

4924a

4924b

4924a 4924b

Diag. Cht. No. 1222-2

Form 504

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

..... Director

G. & G. SURVEY  
L. & A.  
NOV 9 - 1929  
Acc. No.

State: Virginia .....

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**DESCRIPTIVE REPORT**

<i>Topographic</i>	} Sheet No.	Sects. 1 & 2
<i>Hydrographic</i>		4924a 4924b

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LOCALITY

Southern Chesapeake Bay

Silver Creek - (4924a)

Crumps Bank and Approaches  
to Little Creek (4924b)

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1929

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CHIEF OF PARTY

F.L. Peacock

C. & G. Survey

L. & A.

NOV - D 1929

Acc. No.

Original

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

R. S. PATTON - DIRECTOR

U. S. C. & G. S. LAUNCH MIKAWA

PROJECT NO. 39

1929

DESCRIPTIVE REPORT

To

Accompany

HYDROGRAPHIC SHEET FIELD NO. "LITTLE CREEK"

VIRGINIA

FRED. L. PEACOCK, H. & G. E., C. & G. SURVEY

CHIEF OF PARTY

**METHODS AND EQUIPMENT:**

All hydrography on this sheet consists of up and down casts with hand leadlines of No. 8, mahogany, braided, tiller rope with phosphor bronze wire center, and an eight pound lead. The leadlines were graduated to feet to the maximum depths sounded and soundings were, with the exception of the first day, read and recorded to half feet. Three boats were used, namely, the "MIKAWA", the whaleboat, and the dinghy. About 70% of the work was done with the dinghy, 25% with the MIKAWA, and only 5% with the whaleboat. Both the dinghy and whaleboat were used under oars.

The reason for such extensive use of the dinghy for hydrography was the very shoal areas to be surveyed and the fact that it was practically necessary to have a topographic party in the field at the same time hydrography was in progress. The personnel available after the required number for the topographic party were deducted was only sufficient to man the dinghy for hydrography. It was then not possible to plot in the boat in the usual manner. Each days pulling boat work was plotted as soon as practicable on return to the MIKAWA.

**CONTROL:**

The fundamental control consisted of third order triangulation stations at frequent intervals supplemented by adequate inter-

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mediate signals located by plane table from the strong fundamental control. The hydrographic positions are three point sextant fixes taken at frequent intervals along the sounding lines. Every practical effort was utilized to maintain the speed uniform between positions.

#### CHARACTER OF THE HYDROGRAPHY:

The hydrography on this sheet has been executed in more than usual detail. All the inside work is plotted on a scale of 1 : 5,000 and that outside the entrance and immediate approach on a scale of 1 : 10,000. Crossings are frequent and in general demonstrate that the work is of a high grade of accuracy.

#### PERSONNEL:

Only Boatswain Petterson and the Chief of Party had had previous experience in the work. Boatswain Petterson acted as leadsman whenever the "MIKAWA" was used and it was practicable to cross every other leadsmans' work with his as a check on their proficiency in obtaining correct soundings. All the other personnel were Deck Officers of the Service pursuing their preliminary training course. The unusual detail with which the work was executed was for the purpose of afford-

ing these Deck Officers desirable training and of affording means of readily detecting errors due to their inexperience.

**DESCRIPTION OF LITTLE CREEK:**

Originally Little Creek consisted of a narrow winding channel leading in from Chesapeake Bay at Grumps Bank and expanding over quite a large shoal area with four bays or arms extending therefrom, two on the Western side and two on the Eastern side. Prior to the recent improvements of the Pennsylvania R. R. Company establishing their car-ferry terminal there, the further reaches of the two Southermost arms had been dammed off to form lakes of ultimately fresh water in connection with a reserve water supply for the City of Norfolk.

