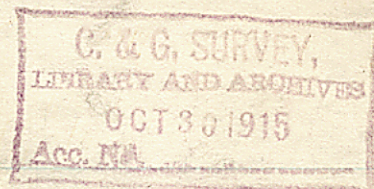


3777



3777a

Diag. Cht. No 1215-1

Form 504

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

State: *New Jersey*

11-5613

DESCRIPTIVE REPORT.

Hyd. Sheet No. *3777 and*
3777a

LOCALITY:

Vicinity of Sandy Hook
and
Vicinity of Scotland
and Ambrose Channel
Light Ship

1915

CHIEF OF PARTY:

F. G. Eagle

3777 & 3777a

U. S. COAST AND GEODETIC SURVEY
Register No. 3777

STATE New Jersey
GENERAL LOCALITY New York Harbor
LOCALITY Sandy Hook
Surveyed by Str. Hydrographer
Chief of Party E. F. Engle
Date June 17 to July 30, 1915
Scale 1:20,000

SOUNDINGS IN FEET
At Mean Low Water

Protracted by S. D., L. P. R.

Soundings plotted by L. P. R.

Inked by

Verified by

The 6 foot curve is shown thus

"	12	"	"	"	"	"
"	18	"	"	"	"	"
"	30	"	"	"	"	"

DESCRIPTIVE REPORT

TO ACCOMPANY HYDROGRAPHIC SHEET NO. ~~3877~~⁷...SCALE 1-20,000

RESURVEY OF AREA, VICINITY OF SANDY HOOK, N. J.

AND

HYDROGRAPHIC SHEET NO. ~~3877~~^{7a}...SCALE 1-40,000

EXAMINATION IN VICINITY OF SCOTLAND AND AMBROSE CHANNEL LIGHT SHIPS

This work was done in accordance with instructions of June 5, 1915 and covers the area outlined in green pencil on copy of chart 369 (lower half) which accompanies this report. The areas outlined in blue are covered by finished surveys by the Army Engineers and those outlined in red are proposed to be done by them also. As the work in the two triangles NE of the hook will probably not be taken up by them for another year, they were also included in the present survey.

A general system of lines was run in a N 15° W (true) direction, spaced, approximately 100 meters apart, to within 2-1/2 miles of Navesink light. From this point down to the latitude of the light the spacing is 200 meters and the work extends out to the five fathom curve. Additional lines were run normal to the first and spaced 1/4 mile apart, as a check upon the accuracy of the soundings. Several developements were made where the first lines were insufficient to properly contour the bottom.

The rolls from the automatic tide gauge at Sandy Hook were available for tabulation so no additional gauge was erected. The gauge was connected by levelling with the Coast Survey Bench Marks by one of which the gauge was originally set. As the gauge readings were not available from day to day and it was considered advisable to plot the reduced soundings upon the boat sheet in order to show deficiencies or discrepancies in the work, the records of soundings were reduced by the Coney Island gauge. Although the tidal constants for the two places as given in the Tide Tables are practically the same, the records of the two gauges during the period June 17th July 31st show that the range was slightly greater at Coney Island, (average .2 ft) The maximum difference in the reduction noted is 1 ft., though it is usually less than 1/2 ft.

The shoreline of Sandy Hook about the north end was observed to have changed since the previous survey and it was accordingly re-run by plane table as far as practicable. In the danger zone to seaward of the proving grounds and forts, it could not be done as gun testing was being carried on continuously during the day. This part was sketched from the ship on the inshore lines. Considerable building up of the point on the NE side is noted, (about 200 mts) also an extension of the hook westward beyond the fog bell of about 200 mts.

SHOALS, CHANNELS, ETC.

No indication of the 16-17 ft. shoal 1 mile SSW of West Bank L.H. was found and the least depth found on the shoal, 2 miles SW X S of the L.H. is 16-1/2 ft., about where 15 ft. is shown, 17 ft. was obtained on the NE end of this shoal where there was 15 ft. In the area between the Main and West channel and Swash channel, the bottom was found to be quite even. A least depth of 13-1/2 ft. was found where 10-1/2 ft. is shown. The soundings obtained on Flynn Knoll

do not differ materially in position or depth from the old survey, 15 ft. was obtained on the SW spit.

Considerable shoaling is revealed $1/4$ to $1/2$ mile west and $1/2$ mile WNW (mag) from the fog bell at Sandy Hook, narrowing the 30 ft. main channel at this point. Shoaler water was found on the False Hook Shoal at a point $1/3$ mile N 10° E, true, from the north range beacon, 10 ft. being found here, which is the least depth. In False Hook Channel the deepest part seems to have filled from 2 to 4 ft. The least water found on the "Oil Spot" east of the Hook is $13-1/2$ ft., instead of 10.

East of Scotland Light Vessel a least depth of ^{45.7}46 ft. was found $1/3$ mile E (true) from the light vessel and another shoal spot with least depth of 48 ft. was found $1-7/8$ mile 110° (true) from the light vessel, where 68 ft. is shown. Large difference in depths between the old survey and this examination are noted.

The least water found in the vicinity of Ambrose Channel Light Vessel is 42 ft., $1/3$ mile 190° (true) from it, where 34 ft. is shown. A wire drag examination would be desirable here to prove the least depth.

SIGNALS AND PROMINENT OBJECTS.

