

4286

Diag. Cht. No. 1227

Form 504	
DEPARTMENT OF COMMERCE	
U. S. COAST AND GEODETIC SURVEY	
State: <i>Virginia</i>	
11-5613	
DESCRIPTIVE REPORT.	
Hyd.	Sheet No. <i>4286</i>
LOCALITY:	
<i>Coast of Virginia</i>	
<i>Lat. 36° 30' to Virginia Beach</i>	
1922	
CHIEF OF PARTY:	
<i>E. R. Hand</i>	

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HYDROGRAPHIC
SALINITY
GEODETIC

JUN 25 10 48 AM '23

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEET NO. 1.

APPROACHES TO CHESAPEAKE BAY -

SOUTH OF CAPE HENRY - VIRGINIA.

SEASON OF 1922.

- STEAMER RACHE -

EOLINE R. HAND,

HYDROGRAPHIC AND GEODETIC ENGR.

COMMANDING.

OFFICE
LIBRARY
MAGNETIC

DESCRIPTIVE REPORT

to accompany

4286

HYDROGRAPHIC SHEET NO. 1.

APPROACHES TO CHESAPEAKE BAY

SOUTH OF CAPE HENRY, VIRGINIA.

SEASON OF 1922.

STEAMER RACHE

EOLINE R. HAND, H. & G. ENGR. COMMANDING.

LIMITS.

The work on this sheet was performed under the Director's Instructions dated June 2, 1922. The sheet extends from Latitude 36 - 50 on the North, where it joins work of previous seasons, to Latitude 36 - 30 on the South, approximately near Coast Guard Station No. 166 (new). It extends from inside the 12 foot curve offshore to a junction with the P.D.R. sheet, at the limit of visibility of signals, approximately fourteen miles offshore.

The scale is 1:40,000.

METHOD AND CONTROL.

Signals for use in Hydrography were located by means of a planetable-tape traverse. The entire beach within the limits of this sheet is sand, level and almost unbroken. The method of measuring distance by means of a hundred meter wire was, therefore, very rapid and accurate. The traverse began at Δ Waverly at Virginia Beach and extended southward for almost twenty four miles to Coast Guard Station No. 166 (new), Δ Tow. This traverse was run piecemeal as the hydrography progressed and new signals were required. On one occasion it became necessary to locate signals by sextant cuts, all of them being rather acute. These were later located by the planetable traverse. As a result of the discrepancy between these two positions and the final triangulation station, on the smooth sheet there are a number of "splits" on the smooth sheet. These occurred in the vicinity of Latitude 36-43, Longitude 75-50 on August 2, 1923, "E" day, when Signals REC and FOR, later triangulation stations, were used with sextant locations.

Later, at the close of the season, all of the larger ship signals were located by the primary traverse of another party. This final location of the signals showed the original planetable traverse to have been but 125 meters in error at TOW, which was well within the allowed error for such work. In general this error was uniform and proportional thruout the work. The final locations were plotted on the smooth sheet and the planetable traverse locations adjusted.

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Buoys of the single barrel type were planted two or three miles beyond the usual visibility of shore signals. On rare, unusually clear days it was possible to get shore fixes at the buoys, and that method was utilized to locate a few buoys. The majority of the buoys were located by cuts from the ship at anchor. Several were located by using other buoys in the fix. Signal FALSE, a gas buoy off False Cape, was used several times in such fixes. Naturally there is an appreciable difference between smooth sheet and boat sheet locations of the buoys under that method. That difference has resulted in a few "splits" at the outer edge of the sheet where buoys were used in that fix.

The ship did all the work to five or six fathoms, which was about three-fourths of a mile off the beach. The launch finished the work from here inside of the twelve foot curve.

Lines were run in accordance with the instructions, in an east and west direction, $\frac{1}{4}$ mile apart to ten fathoms, and $\frac{1}{2}$ mile apart from ten fathoms to the edge of the sheet. North and South lines were run at two mile intervals. The crossings were satisfactory and within the prescribed limits.

SHOALS AND DEVELOPMENT.

All suspicious soundings were investigated and shoals were developed. The most extensive development was done off False Cape where shoal soundings are shown on the chart. Nothing appreciably different from the chart was found. The other developments were very small and disclosed nothing of any importance. About three miles east of Signal NU a shoal of 29 feet was found with 47 feet inside. About 5 miles east of the same signal another shoal with 32 feet was found.

BOTTOM.

The bottom is in general lumpy. In places there are lumps with from two to three fathoms less water than is found nearby.

