

4904

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Form 504 Ed. June, 1928	
DEPARTMENT OF COMMERCE U. S. COAST AND GEODETIC SURVEY E. Lester Jones , Director	
State: <u>South Carolina</u>	
C. & G. SURVEY L. & A. JUL 5 192 Acc. No.	
DESCRIPTIVE REPORT	
Topographic Hydrographic	} Sheet No. 2 4904
LOCALITY	
Wando River	
Vicinity of Charleston	
Wando River, Beresford Creek to Holbeck Creek	
19 28	
CHIEF OF PARTY	
R. F. A. Studds	

4904

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEET

- No. 2 -

February 10 to March 23, 1928. Wando River, Vicinity of Charleston, S.C.

Launch ELSIE, R.F.A.Studds, in Charge. Instructions dated Dec. 17, 1927.

INTRODUCTION:

This is the second of five sheets on a scale of 1:5,000, covering a survey of the Wando River. The sheets begin at a junction with the limit of H2190 and T2163 in the vicinity of Beresford Creek, and end in the vicinity of Woodville, about 1 mile from Ward's Bridge, which marks the end of the river.

The five sheets join each other and are laid out so that they will include the creeks bordering the river.

This sheet extends from the east side of Beresford Creek entrance to the north side of the entrance to Holbeck Creek.

GENERAL:

The party operated from the Launch ELSIE, using Charleston as a base for supplies. A berth was obtained at Cainhoy, about 2 miles north of the northern limit of this sheet, and the Launch would ^{be} there at night. Sounding was done from small boats.

SURVEY METHODS:

CONTROL was furnished from a scheme of third order triangulation extended up the Wando River from the line Francis Marion-Remly, in the vicinity of Charleston. Hydrographic signals were located by theodolite cuts from the main scheme stations and the cuts were plotted directly on the boat and smooth hydrographic sheets. Sextant cuts were taken to several of these signals and are recorded in the sounding record. One station, "Dam", was located on the boat sheet and this location transferred to the smooth hydrographic sheet.

TOPOGRAPHY was not done on a separate topographic sheet, but was executed directly on the boat hydrographic sheet. It was planned to use the topography on the Geological Survey Quadrangles, "Fort Moultrie", and "Wando". Paragraph 5, Instructions 10-LE, dated December 17, 1927, contained the provision that any necessary revision of these quadrangles could be executed on the boat or smooth hydrographic sheets. It was found that the shoreline disagreed by such an amount that it was necessary to rerun it entirely. This was done by a combined use of the plane-table and sextant, and by references from the hydrographic survey.

Topographic features, other than the shoreline, were not verified, as it is believed the Geological Survey is sufficiently accurate to chart these. Foster Creek and Holbeck Creek were surveyed as far as "fixes" were available and the remainder of the creeks transferred from the Geological Survey Maps.

HYDROGRAPHY: Diagonal lines, in the Wando River, did not give a sufficiently close development and this system was abandoned in favor of crosslines. The channels as located by these crosslines were developed by running lines parallel to their axes. Because of the short length of some of the lines, more fixes than are usually taken, were necessary.

Soundings taken in Foster and Holbeck Creeks, beyond the limit of fixed positions, were located by noting the time abeam recognizable features, such as bends, points, indentures, etc. Only sufficient soundings were taken that would indicate the depths in the creeks. No effort was made to develop any channel or shoal.

TIDES: For the reduction of soundings in the area confined to this sheet, a portable automatic tide gauge was installed at Cainhoj on the Wando River. A comparison was made between this gauge and the primary tide station maintained at Charleston, S.C.

Because of the remoteness of the gauge from the area surveyed and because of the difference in lunital intervals between the two gauges, a time correction of 17 minutes earlier was applied to the readings on the Cainhoj gauge and a ratio of ranges of 0.9 was used.

