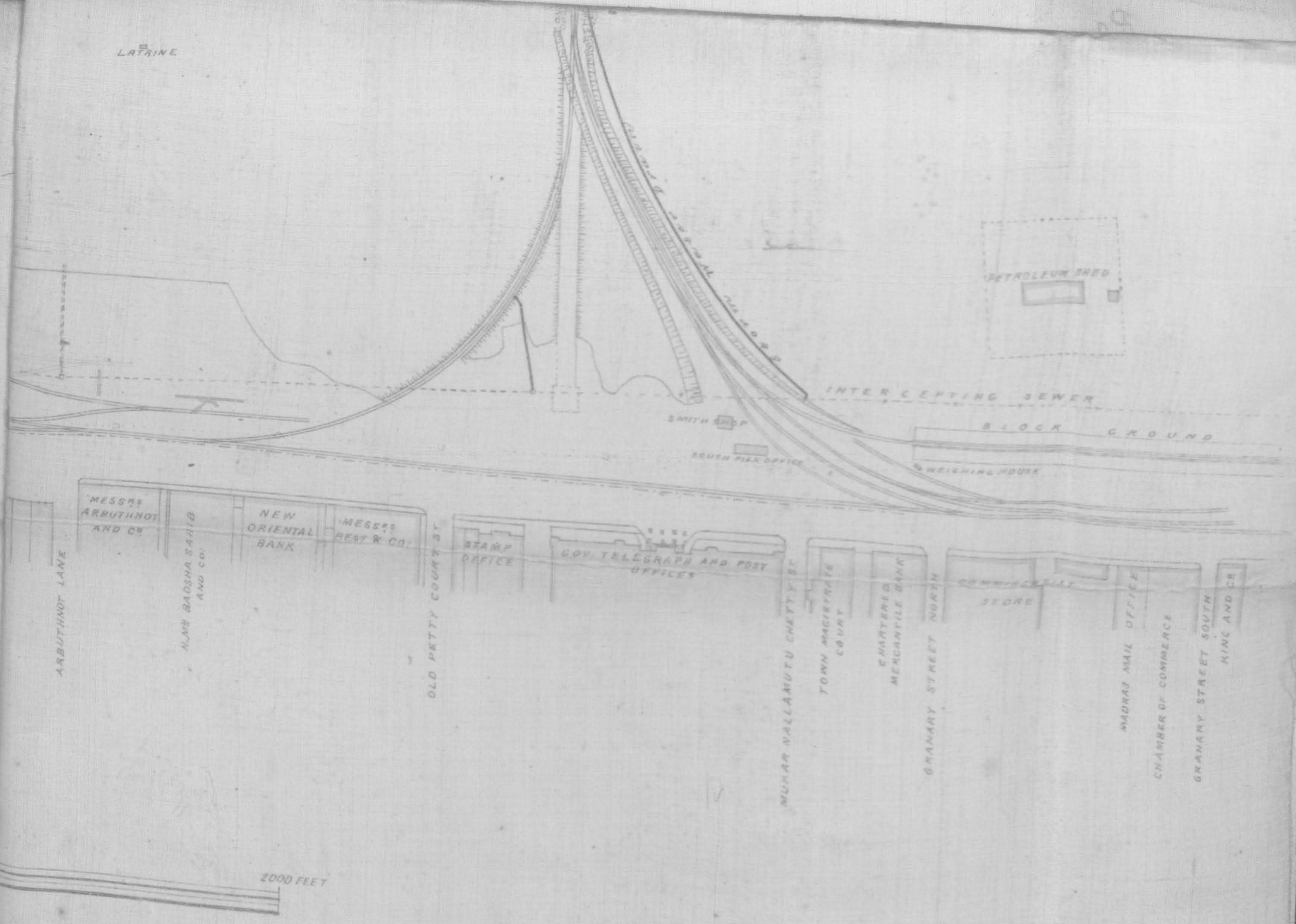
NOTE _ The Contour lines shew the depths below De Havilland's Mean Sea Level in Se

Progress during July 89. shown in red

LITHOGRAPHED BY THE LAWRENCE ASYLUM PRESS, MADRAS, 1889.