West Bank Light House was relocated by occupying it and computing its position by the three point problem from Coney Ild. Light House, Romer Shoal Light House and Sandy Hook Light House. It was found to have been rebuilt in its former position as determined in 1901. The position of Sandy Hook West Beacon as determined in 1901 was found to disagree with its present position and it was therefore relocated by occupying it and computing its position by the three point problem from Coney Ild. Light House, Old Orchard Light House and Sandy Hook Light House. The black iron chimney of the power station on the

Sandy Hook Reservation, the flag pole of the Spermaciti Cove L.S.S. and the black southern range tower were located by Theodolite cuts from Sandy Hook L.H. and Navesink L.H. and sextant cuts from the ship. The steel observation tower in Steeplechase park, Coney Ild. was cut in by Theodolite from West Bank L.H. and Sandy Hook L.H. and a sextant cut from the ship. This is a square black steel structure about 100 ft. high with a square pyramid top with flag pole, it is quite the most prominent object on the island with the exception of the red gas holders. The tall yellow brick chimney of the Barren Ild. incinerating plant is also a prominent object.

SURVEY METHODS.

Considerable care was taken to obtain accurate soundings, a speed of 3-1/2 or 4 knots was maintained on the lines, though the varying current around Sandy Hook made constant speed difficult and interfered with even spacing of the lines. The soundings were all taken from the ship and as often as practicable.

Attention is called to the fact that errors were made in plotting the cuts on signal Flag, Stack and Tower and that the positions using these objects were plotted before the location of the objects was checked. This portion of the work should be replotted.

In joining the positions the course the ship most probably took has been drawn in pencil, the record showing the actual point at which the changes of course occurred. This is absolutely necessary, as on account of the slow speed of the ship compared with the strength of the current and its variations, the courses were often changed by large amounts, in many cases two and three points, in order to keep lines spaced well and to avoid re-running too many splits.

Respectfully submitted,

F. Y. Engle

Assistant, U. S. Coast and Geodetic Survey.

STATISTICS OF HYDROGRAPHY

AMBROSE CHANNEL

TO ACCOMPANY SHEET NO.....

DATE	LETTER	VOL	POSITIONS	SOUNDINGS	MILES	BOAT USED
June 17,	A	1	51	385	9.0	HYDROGRAPHER
" 21,	B		160	1136	32.0	"
" 22,	C		108	569	18.4	"
" 24,	D		62	317	9.4	"
" 24,	D	2	140	1073	26.0	"
" 26,	E		38	274	6.0	"
" 26,	F	2	69	517	11.6	"
" 28,	F	3	11	73	2.0	"
" 29,	G		98	594	11.5	"
" 30,	H		71	382	11.0	"
Jul. 1,	J		195	908	26.0	"
" 1,	J	4	20	116	3.0	"
" 7,	K		73	491	13.0	"
" 14,	L		83	583	15.3	"
" 15,	M		91	617	19.0	"
" 16,	N		40	252	8.0	"
" 16,	N	5	50	404	10.0	"
" 17,	O		103	706	20.5	"
" 20,	P		162	1059	27.0	"
" 21,	Q	6	51	297	9.0	"
" 22,	R		120	761	20.7	"
" 23,	S		138	909	24.5	"
Forwarded,			1,865	11,906	321.3	

DATE	LETTER	VOL	POSITIONS	SOUNDINGS	MILES	BOAT USED
Forwarded			1,865	11,906	321.3	
Jul. 23,	S	7	10	65	2.2	HYDROGRAPHER
" 27,	T		161	867	27.0	"
" 30,	U		124	673	17.0	"
Totals:-			2,160	13,511	367.5	

VEC

Dec. 22, 1915

*E. P. S.
H. C. G.*

HYDROGRAPHIC SHEET 3777.

Vicinity of Ambrose Channel, New York Bay, N.Y., by
Asst. F. G. Engle in 1915.

TIDES.

	Coney Island ft.
Low water of U.S. Army Engineers, plane of reference on staff	0.4*
Lowest tide observed	-0.7
Highest " "	9.1
Mean range of tide	4.7

*The U.S. Engineers low water to which the soundings on this sheet were reduced is 0.7 foot lower than the best determination of mean low water by this Survey.

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STATISTICS OF HYDROGRAPHY

VICINITY OF AMBROSE LIGHT VESSEL

AND

SCOTLAND LIGHT VESSEL

TO ACCOMPANY SHEET NO...3777^a...

DATE	LETTER	VOL	POSITIONS	SOUNDINGS	MILES	BOAT USED
Jul.9,	A	1	102	280	17.0	HYDROGRAPHER
" 19,	B		97	217	11.0	"
" 21,	C		65	216	14.0	"
Totals:-			284	713	42.0	

Place with descriptive report
of hydrographic sheet No. 3777 Hyd Sheet No 3777

Drawing Section.

Within the limits of the work, the ground is thoroughly covered and the soundings cross very well.

The shoal spot just south west of West Bank L. H., is not shown on the chart and the work should have been extended far enough to define its limits.

As the position of signals Flag, Stack and Tower was changed slightly, the positions controlled by them were reprotracted.

R. L. Johnston

Soundings shown in feet.

Protracted by S. D. & L. P. R.

Plotted by L. P. R.

Verified and inked by R. L. J.

Hyd. Sheet No. 3777^a

The two areas examined seem to have been closely covered and the soundings cross very well.

The line from pos. 66 B to pos 78B, which was questioned in the record, was not rerun. As it agrees very well with the other work, it was shown on the sheet.

R. L. Johnston

Soundings shown in feet.

Protracted by P. F. Benedict.

Soundings plotted by E. S. Walker.

Verified and inked by R. L. Johnston.

Date	Chart	Name
5-21-69	544	HR