RESULTS:

A careful transfer was made of the topography from the boat to the smooth hydrographic sheet, due consideration being given to the distortion of the former. Shoreline shown by a solid black line is the portion surveyed by this party and shoreline represented by a broken black line has been transferred from Geological Survey maps.

Several disagreements are noted in "crossings". The first sounding before Position 7A of 14', and the first sounding after Position 7A of 15', appears to be one fathom too shoal. These were obtained on the first day of sounding and may be explained by the lack of practice of the leadaman. Several soundings on subsequent days, near the 14' sounding, give depths of 18' and 19', so that the shoal sounding can be rejected. An effort was made to obtain soundings near the 15' sounding, but, due to currents, no superimposed soundings were obtained. Other soundings closeby, however, and the depth curves, substantiate the

assumption that the leadline was read one fathom wrong and it is the opinion of the hydrographer that this sounding should be rejected. Ref

The 14' sounding between Positions 11 and 12D appears to be an error. Either the leadsman read the line wrong or the recorder did not get the exact time of the sounding. In any case, there are sufficient soundings close by to warrant the rejection of this sounding. Ref

The best channel for the area within the limits of this sheet passes fairly close to the point of Point Hope Island, which marks the bend in the river, and then crosses the river to the mouth of Holbeck Creek, where the channel turns north and follows the east bank of the Wando. The controlling depth lies in this crossing which is in the form of a slight ridge. The least depth appears to be 16 feet.

There is apparently a channel above the bend in the Wando River, which passes close to the west bank. This is just a ravine, however, and as can be seen on Sheet 3, a ridge with 8 feet of water at the upper end of this ravine limits the draft of a boat using that channel.

On the south side of the Wando River, just east of the mouth of Foster Creek, is a gently sloping flat which extends for some distance into the river.

Near the northern limit of the sheet is a "middle ground" shoal with its southern end close to the channel. A 5' spot near this end is particularly dangerous, and pilots using the river continuously have been known to run aground here. This shoal should be buoyed or beacons.

The disagreements of a few feet in soundings obtained along channel lines are due, in all probability to the effect of sounding with and against the current. Sounding with the current or at slack water proved to be too costly and best results were sacrificed in order to make a more rapid progress. If channel depths for charting are selected from lines run with the current or at slack water, a more nearly correct indication of the bottom will probably be shown.

NAMES:

HOLBECK CREEK seems to be a well established name, both on charts and maps of that locality and in use locally.

FOSTER CREEK is not so well established. No maps could be obtained with this name on it, and only one man, living at Cainhoy, was able to furnish a name, which is the one adopted. Another man, employed by the North State Lumber Company, who had used the Wando River to some extent, gave the name Royal Creek, but he was in doubt whether or not this was correct. It is noted by the hydrographer, that there is a Foster Creek which empties into Back River near the confluence of Back and Cooper Rivers in approximate Latitude 32° 58.5', Longitude 79° 56.5'.

CONCLUSION:

The extent of regular traffic on the Wando River consists of a few small freight boats and a tug operated by the Tuxbury Lumber Company for towing logs. This latter has a draft of 8 feet and makes four round trips

weekly, running both day and night.

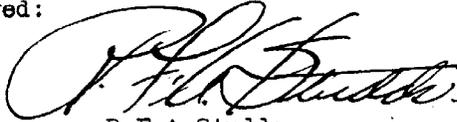
Foster Creek and Holbeck Creek, insofar as could be determined, are used only by shallow draft oyster boats.

There are no settlements within the area of this sheet.



R.F.A. Studds,
Jr. H & G E,
USC&G Survey.

Approved:



R.F.A. Studds,
Chief of Party,
USC&G Survey.

H Y D R O G R A P H I C S H E E T

-NO. 2-

STATEMENT OF CHIEF OF PARTY

(in accordance with Paragraph 174, Special Publication 143)

This sheet and its accompanying records have been inspected and are approved.