2 fathoms
889.
8½
8
7½
7


G.
Wave-breaker Crane
31st July 89
7
6½
6
5½
5
4½
4
3½
3
2½
2 fathoms
H. W. 31st July 1888
High Water 31st July 89

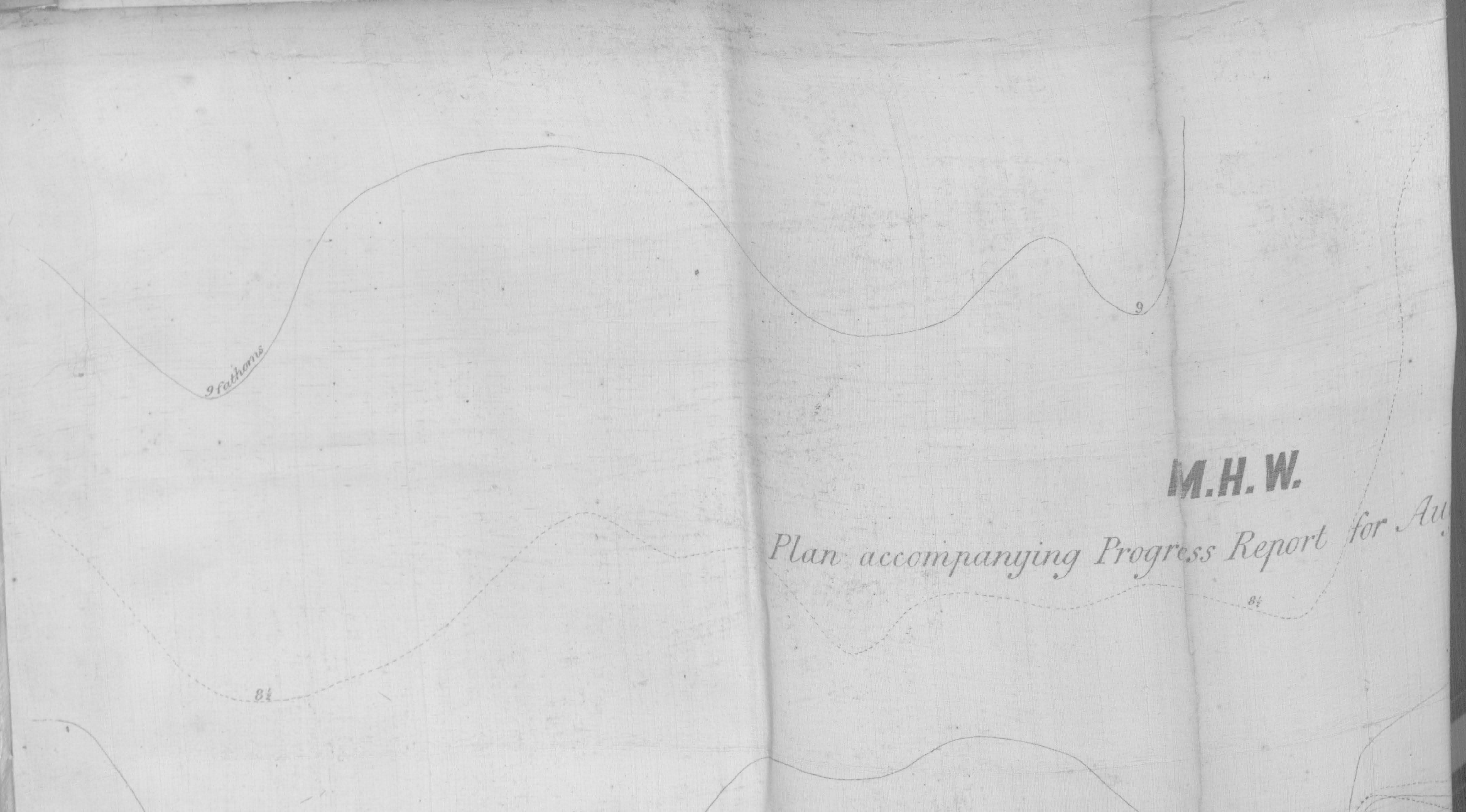


tember 1886.

