

4906

4906

Form 504  
Ed. June, 1928

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY  
E. Lester Jones, Director

C. & G. SURVEY  
L. & A.  
JUL 5 1929  
Acc. No.

State South Carolina

DESCRIPTIVE REPORT

~~Cosmographic~~ } Sheet No. 4 4906  
Hydrographic }

LOCALITY

~~Wando River~~

~~Vicinity of Charleston~~

Wando River, Tuxbury Co. Landing  
to Toomer Creek

1928

CHIEF OF PARTY

R. F. A. Studds

DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SHEET

--No. 4--

April 19 to June 19, 1928.

Wando River, Vicinity of Charleston, S.C.

LAUNCH ELSIE.

R.F.A. Studds, in Charge.

Instructions dated Dec. 17, 1927.

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INTRODUCTION:

This is the fourth 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 covers that portion of the Wando River from about one mile west of Guerin Creek to about  $\frac{1}{2}$  mile east of Toomer Creek, and includes the creeks bordering the river.

GENERAL:

The party operated from the Launch ELSIE, using Charleston as a base for supplies. The Launch was not large enough to house all members of the party, but the weather was sufficiently warm so that hammocks could be swung on deck. This enabled the Launch to anchor on the working grounds.

Sounding was done from small boats.

SURVEY METHODS:

CONTROL was furnished from a scheme of 3rd order triangulation extended up the Wando River from the line Francis Marion-Remly, in the vicinity of Charleston. Hydrographic signals in the Wando River, were located by theodolite cuts from the main scheme stations and the cuts were plotted directly on the boat and smooth hydrographic sheets.

For the control of hydrography in Guerin Creek, several signals were built in the tops of trees on Cat Island. These signals, which

were visible from both the Wando River and Guerin Creek, were cut in by theodolite from triangulation stations in the Wando River. Additional signals necessary in Guerin Creek were located by sextant angles from these high signals, and are recorded in the sounding records. A few signals not well located by theodolite and sextant were located by the topographic party and their positions transferred from the boat 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 Quadrangle, "Wando". Paragraph 5, Instructions 10-1E, dated December 17, 1927, contained the provision that any necessary revision of this quadrangle could be executed on the boat or smooth hydrographic sheet. 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.

The shoreline surveyed in the Wando River was well controlled. In Guerin Creek, however, control consisted of sextant triangulation, and in the vicinity of Guerin Bridge, the "fixes" become exceptionally weak.

The shoreline of small creeks bordering Guerin Creek was not surveyed. Hydrography controlled by sextant fixes was extended up these creeks and the shoreline sketched in by the hydrographic party. The mouths of Wagner and Toomer Creeks were surveyed and the remainder of these two creeks were transferred from Geological Survey maps.

Topographic features, other than the shoreline, were not verified, as it is believed the Geological Survey map is sufficiently accurate to chart these. The one feature excepted is Guerin Bridge. It is noted that its location by this party and the location as transferred from the Geological Survey Quadrangle "Wando", do not agree. This may be due to the weak control, as this was the limit of sextant triangulation and the fixes were very poor.

HYDROGRAPHY: Cross lines were run in the Wando River and diagonal lines in Guerin Creek. Soundings obtained thusly were supplemented by lines run parallel to the axes of the rivers. Channels were developed in this manner.

All soundings taken in Guerin Creek and its tributaries were controlled by fixed position. In Wagner and Toomer Creeks, no fixes were available and soundings were located by noting the time abeam recognizable features, e. g. bends, points, indentures, etc. Only sufficient soundings were taken that would indicate the depths in the creeks. No effort was made to develop any channels or shoals.

Tides: For the reduction of soundings in the area confined to this sheet, two portable automatic gauges were established in the Wando River; one at Cainhoy and the other in the vicinity of Woodville. Both gauges were compared to the primary tide station at Charleston, S.C. A difference of lunitidal intervals and a ratio of ranges between the two gauges in the Wando River was obtained, and in order to adapt the readings to the limits of this sheet, a time correction of 12' later and a ratio of ranges of 1.1 was applied to the readings on the Cainhoy gauge.

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.

Shoreline differs to some extent, in the two surveys, the most noticeable place being at the east side of the entrance to Guerin Creek. A small island shown on the Geological Survey map to be just east of the entrance to Wagner Creek, does not exist. There is, however, a small island on the north side of the Wando River, just west of Fogarty Creek. A strip, connecting this island to the mainland, bares at low water. The low water line was sketched in by the topographic party and is shown by a broken black line. Apparently this was located at a very low stage of tide, as the hydrography disagrees slightly. The low water line should be changed to conform to the hydrography.

The 13' sounding just before position 78 F is apparently one fathom too deep and should be charted as 7'. There are sufficient soundings in the vicinity to substantiate this assumption.

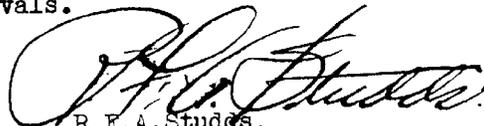
13' appears to be the greatest depth that can be carried as far as the entrance to Guerin Creek, the controlling depth being at the west edge of the sheet. From the mouth of Guerin Creek to the east limit of the sheet, 9' seems to be the controlling depth. Because of the crooked channel, however, 7' would be a much safer depth to use.

NAMES:

All names on this sheet seem to be those in general use, except that Guerin Creek is occasionally called "West Branch of Wando River".

CONCLUSION:

There is no regular traffic on the portion of the Wando River, included in the area of this sheet. A few small freight boats carry produce to Charleston at irregular intervals.