In the compilation of the chart for this area, two sources of information are available. Hydrography and shoreline are given on this sheet and both shoreline and land features can be obtained from Geological Survey maps.

It is noted by the Chief of Party, from a comparison of the two surveys of the area on this sheet and on adjoining sheets, that at some points common to the two surveys the shoreline agrees and at other points there are large disagreements. These latter do not always occur at points where erosion or accretion is liable to have happened. For this reason it is believed that the shoreline on the Geological Survey maps has been erroneously located and the difference between the two surveys is not due to a difference of control, which would cause the entire survey to be shifted.

In correlating the two surveys, therefore, it is recommended that the shoreline on this sheet be accepted and the adjacent topography transferred from the Geological Survey maps. In regard to this latter, it is suggested that the inner limit of the topographic feature, e. g. marsh, woods, etc., be held rigid and the feature extended or retracted at the river edge, as the condition might be.



R.F.A. Studds,
Jr., H&GE, USC&G Survey.
Chief of Party.

HYDROGRAPHIC SHEET

-NO. 2-

TIDAL DATA

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The tide station used for the reduction of soundings on this sheet was established by this party at Cainhoy, South Carolina, Latitude $32^{\circ} 55.7' N.$; Longitude $79^{\circ} 49.9' W.$

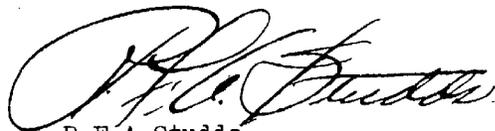
A comparison was made with the Primary Tide Station at Charleston, South Carolina, maintained by the Washington Office.

A mean difference of Lunitidal Intervals between the stations was 52', the interval being greater at Cainhoy. A difference of 0.8 foot in range was found, the range also being greater at Cainhoy.

For the reduction of soundings within the area of this sheet a correction of 17' earlier was applied to the tides at Cainhoy and a ratio of ranges of 0.9 was used.

The data for the Cainhoy gauge is as follows:

	Referred to zero of staff	Referred to Plane of reference.
Highest tide observed	11.5	8.0
Mean High Water	9.5	6.0
Mean Tide Level	6.5	3.0
Mean Low Water (Plane of Reference)	3.5	0.0
Lowest tide observed	1.4	-2.1



R.F.A. Studds,
Jr. H & G E,
Chief of Party, USC&G Survey.

STATISTICS FOR HYDROGRAPHIC SHEET, FIELD NO. 2.

Date	Letter	Volume	Positions	Soundings	Miles, statute
1928					
Febr. 10	A	1	20	87	2.7
28	B	1	58	287	6.3
Mar. 1	C	1	71	347	9.4
2	D	1	113	624	13.2
8	E	2	13	83	1.9
13	F	2	108	537	11.8
14	G	2	48	375	6.1
20	H	2	86	452	10.4
22	J	3	105	439	10.9
23	K	3	68	277	7.4
TOTALS.....			690	3508	80.1
Area.....			0.5 sq. st. miles.		

Section of Field Records

2cm

Division of Hydrography and Topography:

August 26, 1929.

✓ Division of Charts:

Tide Reducers are approved in
3 volumes of sounding records for

HYDROGRAPHIC SHEET 4904

Locality: Wando River, vicinity of Charleston, S. C.

Chief of Party: R. F. A. Studds in 1928
Plane of reference is mean low water, reading
3.5 ft. on tide staff at Cainhoy, Wando River.

~~XXXXXXXXXXXXXX~~

Allowance made for time and range of tide.

Condition of records satisfactory except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.

Harmon
Chief, Division of Tides and Currents.

Section of Field Records

Report on Sheet # H-4904
Chief of Party R. F. A. Studds
Protracted by J. C. Moore & K. B. Jeffers
Verified & indexed by F. Y. Eskine

Surveyed in 1928
Surveyed by R. F. A. S.
Soundings furnished by K. B. J.