TIDE GAUGES.

An automatic tide gauge was maintained at Fisherman's Island through out the work. An additional staff was set up at coast Guard Station 163 for a while.

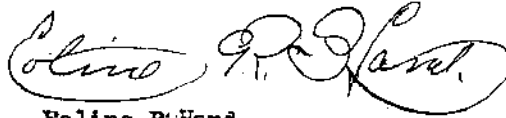
It was replaced by a second staff at False Cape Coast Guard Station. This staff was destroyed by a storm. The automatic gauge at Fisherman's Island was then used for about ten days work on this sheet. Most of this was offshore work on the buoys.

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CONCLUSION.

The work on this sheet is finished in accordance with the instructions. No further development is required.

Respectfully Submitted,



Eoline R. Hand,
Commanding.

APPROACHES TO CHESAPEAKE BAY—SOUTH OF CAPE HENRY, VIRGINIA.

STR. BAGHE EOLINE R. HAND COMDG.

Date 1922	Letter	Volume	Positions	Soundings	Miles Statute	Vessel
July 21	A	1	159	682	59.5	Ship
" 22	B	1	87	341	36.2	"
" 27	C	1 ¹ / ₂	150	575	47.4	"
" 28	D	2	133	610	39.7	"
Aug. 2	E	2	122	424	36.7	"
" 3	F	2 ¹ / ₃	65	304	23.0	"
" 4	G	3	133	495	44.0	"
" 10	H	3	24	70	4.8	"
" 15	J	3	65	299	23.0	"
" 17	K	3 ¹ / ₄	193	743	65.5	"
" 19	L	4	89	314	29.5	"
" 22	M	4	127	445	40.0	"
" 23	N	4 ¹ / ₅	87	576	25.6	"
" 25	P	5	66	384	29.5	"
" 30	Q	5	85	290	27.0	"
" 31	R	6	205	817	60.0	"
Sept. 1	S	6	13	39	3.6	"
" 5	T	6	7	27	1.0	"
" 6	U	6	26	109	10.3	"
" 7	V	7	116	321	32.0	"
" 8	W	7	103	259	26.0	"
" 12	X	7	38	119	9.0	"
" 16	Y	7	57	298	27.5	"
" 27	Z	8	97	344	29.6	"
" 28	A'	8	156	603	54.0	"
" 29	B'	8	19	73	6.0	"
Oct. 6	C'	8	64	230	23.0	"
" 12	D'	9	165	457	54.3	"
" 25	E'	9	45	152	16.5	"
" 26	F'	9	22	58	6.2	"
" 27	G'	9	155	465	52.0	"
" 31	H'	10	26	74	7.0	"
Nov. 1	K'	10	130	435	44.6	"
" 2	L'	10	146	504	48.0	"
" 3	M'	10 ¹ / ₁₁	105	306	33.0	"
Aug. 3	a	1	147	760	27.7	Launch
" 8	b	1	29	163	5.0	"
" 18	c	1 ¹ / ₂	155	660	30.0	"
" 24	d	2	11	74	2.2	"
" 25	e	2	40	272	9.2	"
" 30	f	2	139	716	23.4	"
TOTAL			3821	14887	1172.5	

(See next sheet)

SOUNDINGS IN FEET

4286

PLANE OF REFERENCE = MEAN LOW WATER

Automatic Tide Gauge at Fishermans Island, Virginia

For location of tide staffs and all tidal data see
tidal data submitted to office, L.T.S. March 31, 1923
by Commanding Officer, Steamer BACHE.

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Report on Verification & Sinking H. 4286.

This sheet lies between lat. $36^{\circ}30'$ and Virginia Beach and extends offshore about 14 miles. It is entirely controlled by three point fixes; the shore objects were supplemented by buoys which were used as objects beyond the visibility of shore objects.

The records were excellent and the notes were satisfactory. The protracting was generally good with two exceptions. First; there were sufficient instances to be conspicuous where an error of one or five degrees was made in setting one of the observed angles on the protractor. This fault may be corrected by using greater care in protracting. Second; several mistakes were made in plotting positions where either signal PON or TOW was used as the left object, one being wrongly used for the other frequently enough to warrant criticism. The above remarks are not to be assumed as a reflection on the entire plotting for as a whole it was good, as mentioned above, but these two points are brought out to improve the sheets, in this respect, in future surveys.

The replotting of signals A, B, & C in the offices from cuts gave slightly different locations for these buoys but the effect on plotted positions was so small that it did not require the changing of the field locations of the buoys.