The recent improvements of the Pennsylvania R. R. Company consist of a dredged channel nearly straight through the sand dunes to their ferry slips on the Southern shore of Little Creek proper. The wharfs and slips are backed by extensive railroad switching yards. The dredged channel broadens off the ferry slips into a turning basin. The entrance from Chesapeake Bay is protected by two rock jetties. The dredged channel and basin are provided with numerous lighted and day beacons. At the outer end of the jetty is a flashing automatic light on a skeleton steel structure 70 feet above high water. There is also an automatic bell which rings every few seconds continuously. This

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bell is inefficient as a thick weather aid as its sound does not carry far except under the most favorable conditions. All the above mentioned aids are privately maintained by the Pennsylvania R. R. Company. There is also a lighted range for entering at night:

The controlling depth in the dredged channel is approximately 17 feet at M. L. W.

The entire inside area of Little Creek outside the dredged improvements is very shoal and unimportant for navigation.

The old winding entrance channel has become entirely blanked off at its outer end.

#### APPROACHES:

The approach to Little Creek entrance is across Grumps Bank, an extensive shoal area, which except near shore has a minimum depth on it of 19 feet at M. L. W.

#### SURVEY OF PORTION OF DUMPING GROUND:

The portion sounded is the most Northwesterly part of the Dumping Ground charted immediately to the Eastward of Grumps Bank and is that section which if opened to navigation would permit the floating equipment of the Pennsylvania R. R. to pursue a direct course between

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**Little Creek Entrance and Cape Charles.**

The Chief of Party was advised by the U. S. Engineers Office at Norfolk, Va. that no dumping had as yet been permitted in the part in question. The officials of the Pennsylvania Railroad stated that they intended to request that this area be opened to navigation. The least depth encountered in this area was 20 feet at M. L. W.

**AVAILABILITY FOR GENERAL NAVIGATION:**

<sup>S</sup>~~A~~s the improvements at Little Creek were made at private expense, it is doubtful if the improved waters can be considered available for general navigation. Also it is doubtful if the public could be entirely excluded therefrom, since they are tidal. There is little anchorage room for vessels inside except where they might be in the way of the traffic for which the improvements were constructed. The channel is everywhere, however, of sufficient width for vessels bound in to pass vessels bound out. The berthing facilities at the wharves and bulkheads appear to be in excess of the present needs of the Company and it is probable that vessels of the United States will always be welcome to tie up there as necessary. There is a fresh water connection at the outer bulkhead just west of the westernmost ferry slip from which the "MIKAWA" obtained fresh water gratis. At present the area is frequented only by a few small fishing boats.

**PERMANENCY OF IMPROVEMENTS:**

The Chief of Party believes that the Pennsylvania R. R. Company will experience difficulty in maintaining the dredged entrance in the vicinity of the jetties in its present form and depth. The following tendencies were noticed during the field season; a tendency to cut into the bank at the inner end of both jetties inside with accompanying shoaling of the water at these points; a tendency to fill and shoal at the junction of the East Jetty with the shoreline outside; a tendency to shoal along the East side of the West Jetty. The curved shape of the East Jetty is relied on by the Company Engineers to assist in maintaining the channel.

**NEW NAMES FOR CHART:**

No new names for charting of well established local use could be obtained. During the progress of the field season it proved very desirable to name the four arms of Little Creek in order that they might be readily and definitely referred to. As local enquiry established that there were no well established local names for these features, the field party named them "Long Arm", "Southwest Arm", "Southeast Arm", and "Northeast Arm" respectively. This subject is taken up in a separate letter wherein the use of these names is recommended for the future.



**TIDAL DATA:**

Two tide stations were established and operated for datum plane control. One was situated near the outer end of the East Jetty and was subject to the tidal characteristics of that part of Chesapeake Bay. A Portable automatic tide gauge was in operation at this station for a period of thirty five days.

The other station was a plane staff station situated on the Terminal Wharf to indicate the variation of tidal characteristics for the interior waters. The staff at this latter station was read during all times that hydrography was in progress and during a two tidal day simultaneous series.

**BOTTOM CHARACTERISTICS:**

The characteristics of the bottom in the improved waterways are mainly soft mud with occasional hard spots of sandy clay.