  
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. 4-

STATEMENT OF CHIEF OF PARTY

(in accordance with Paragraph 174, Special Publication 143)

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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 a number of places the shoreline of the two surveys disagree. This disagreement is not always at a place where erosion or accretion is liable to have occurred, and it is believed, therefore, that the shoreline on the Geological Survey maps has been erroneously located, rather than the difference between the two surveys being 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.

The foregoing applies particularly to the Wando River and to a portion of Guerin Creek. At Guerin Bridge, and in that branch of Guerin Creek approaching the bridge, the control of this survey is very weak and it is believed to be better to adopt the position of the bridge as shown by the Geological Survey and to apply an adjustment to the present survey of the creek in the vicinity of the bridge.

A number of small streams and sloughs have been located by running a sounding line up the center and sketching the shoreline from the hydrographic launch. Pencil notes on the sheet indicate the shoreline that has been sketched in this manner.



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

HYDROGRAPHIC SHEET

-No. 4-

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TIDAL DATA

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The area included in this sheet lay between two gauges established by this party; one at Cainhoy, South Carolina, in Latitude 32° 55.7' N, Longitude 79° 49.9'W, and the other near Woodville, in Latitude 32° 55.2' N, Longitude 79° 44.1 W.

Both gauges were compared with the Primary Tide Station at Charleston, South Carolina, maintained by the Washington office, and values for lunitidal intervals and ranges found.

A mean difference of lunitidal intervals between the stations at Cainhoy and Woodville was 31', the interval being greater at Woodville. A difference of 0.5 foot in range was found, the range also being greater at Woodville.

For the reduction of soundings within the area of this sheet, a time correction of 12' later was applied to the tides at Cainhoy and a ratio of ranges of 1.1 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. 4

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Date	Letter	Volume	Positions	Soundings	Miles, statute	
1928						
April	19	A	1	34	143	2.7
	25	B	1	134	572	10.9
May	10	C	1	158	595	7.2
	11	D	2	148	743	9.5
	18	E	2	106	362	7.0
	19	F	2,3	99	408	4.8
	23	G	3	94	435	6.0
	24	H	3	105	392	5.2
June	7	J	3	23	174	3.0
	8	K	4	56	182	5.4
	19	L	4	52	272	4.8
TOTALS....			1009		4278	66.5
Area.....			0.82 sq.st.miles			

Section of Field Records

ecm

August 27, 1929.

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in  
volumes of sounding records for

4

HYDROGRAPHIC SHEET  
4906

Locality: Wando River, S. C.

Chief of Party:

Plane of reference ~~to~~ <sup>to</sup> F. A. Studts in 1928

ft. on tide staff ~~near~~ <sup>near</sup> low water, reading

3.5 ft. below B. M. Cainhoy, Wando River

~~XXXXXXXXXXXX~~

*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.

*J. A. Warner*  
Chief, Division of Tides and Currents.

SECTION OF FIELD RECORDS

REPORT ON SHEET No. 4906

OCTOBER 10 - 1929.

CHIEF OF PARTY - R. F. A. STUDDS

SURVEYED BY - R. F. A. STUDDS.

PROTECTED BY - KARL B. JEFFERS

SURVEYED IN - 1928

VER & INKED BY - W. H. BAMFORD

SOUNDINGS PLOTTED BY - KARL B. JEFFERS

- 1.) The records were found to conform to the requirements of the General Instructions.
- 2.) The plan and character of development fulfill the requirements of the General Instructions.
- 3.) The sounding line crossings were found to be inadequate.
- 4.) It was possible to draw the usual depth curves.
- 5.) The field plotting was completed to the extent prescribed in the General Instructions.
- 6.) The spacing of the soundings was very good and most of the bottom characteristics were penciled although they were vertical.

7/ The junctions with the adjacent sheets were satisfactory.

8/ The projecting was very good and the soundings were penciled fairly well.

9/ The field party located shoals and put them on the sheet in black - dotted - lines. Some of the soundings showing good water - fell on these indicated shoals, consequently on authority from E P Ellis the black dotted lines indicating shoal areas were erased and low water curves substituted in the proper location.

The work was clean and legible

Respectfully Submitted

Warren H Bawford.

Field Record Section

Report on Hyd. Sheet No. 4906

Kando River, Vicinity of Charleston S. C.

Surveyed in 1928

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

Chief of Party - R. F. A. Studds

Surveyed by - R. F. A. Studds

Protracted and plotted by - H. B. Jeffers

Verified and inked by - H. H. Bamford

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.



DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

HYDROGRAPHIC TITLE SHEET

REG. NO. 4906

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. 4

REGISTER NO. **4906**

State South Carolina

General locality Vicinity of Charleston

Locality Wando River, Tuxbury Lumber Co. Landing to Toomer Creek.

Scale 1:5,000 Date of survey April 19 to June 19, 1928.

Vessel Launch ELSIE

Chief of Party R. F. A. Studds

Surveyed by R. F. A. Studds

Protracted by Karl B. Jeffers

Soundings penciled by Karl B. Jeffers

Soundings in ~~metres~~ feet

Plane of reference Mean Low Water

Subdivision of wire dragged areas by -

Inked by Warren H. Bamford

Verified by Warren H. Bamford

Instructions dated December 17, 1927.

Remarks: Sheet 4 of 5 sheets of Wando River.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. 4906

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

Number of positions on sheet .1009.  
Number of positions checked 202 .  
Number of positions revised .7 . . .  
Number of soundings recorded . 4278  
Number of soundings revised . 62.  
Number of signals erroneously  
plotted or transferred . . 0 . . . . .

Date: --- October 10 - 1929 ---  
Cartographer: W. T. Bamford .