The area was well covered and crossings were excellent for a bottom as lumpy as this one is.

Frank M. Albert,
Draftsman, Section of Field Records

Sept. 14, 1923.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
WASHINGTON

October 26, 1923.

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4286

Coast of Virginia

Surveyed in 1922.

Instructions dated June 2, 1922.

Chief of Party, E. R. Hand.

Surveyed by party of Steamer BACHE.

Protracted by D. S. Ling

Soundings plotted by D. S. Ling and F. Lerner.

Verified and inked by F. M. Albert.

1. The records conform to the requirements of the General Instructions.
2. The plan and character of development fulfill the requirements of the General Instructions.
3. The plan and extent of development satisfy the specific instructions.
4. The sounding line crossings are adequate.
5. The information is sufficient for drawing the curves, except in the area where the lines are one-half mile apart where difficulty was experienced in drawing the curves accurately owing to the space between the lines. The bottom in this locality appears to consist of narrow ridges which would require a close development to completely reveal them.
6. The field plotting was completed to the extent prescribed by the General Instructions. On the whole the plotting was good, but there were a number of cases where mistakes of one or 5 degrees were made in setting the observed angles on the protractor, and in several instances wrong signals were used in plotting.

7. The junction with adjoining surveys to the northward is excellent. The sounding lines from the contemporary dead reckoning survey (H. 4255) show numerous discrepancies in crossings that are in excess of allowable differences. A more correct delineation of the curves than is possible would probably eliminate many of the apparent discrepancies.
8. This survey disproves the existence of the 24 P.D. sounding shown on the charts in Latitude $36^{\circ} 45-1/2'$, Longitude $75^{\circ} 53'$. By direction of chiefs of Field Records and Drafting Sections the 24-foot sounding should be omitted from the charts.
9. A poor grade of roll paper was used for this sheet, contrary to the orders to all field parties, although the standard Whatman's paper is sufficiently large for this survey.
10. No further surveying is required within the area of the sheet.
11. The character and scope of the surveying and field drafting are excellent.
12. Reviewed by E. P. Ellis, September, 1923.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

The finished Hydrographic Sheet is to be accompanied by the following title sheet, filled in as completely as possible, when the sheet is forwarded to the Office.

U. S. Coast and Geodetic Survey.

4286

Register No.

State . . . ~~Virginia - North Carolina~~

Coast of Virginia

General locality . ~~Approaches to Chesapeake Bay~~

Lat. 36'30" to Virginia Beach

Locality . . . ~~South of Cape Henry, Virginia~~

Chief of party . . . ~~Holine R. Hand, H.& G.E.~~

Surveyed by . . . ~~Steamer Bache~~

Date of survey . . . ~~July 21, 1922 - Nov. 3, 1922~~

Scale 1:40,000

Soundings in . . . Feet

Plane of reference . . . Mean Low Water

D.S. Ling

Protracted by D.S. Ling. . Soundings in pencil by F. Larner.

Inked by *J.M. Albert* . Verified by *J.M. Albert*

Records accompanying sheet (check those forwarded):

2 Des. report, 1 Tide books, ~~---~~ Marigrams, 2 Boat sheets (1 ship, 1 launch)

13 Sounding books, ~~---~~ Wire-drag books, ~~---~~ Photographs.

Data from other sources affecting sheet 2 copies of Statistics
3 Topographic Sheets,
1 Angle Book.

Remarks: All tidal data has been sent to U.S.C. & G.S.
Office, Washington D.C. See L.T.S. March 31, 1923.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

TOPOGRAPHIC TITLE SHEET

The finished Topographic Sheet is to be accompanied by the following title sheet, filled in as completely as possible, when the sheet is forwarded to the Office.

U. S. Coast and Geodetic Survey.

To accompany Hyd. Register No. **4286**

State . . . ~~Virginia - North Carolina.~~
Coast of Virginia

General locality . ~~Approaches to Chesapeake Bay.~~

Locality . . . ~~South of Cape Henry, Virginia Beach~~
Lat. 36°30' to

Chief of party . **Eoline R. Hand.**

Surveyed by . **L.O. Stewart, C.H. Wright, L.B. Clore.**

Date of survey . **July - October 1922**

Scale **1:40,000**

Heights in feet above

Contour interval feet.