In the shallow arms of Little Creek the bottom is in general soft mud in the center with hard sand frequently encountered close to shore. Outside the entrance on Crumps Bank and on the section of the dumping ground surveyed the character of the bottom changed at frequent intervals from soft mud to hard sand to sand and clay to sticky mud and clay. Due to the close sounding interval employed, actual samples of

the bottom were infrequently examined. However the characteristics of the bottom were continuously indentified by the "feel" and all changes were noted in the sounding volumes.

REJECTED SOUNDING:

The sounding rejected between positions 118 and 119 g day dinghy (Vol. 4) was only rejected after extensive examination and investigation had proved to the satisfaction of the Chief of Party that it did not exist. A portion of the development employed to disprove its existance is shown on a 1 : 2,000 subplan on Section 1 of the hydrographic sheet. The ear of the Chief of Party trained to listen for irregular soundings did not hear this sounding. Neither the leadsman or recorder recalled any such irregularity in this vicinity. What probably happened is that the leadsman read and called the sounding correctly, the recorder repeated same correctly and inadvertently wrote it down one fathom less.

This sub plan removed from sheet on acct. of A.M.S. Shoalst sdgs. transferred to main sheet. A.L.S.

MISCELLANEOUS:

In selecting the tidal reducers for field reduction of soundings the datum plane as established for Tide Station "LITTLE CREEK" was used for all hydrography executed from the "MIKAWA" and

for (g) day and (h) day dinghy. The datum plane as established for Tide Station "TERMINAL" was used for all the remainder of the hydrography.

The difference in reducers to be obtained from these two stations at any time was determined to be so small as to be almost negligible.

Not all the soundings taken could be penciled on the smooth sheet.

Washington, D. C.

Nov. 8, 1929

Respectfully submitted,  
*Fred. L. Peacock*  
Fred. L. Peacock, H. & G. E.

Chief of Party

## HYDROGRAPHIC SHEET No. "LITTLE CREEK"

Area, Sq. Sta. miles 2.0

Date	Letter	Volume	NUMBER OF-			Vessel
			Positions	Soundings	Sq. M	
Aug. 31, 1929	A	7	42	244	4.2	"MIKAWA"
Sept. 3, 1929	B	7	27	168	2.6	"
Sept. 14, 1929	C	7	30	163	3.2	"
Sept. 16, 1929	D	7	62	316	5.6	"
Sept. 26, 1929	E	8	143	734	15.7	"
TOTAL FOR "MIKAWA"-----			304	1625	31.3	
Aug. 28, 1929	a	1	90	628	4.0	"DINGHY"
Aug. 29, 1929	b	1	81	449	3.9	"
Sept. 7, 1929	C	1 & 2	110	610	4.7	"
Sept. 9, 1929	d	2	148	807	6.8	"
Sept. 10, 1929	e	2 & 3	182	1039	7.4	"
Sept. 12, 1929	f	3 & 4	133	759	6.0	"
Sept. 13, 1929	g	4	154	471	6.9	"
Sept. 17, 1929	h	4	91	295	3.7	"
Sept. 23, 1929	i	5	95	695	4.6	"
Sept. 24, 1929	k	5 & 6	195	1354	9.5	"
Sept. 25, 1929	l	6	131	625	4.4	"
TOTAL FOR "DINGHY"			1410	7732	61.9	
Sept. 21, 1929	a	9	125	804	6.4	"WHALEBOAT"
Sept. 24, 1929	b	9	12	72	0.7	"
TOTAL FOR "WHALEBOAT"			137	876	7.1	
TOTAL FOR SHEET			1851	10233	100.3	

Section of Field Records. ✓

com

November 13, 1929.

Division of Hydrography and Topography:

Division of Charts:

Tide Reducers are approved in  
volumes of sounding records for

HYDROGRAPHIC SHEET 4924 a & b

Locality: Little Creek, Va.

Chief of Party: P. L. Peacock in 1929

Plane of reference is mean low water, reading  
27.2 ft. on tide staff at Little Creek Entrance  
~~Sublocality: Little Creek~~

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:

Paul C. Whitney  
Chief, Division of Tides and Currents.

H-4924-A and B.

Chief of Party - Fred L. Peacock.