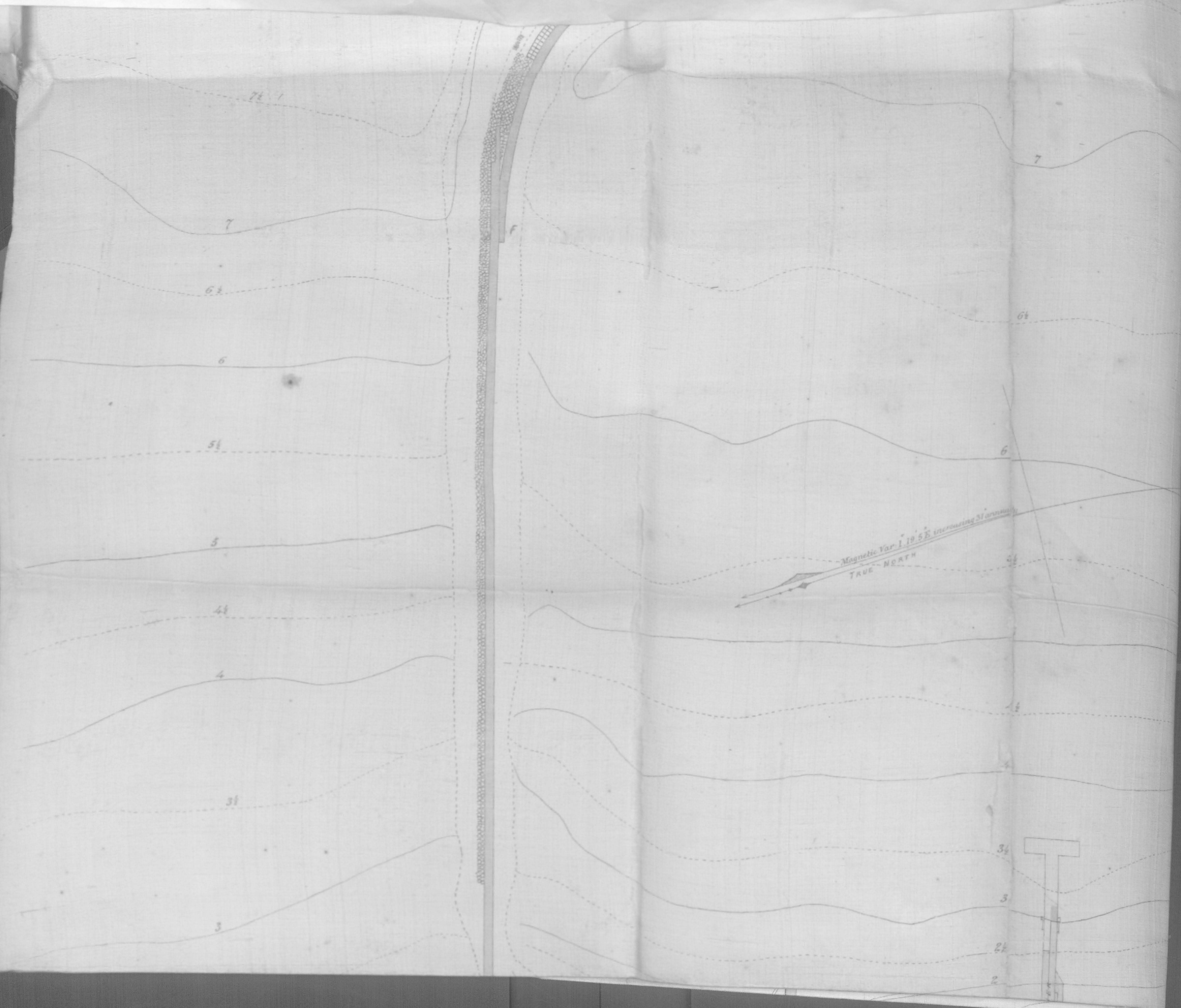
A. Lee Pogson

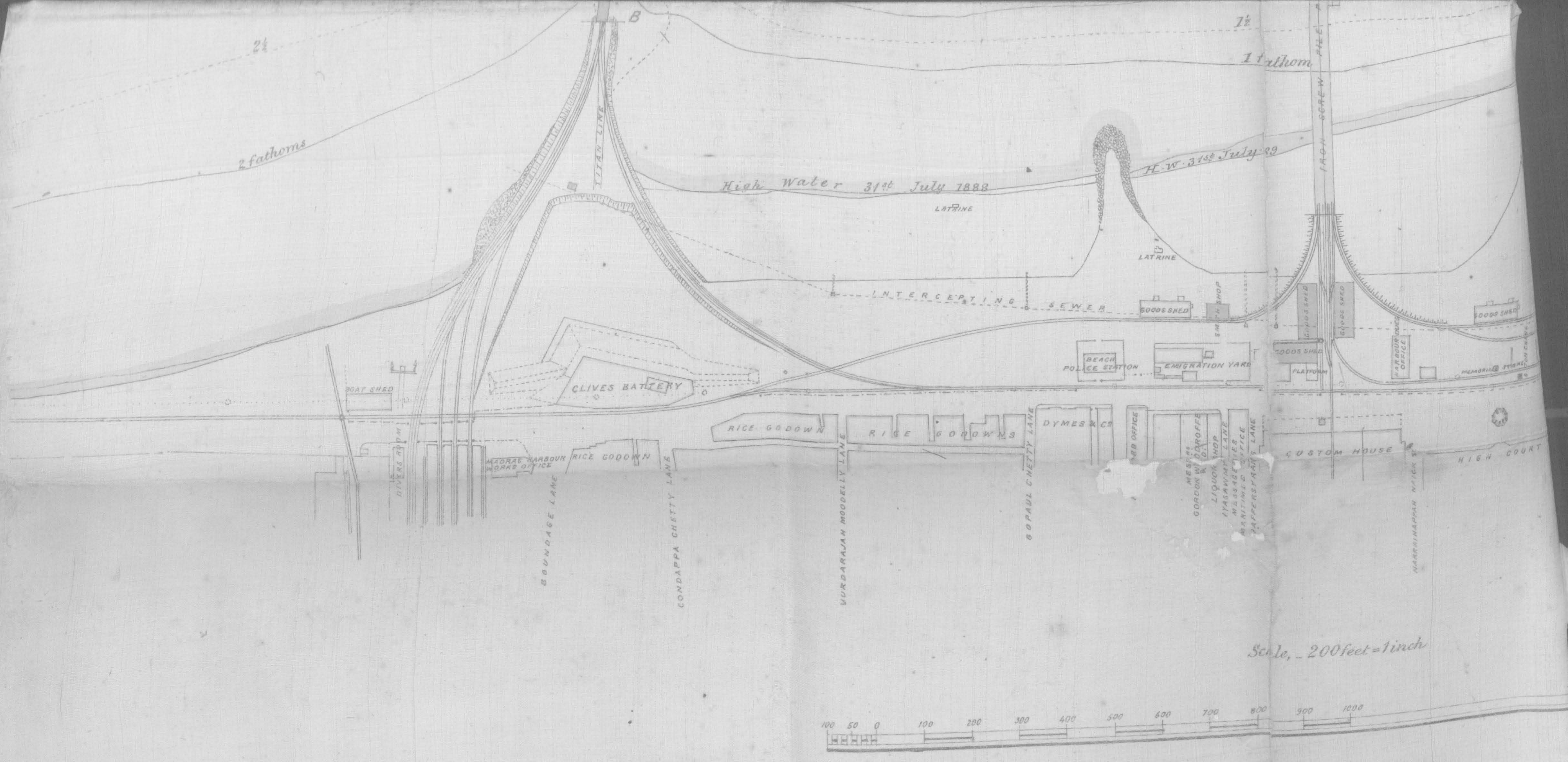
Engineer

Harbour Trust Board.



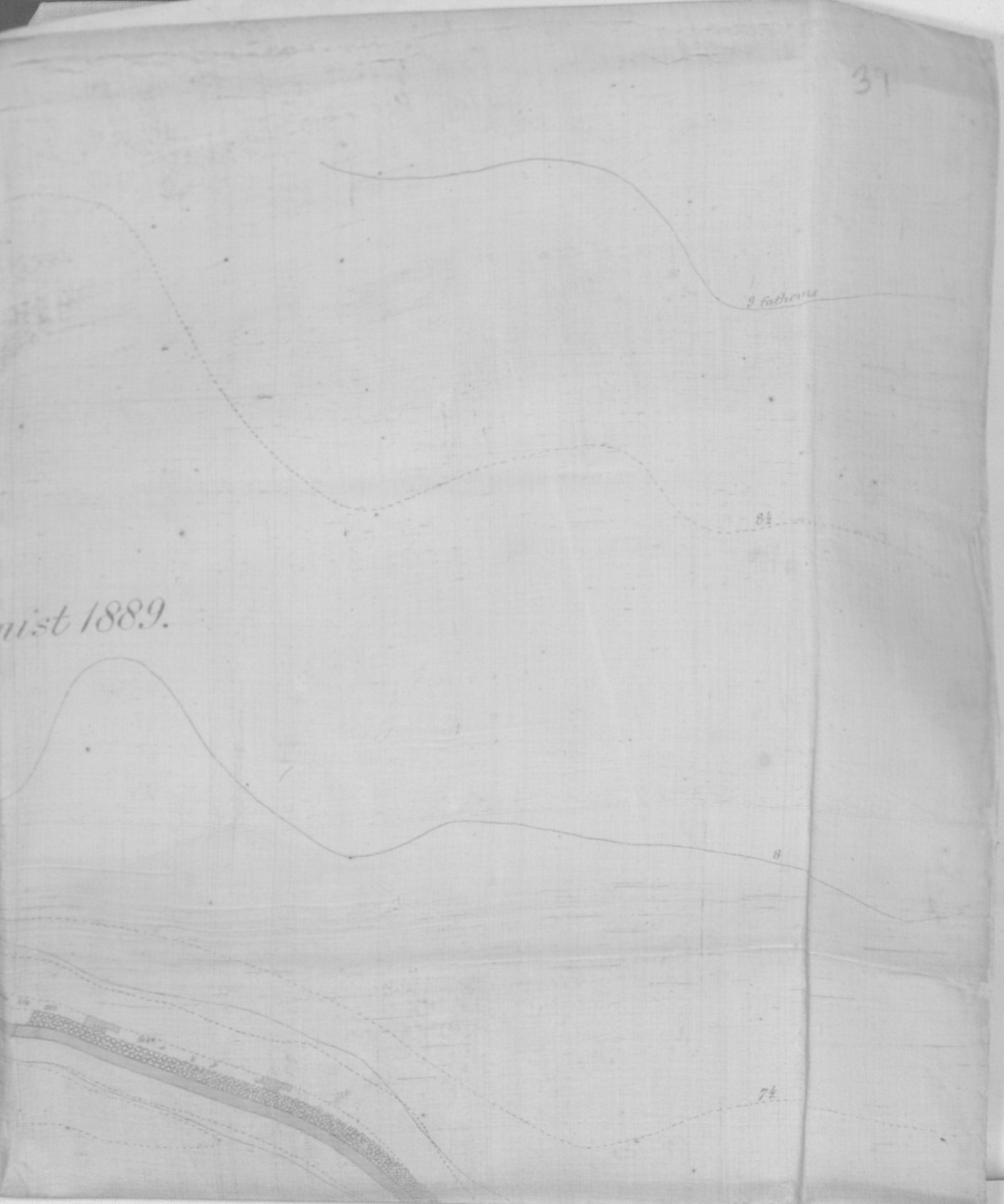
Plan accompanying Progress Report for Au