Inked by Lettered by

Records accompanying sheet (check those forwarded): Photographs,

Descriptive report, Horizontal angle books, Field computations,

Data from other sources affecting sheet

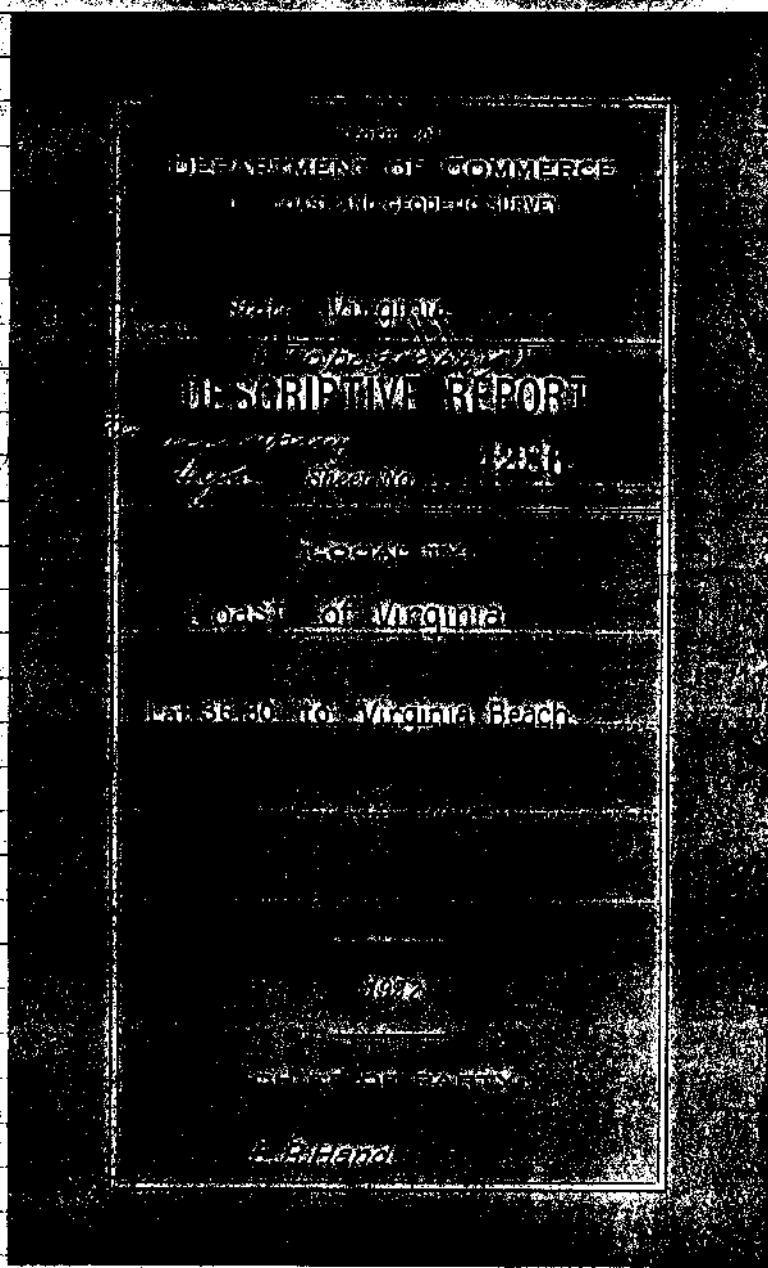
Remarks:

3 Topographic Sheets made to locate intermediate signals between triangulation stations for use of hydrographic party, Str. Bache, Season 1922: Approaches to Chesapeake Bay, South of Cape Henry, Virginia.

4286

G. S. D. SURVEY
JUN 27 1973

4286



DESCRIPTIVE REPORT
TO ACCOMPANY
3 TOPOGRAPHIC SHEETS

4236

STEAMER MACHE
APPROACHES TO CHESAPEAKE BAY
SOUTH OF CAPE HENRY VIRGINIA

SEASON 1922

A plane table traverse was run, July - October, 1922 for the purpose of locating signals to be used by Str. MACHE and launch party doing hydrography, south of Cape Henry, Virginia.

The more important signals were further located at a later date by a precise traverse run under the direction of another party (Mr. Raynor in Charge)

The three topographic sheets accompanying this report, show the plane table traverse and the signals as located by this traverse.

In plotting the smooth hydrographic sheet of this area, the location of the principal stations were plotted in accordance with data furnished by U.S.C. & G.S. Office, Washington D.C. which was derived from the precise traverse.

The positions of all intermediate signals were derived from the plane table traverse as shown on the accompanying topographic sheets.

No attempt was made to make complete topographic sheets as their only purpose was to locate these signals for the ships hydrographic parties.

Respectfully submitted



Coline R. Hand,
Commanding.