Surveyed by - Fred L. Peacock and Party.

Protected by - E. B. Brown jr.; O. B. Hartzog jr.,  
J. C. Tison jr., and W. A. Hecht.

Soundings penciled by - J. C. Ellerbe jr.,  
O. B. Hartzog jr.,  
and J. C. Tison jr.,

1. The records conform to the requirements of the General Instruction.
2. The plan and character of development fulfill the requirements of the General Instruction.
3. The sounding line crossings are adequate.
4. The usual depth curves could be drawn.
5. The field plotting was complete to the extent prescribed in the General Instruction with the following exceptions

5. (cont.)

The spacing of the soundings between position where the time interval was irregular was very carelessly done. nearly all of the area in the channel had to be re-sounded before making the sounding.

6. Further surveying is unnecessary as the area is fully developed.

7. The soundings along the docks (taken from the docks) were plotted and spaced by Capt Peacock personally, who used personal knowledge of the condition of the docks as a guide. The records failed to contain ~~and~~ any definite data by which these soundings could be plotted or verified after plotting.

8. The smooth sheet was plotted by the field party in feet, whereas the records were reduced to

8 (cont.)

fathoms only. The office verifier had to transfer all the soundings in the records from fathoms to feet before the sheet could be verified and inked.

9. The character and scope of the survey was most excellent and the field drafting was accurately done and very neat.

John S. Lacey  
in Charge

Dec. 28, 1929



IN REPLY ADDRESS THE DIRECTOR  
U. S. COAST AND GEODETIC SURVEY  
AND NOT THE SIGNER OF THIS LETTER

AND REFER TO No. 11-DEM

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

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4924 a and b

Little Creek, Chesapeake Bay

Surveyed in 1929

Instructions dated June 15, 1929 (MIKAWA)

Chief of Party, F. L. Peacock.

Surveyed by F. L. P. and party.

Protracted and soundings plotted by Field party.

Verified and inked by J. G. Ladd.

1. The records conform to the requirements of the Hydrographic Manual with the exception that the soundings were reduced in fathoms and feet instead of in feet as required by paragraph 136, Hydrographic Manual.
2. The work conforms to the requirements of the specific instructions.
3. The field plotting was completed to the extent prescribed in the general instructions. It was found that the spacing of soundings where irregular time intervals were involved was carelessly done (see verifier's report).
4. A good junction was effected with the charted soundings.
5. No additional work appears necessary unless it is desired to extend the work further to the eastward over the dumping ground.

In this connection, attention is called to the statement in the Chief of Party's report that upon advice from the U. S. Engineers Office, no dumping has as yet been permitted in this area.

6. There are no cartographic problems raised by this survey except the matter of the positions of landmarks as shown on H. 4924b. The following information is submitted relative thereto:

- a. Ocean Park, Hygeia Inn, and Middle were originally located by triangulation, Ocean Park and Middle being intersection stations with no check determination. Ocean Park as plotted from landmarks submitted by the field party (see Chart Div. letter 602-1929) fell in the water, a considerable distance from shore. The field party relocated the three landmarks by sextant cuts. The cuts to Hygeia Inn check the triangulation determination, but the location of Ocean Park and Middle differ from the triangulation determination. The sextant locations are plotted on the sheet (H. 4924b) and should be used for charting purposes.

The information for these cuts can be found in Vol. 8 of H. 4924 a and b.

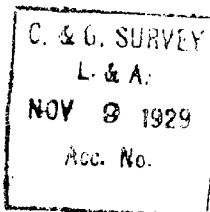
7. Reviewed by A. L. Shalowitz, January, 1930.

Approved:

  
Chief, Section of Field Records (Charts)

  
Chief, Section of Field Work (H. & T.)

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY



HYDROGRAPHIC TITLE SHEET

REG. NO.  
49242

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. LITTLE CREEK (Section 1.)

REGISTER NO. 49242

State Virginia

General locality Southern Shore of Chesapeake Bay

Locality Little Creek

Scale 1:5,000 Date of survey August-September, 1929

Vessel U.S.C. & G.S.L. MIKAWA

Chief of Party Fred. L. Peacock, H. and G. E.