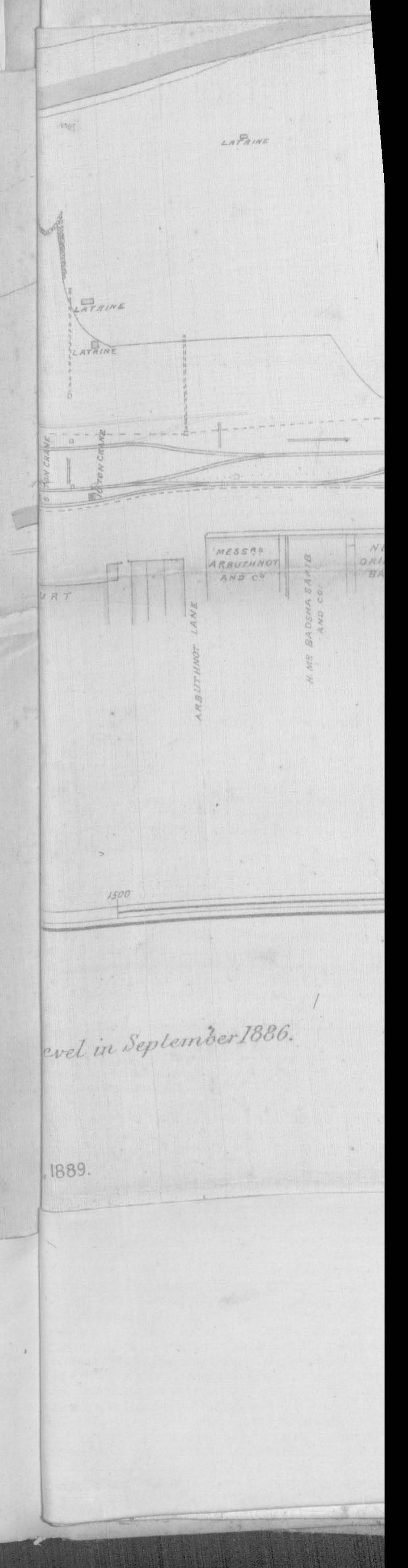

7½
7
6½
6
5½
5
4½
4
3½
3
f
7
6½
6
5½
Magnetic Var. 1° 19'.5 E increasing 31" annually
TRUE NORTH
4½
4
3½
3
2½
2



NOTE _ The Contour lines shew the depths below De Havilland's Mean Sea Level i

LITHOGRAPHED BY THE LAWRENCE ASYLUM PRESS, MADRAS, 1889.


9 fathoms
8½
uist 1889.
8
7½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N
ORI
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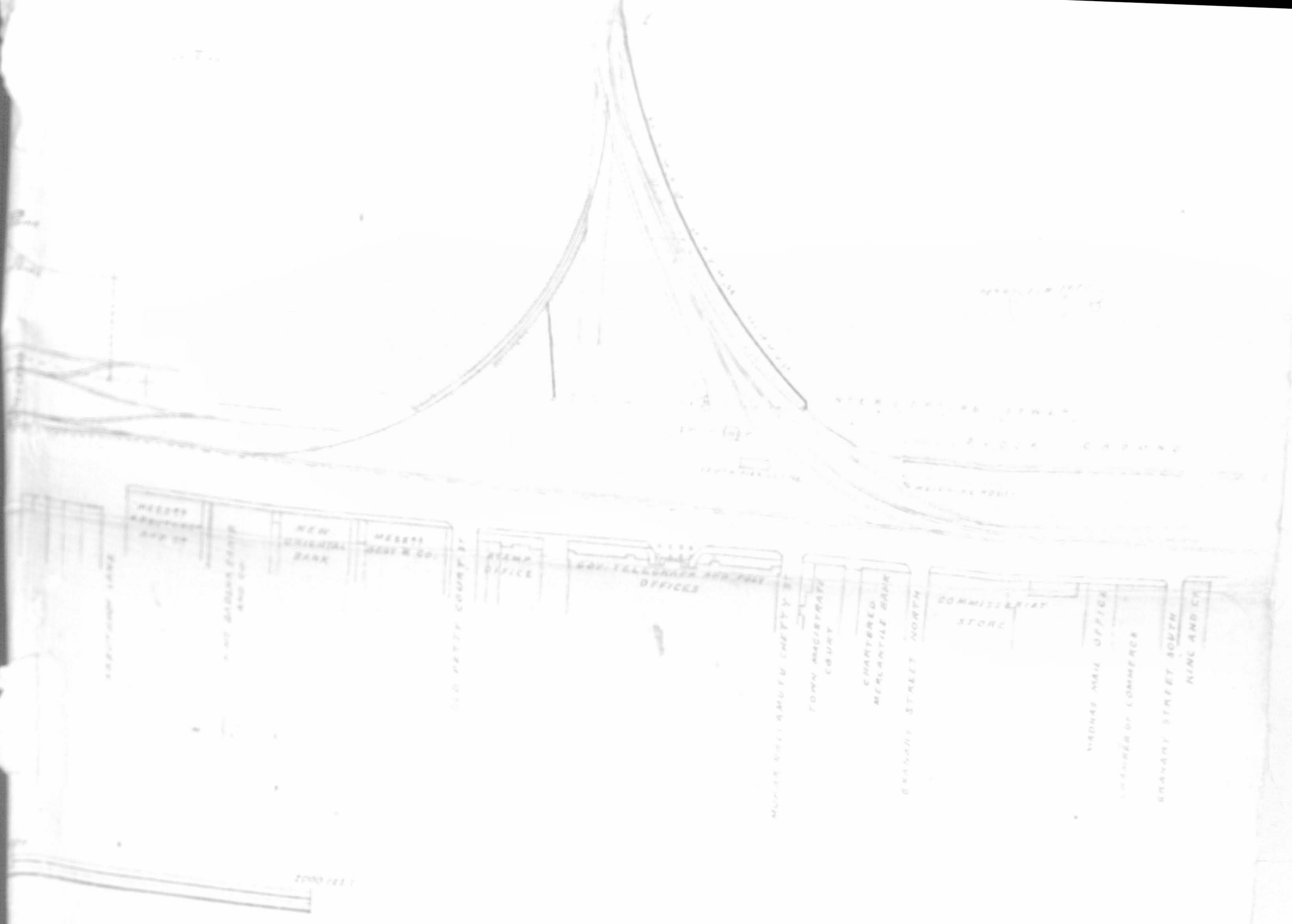
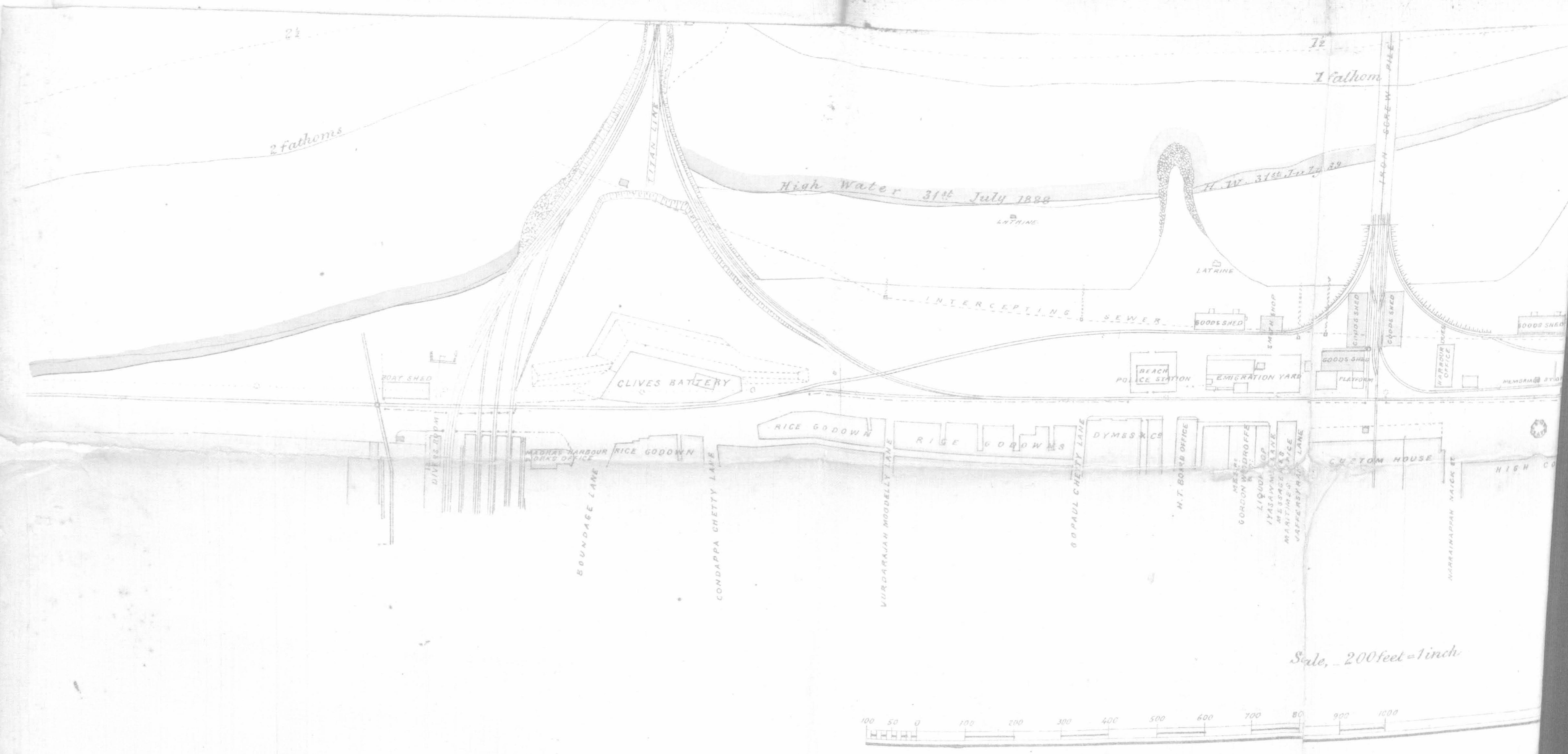
1500
evel in September 1886.
, 1889.