1. With but a few exceptions the remaining volumes were complete and legible.
2. The protracting was fairly accurate. About 34% of the positions were checked and about 30% of the total were replotted.
3. The plotting of the soundings was very good. A little more than 10% were replotted. The time intervals were adhered to.
4. The sheet was clean and legible.
5. The drafting conformed to the General Instructions.
6. The shoal soundings referred to in the field report will be examined by the reviewer.
7. Positions 41 & 42 F (pg. 16 Volume 2) were plotted with time on line between 40 & 43 F. The former positions are swingers.
8. Revolvers were frequent on this sheet and in a few places the positions were very difficult to plot due to the lack of data.

Sept. 20, 1929

Respectfully submitted
Frank Y. Eskine

Field Record Section
Report on Hyd. Sheet No. 4904
Wando River, South Carolina
Surveyed in 1928

Instructions dated Dec 17, 1927 (Lieut R. F. Studds)

Chief of party - R. F. A. Studds

Surveyed by - R. F. A. Studds

Projected by - S. C. Moore, H. B. Jeffers

Soundings plotted by - H. B. Jeffers

Verified and inked by - F. G. Erskine.

1. The records conform to the requirements.
2. The plan and character of development conform to the requirements of the General Instructions.
3. The plan and extent of the survey satisfy the ^{original} specific instructions.

4. In some places the soundings cross very well but in other places there are disagreements of several feet. The explanation is made in the descriptive report that in order to make rapid progress, soundings were taken both with and against the current. The chief of party recommends that depths for charting be selected from lines run with the current or at slack water, but it is believed that the usual method of selecting the shoaler depths should be followed.

There are a number of positions which will not protract on the smooth sheet in the same relative position to the shoreline as shown on the boatsheet. This may be due to weak fixes. There were also a number of swingers on the sheet.

The shoal soundings, referred to in the descriptive report, were rejected as recommended by the chief of party.

5. The information is sufficient for drawing the usual depth curves, except in some of the creek work.

6. The junction of the Wando River work with the two contemporary sheets H. 4903 and H. 4905 is satisfactory.

7. The usual amount of field plotting was well done by the field party.

8. Character and scope of surveying -

The work in Wando River and for a short distance into the creeks is controlled by three point fixes. In view of the large scale used, the ground is well covered and shoal development sufficient.

Further in the creeks no development was attempted. Sounding lines are controlled by their relation to natural points and the position of soundings is very approximate.

9. No additional work is necessary.

Reviewed by R. L. Johnston Oct. 9, 1929.

Approved: A. M. Sobieralski
Chief Section of Field Records.

J. H. Borden Chief Section of Field Work.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 4904

HYDROGRAPHIC TITLE SHEET

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 2

REGISTER NO. 4904

State South Carolina

General locality ~~Vicinity of Charleston~~

Locality Wando River, Beresford Cr. to Holbeck Creek

Scale 1:5,000 Date of survey Feb. 10 to Mar. 23, 19 28.

Vessel Launch ELSIE

Chief of Party R. F. A. Studds

Surveyed by R. F. A. Studds

Protracted by Samuel C. Moore, Karl B. Jeffers

Soundings penciled by Karl B. Jeffers

Soundings in ~~Fathoms~~ feet

Plane of reference Mean Low Water

Subdivision of wire dragged areas by -

Inked by F. G. Erskine

Verified by F. G. Erskine

Instructions dated December 17, 19 27.

Remarks: Sheet 2 of 5 sheets of Wando River.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 4904

The following statistics will be submitted with the
cartographer's report on the sheet:

Number of positions on sheet . 690 .
Number of positions checked 240 .
Number of positions revised . 15 .
Number of soundings recorded 3,508 .
Number of soundings revised 53 .
Number of signals erroneously
plotted or transferred 0

Date: - Sept 21, 1929 - - - -
Cartographer: - Frank G. Leskinen - - - -