Surveyed by Fred. L. Peacock and Party

Protracted by E. B. Brown, Jr., O. B. Hartzog, Jr.,  
J. C. Tison, Jr., and M. A. Hecht

Soundings penciled by J. C. Ellerbe, Jr., O. B. Hartzog, Jr.,  
and J. C. Tison, Jr.

Soundings in ~~fathoms~~ feet

Plane of reference M. L. W.

Subdivision of wire dragged areas by

Inked by John G. Ladd

Verified by John G. Ladd

Instructions dated June 15, 1929

Remarks: See Section 2

DEPARTMENT OF COMMERCE  
U. S. COAST AND GEODETIC SURVEY

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. LITTLE CREEK (Section 2.)

REGISTER NO. <sup>4924b</sup> 4924b

State Virginia

General locality Southern Shore of Chesapeake Bay

Locality Crumps Bank and the Dumping Ground,  
~~also Lynnhaven Roads~~ and Approach to Little Creek

Scales 1:10,000 Date of survey August-September, 1929

Vessel U.S.C. & G.S.L. MIKAWA

Chief of Party Fred. L. Peacock, H. & G. E.

Surveyed by Fred. L. Peacock and Party

Protracted by E. B. Brown, Jr., and M. A. Hecht

Soundings penciled by E. B. Brown, Jr., and M. A. Hecht

Soundings in ~~fathoms~~ feet

Plane of reference M. L. W.

Subdivision of wire dragged areas by

Inked by John G. Ladd

Verified by John G. Ladd

Instructions dated June 15, 1929

Remarks:

REG. NO. 4924b

C. & G. SURV.  
L. & A.  
NOV 8 1929  
Acc. No.

IN REPLY ADDRESS THE DIRECTOR  
U. S. COAST AND GEODETIC SURVEY  
AND NOT THE SIGNER OF THIS LETTER

AND REFER TO No. 11-100M

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

SECTION OF FIELD RECORDS

Report on Hydrographic Sheet No. 4924 a and b

Little Creek, Chesapeake Bay

Surveyed in 1929

Instructions dated June 15, 1929 (MIKAWA)

Chief of Party, F. L. Peacock.

Surveyed by F. L. E. and party.

Protracted and soundings plotted by Field party.

Verified and inked by J. G. Ladd.

1. The records conform to the requirements of the Hydrographic Manual with the exception that the soundings were reduced in fathoms and feet instead of in feet as required by paragraph 136, Hydrographic Manual.
2. The work conforms to the requirements of the specific instructions.
3. The field plotting was completed to the extent prescribed in the general instructions. It was found that the spacing of soundings where irregular time intervals were involved was carelessly done (see verifier's report).
4. A good junction was effected with the charted soundings.
5. No additional work appears necessary unless it is desired to extend the work further to the eastward over the dumping ground.

In this connection, attention is called to the statement in the Chief of Party's report that upon advice from the U. S. Engineers Office, no dumping has as yet been permitted in this area.

6. There are no cartographic problems raised by this survey except the matter of the positions of landmarks as shown on H. 4924b. The following information is submitted relative thereto:

- a. Ocean Park, Hygeia Inn, and Middle were originally located by triangulation, Ocean Park and Middle being intersection stations with no check determination. Ocean Park as plotted from landmarks submitted by the field party (see Chart Div. letter 502-1929) fell in the water, a considerable distance from shore. The field party relocated the three landmarks by sextant cuts. The cuts to Hygeia Inn check the triangulation determination, but the location of Ocean Park and Middle differ from the triangulation determination. The sextant locations are plotted on the sheet (H. 4924b) and should be used for charting purposes.

The information for these cuts can be found in Vol. 8 of H. 4924 a and b.

7. Reviewed by A. L. Shalowitz, January, 1930.

Approved:

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Chief, Section of Field Records (Charts)

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Chief, Section of Field Work (H. & T.)

Applied ~~in~~ (H-4924a) To sheet 3334 10-28-49 dR Williams