6
Wavebreaker Crane
31st July 68
6½
6
6
5½
5
4½
4
3½
3
2½
2 fathoms
H W 31st July 68
H W 31st July 1868



...September 1886.

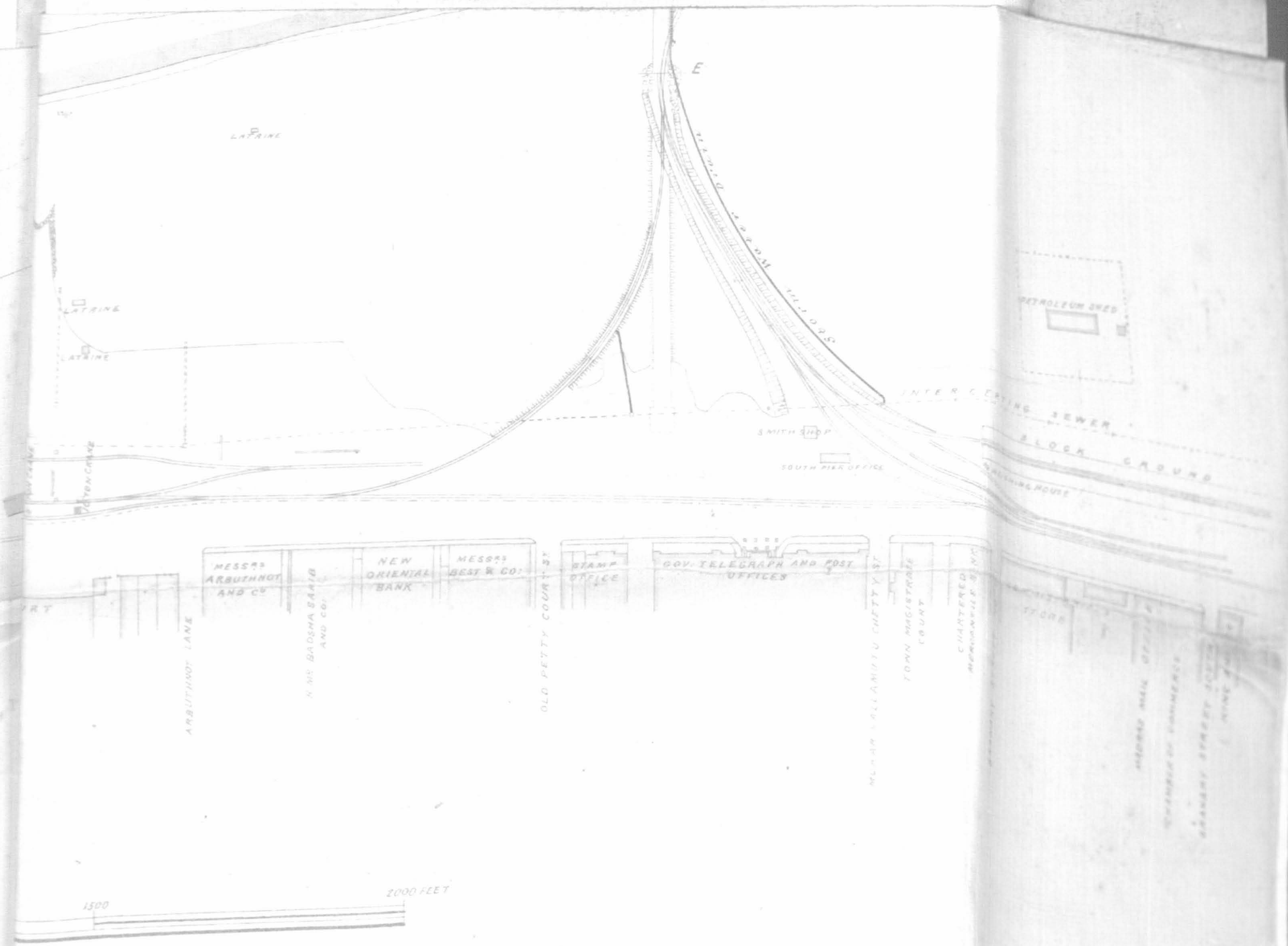
Alex. Payne
Engineer
Harbour Trust Board



Scale, _200 feet = 1 inch

Note _ The Contour lines shew the depths below De Havilland's Mean Sea

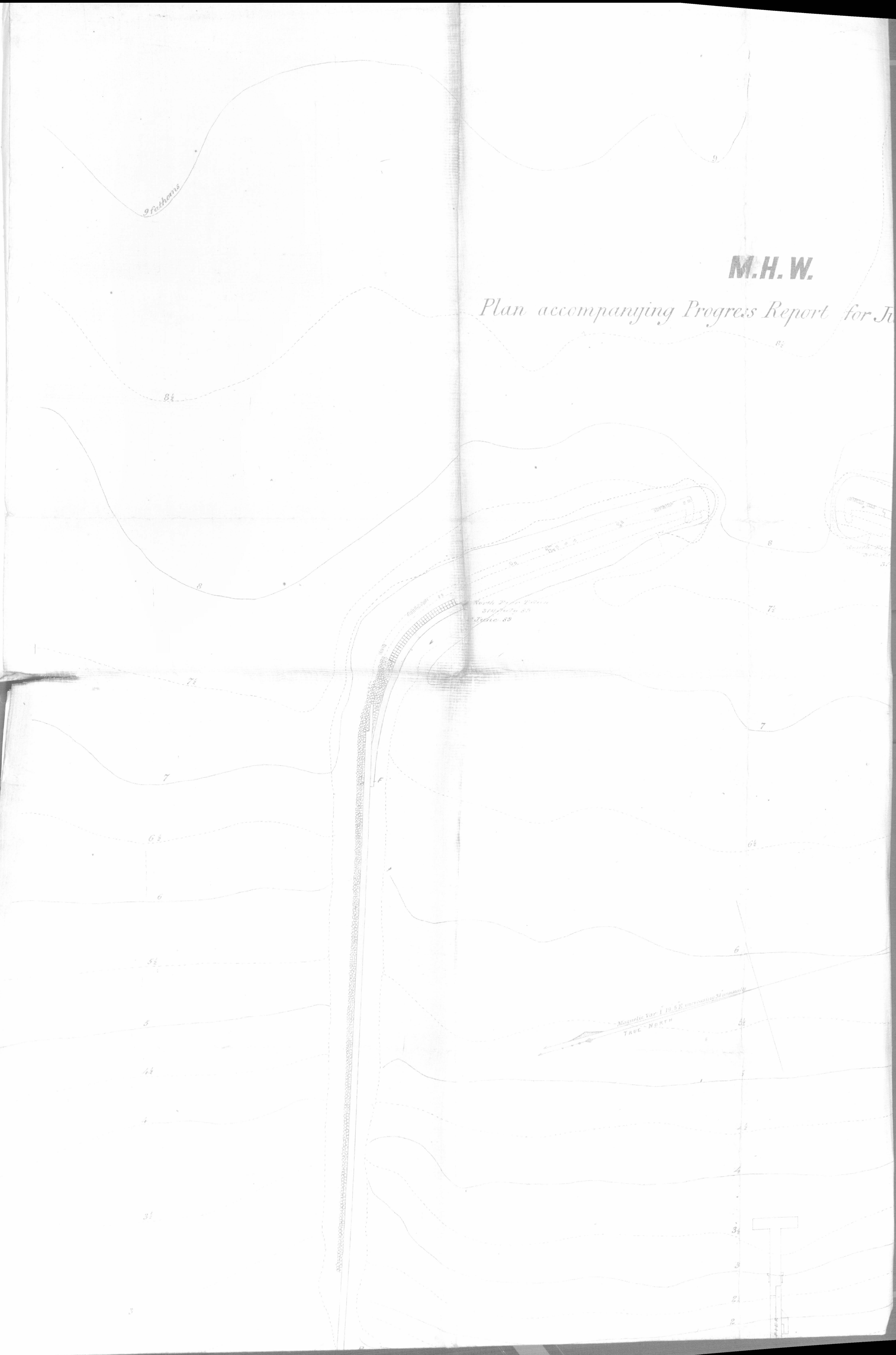
LITHOGRAPHED BY THE LAWRENCE ASYLUM PRESS, MADRA



…evel in September 1886.

…1889.

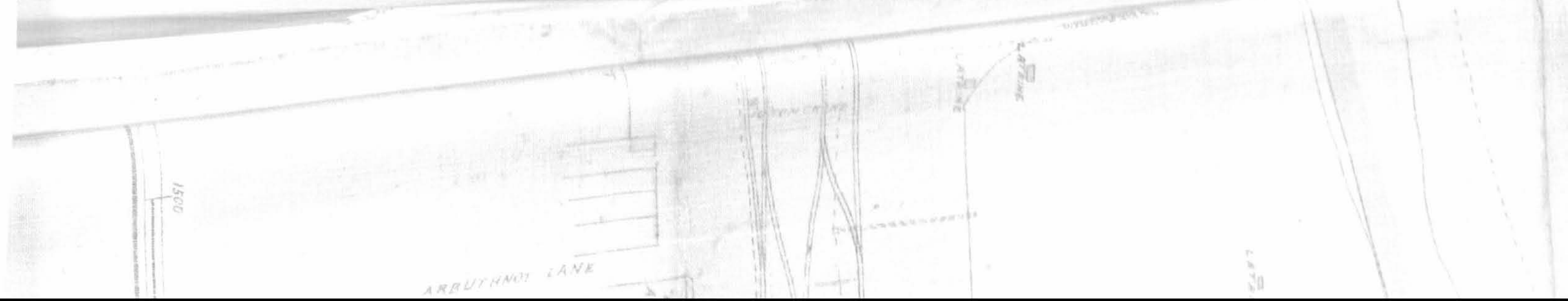
A Lee Pogson
Engineer
Harbour Trust Board.

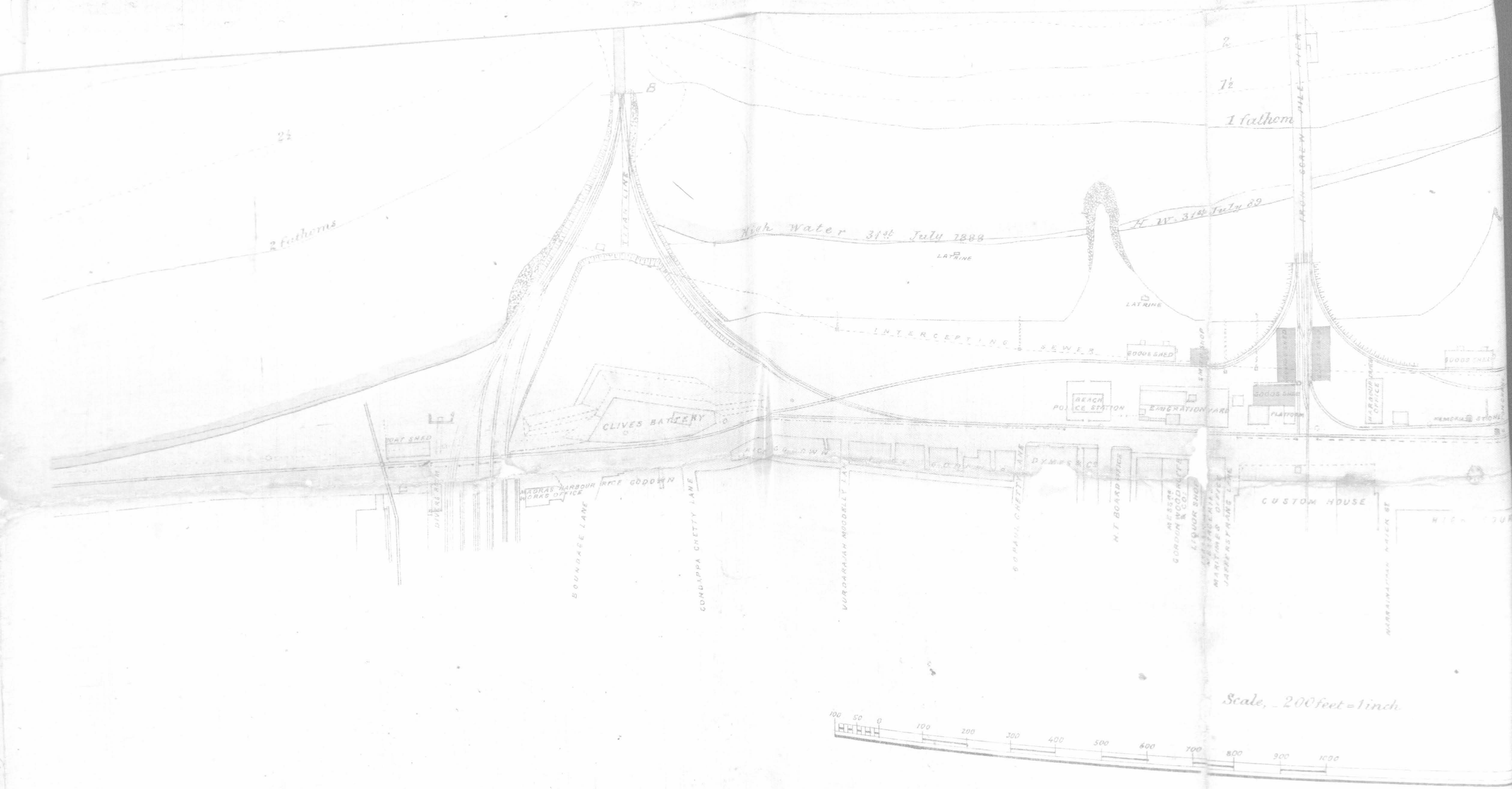


M.H.W.

Plan accompanying Progress Report for Ju

1889.
G
High Water Neap Tides
H.W.M. July 1888
2 fathoms
2½
3
3½
4
4½
5
5½
6
6½
7





NOTE – The Contour lines shew the depths below De Havillands Mean Sea Lev

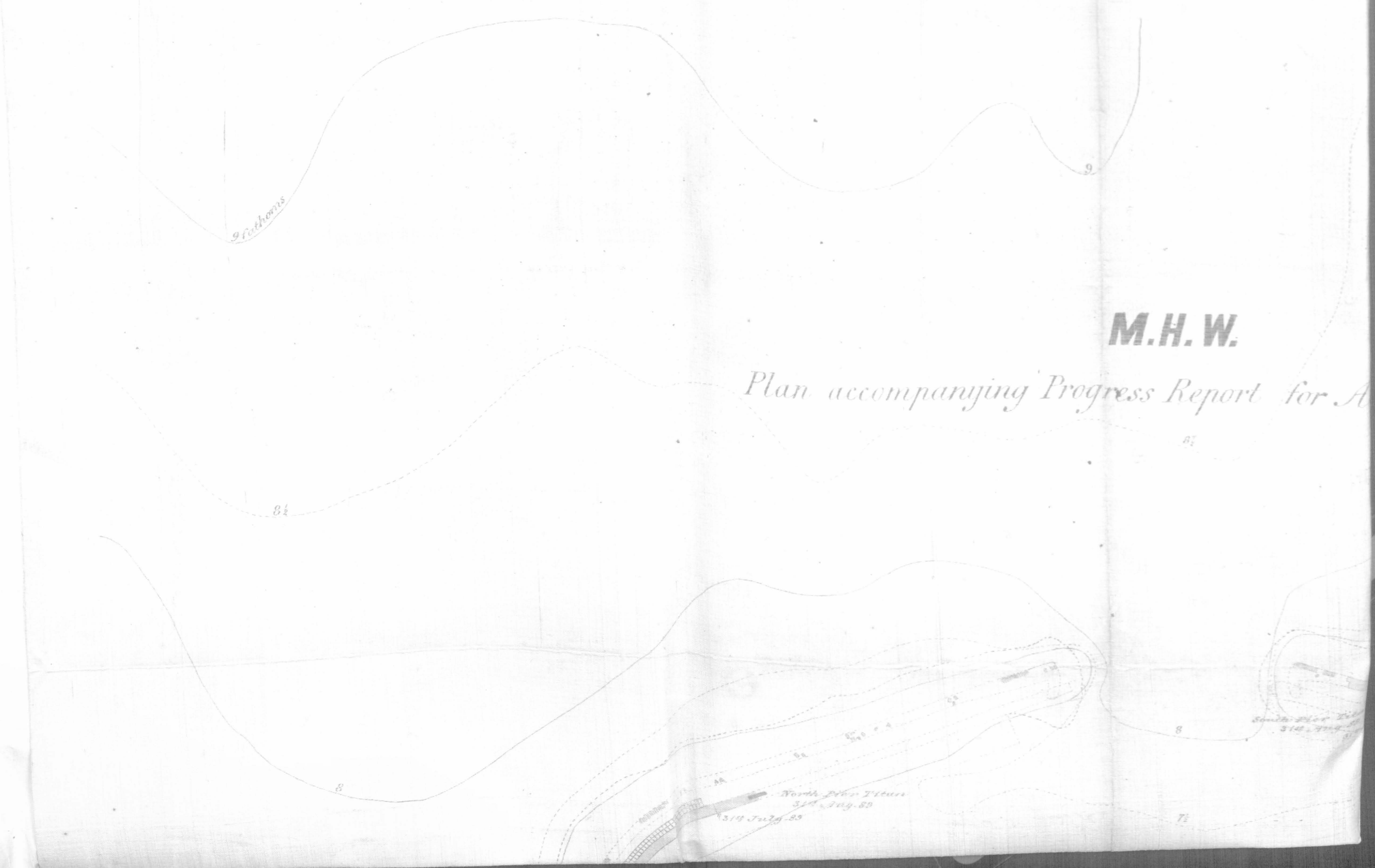
Previous during August 89, shewn in red

LITHOGRAPHED BY THE LAWRENCE ASYLUM PRESS, MADRAS, 18

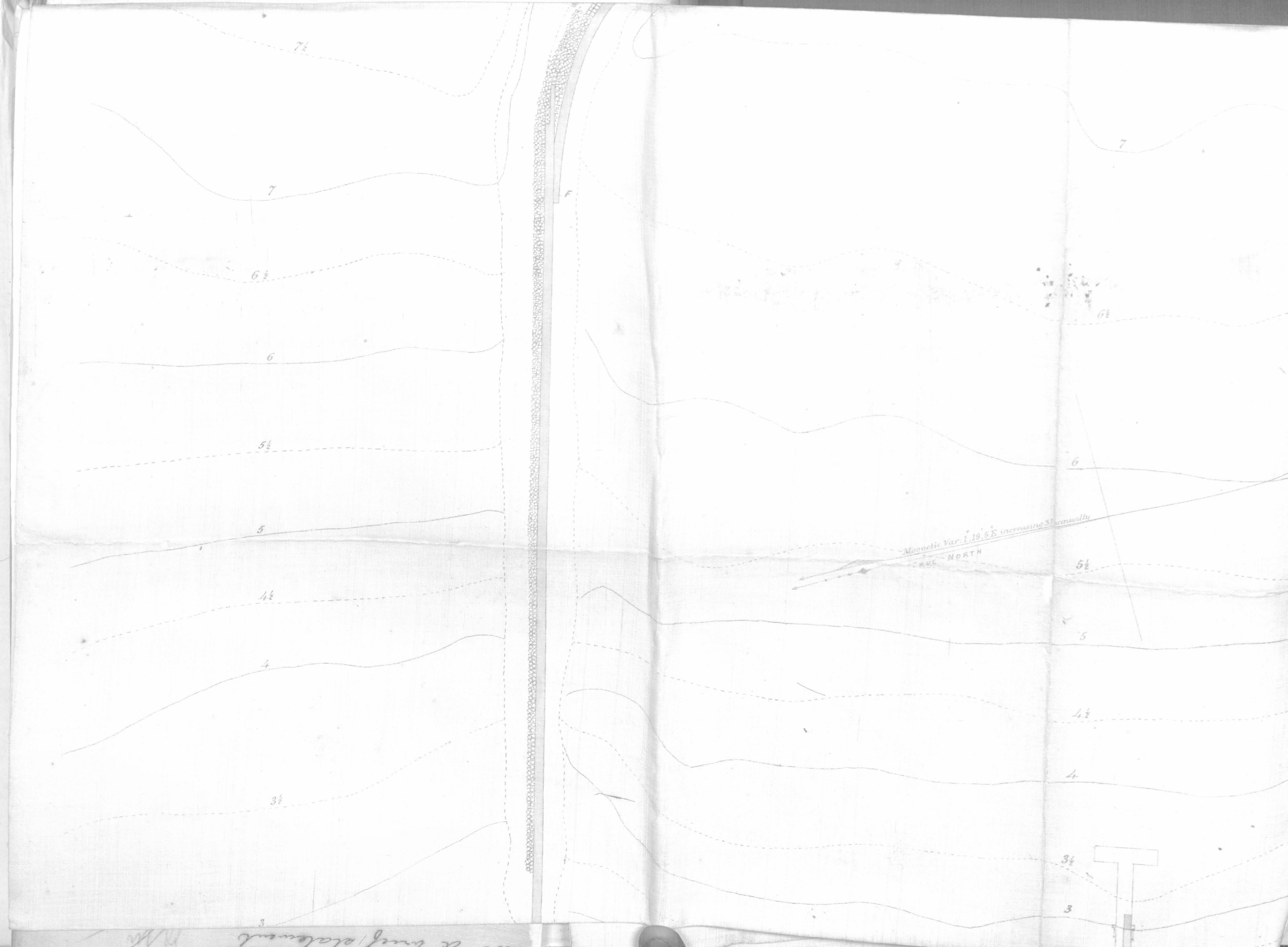
in September 1886.

A.Lee Pogson

Engineer
Harbour Trust Board.



Plan accompanying Progress Report for A


7½
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F
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5½
Magnetic Var: 1.19.5 E increasing 3' annually
TRUE NORTH
5½
5
5
4½
4½
4
4
3½
3½
3
3

No. 479 W

B & R
C. works

PUBLIC WORKS DEPARTMENT.

3rd

PROCEEDINGS OF THE MADRAS GOVERNMENT.

18th February 189

READ the following

From the Chairman M.H.T.Bd. (H.E. No. 307 d/ 28.1.90)
Endorsement thereon in the Marine dept. (" d/ 1.2.90)

Abstract submitting for the information of Govt. progress report upon the Madras Harbour works during the months of July & Augt/89. Recorded.

Kes
13 Feb

2. H.E. the Governor in Council is of opinion that the monthly progress report submitted for the information of Govt. under G.O. No. 1062W dated 18th April 1889 need not be in such elaborate detail as the quarterly report prepared for transmission to the Secretary of State, and

that a brief statement
of the work done during
the month, unaccompanied
by the usual return of
work and statement
expenditure will
sufficient for the
purposes of the Govt.
The Chairman is
requested to submit a form for approval & is
however reminded
that the monthly report,
to be of practical value,
should be submitted
as soon as possible
after the end of the
month to which it
relates.

11.2.90

Harbour Works Progress
Reports

Revised draft order
for approval

Issue

Chairman M.H.T.B.
Marine dept.

1068

Govt. of 18 Madras
PUBLIC WORKS.

Print Book

11th Feby 90 477W.

Madras Harbour Works.

Progress Reports of the — for the months of July & August 1889 Recorded with [illegible]

A. 92 100/6

14/12