

6421a

U. S. COAST & GEODETIC SURVEY

MAR 20 1936

Acc. No. _____

Form 504
Rev. Dec. 1933
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R. S. PATTON, DIRECTOR

DESCRIPTIVE REPORT

Topographic } Sheet No. A
~~Hydrographic~~

State Virginia

LOCALITY

Nansemond River, Suffolk, Va.

Western Branch to Suffolk

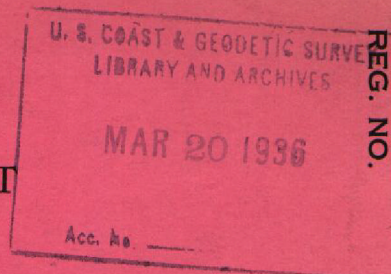
193 4

CHIEF OF PARTY

J. C. Bose

U. S. GOVERNMENT PRINTING OFFICE: 1934

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY



TOPOGRAPHIC TITLE SHEET

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

letter
Field No. A

6421a
6421a

REGISTER NO.

State Virginia

General locality Hampton Roads

Locality Nansemond river, Suffolk, Virginia

Scale 1:10,000 Date of survey October, 1934

Vessel Launch WELKER

Chief of party J. C. Bose

Surveyed by R. H. Carstens

Inked by R. H. Carstens

Heights in feet above ~~XXXX~~ to ground to tops of trees

Contour, ~~Approximate contour, Form line interval~~ ~~XXXX feet~~

Instructions dated January 23 and January 26, 1934

Remarks:

DESCRIPTIVE REPORT
to accompany
TOPOGRAPHIC SHEET A

Launch WELKER

J. C. Bose, Chief of Party

Nansemond River, Suffolk, Va.

Scale 1:10,000

Project H.T. 173

The Descriptive Report covering topographic sheet A
is herewith submitted.

INSTRUCTIONS

The topography on sheet A was executed as part of Project H.T. 173 under instructions dated January 23, 1934 and supplementary instructions dated January 26, 1934.

GENERAL APPEARANCE OF SHORELINE

That part of the Nansemond River included on sheet A is meandering and comparatively narrow. Both shores are bordered on the most part by low, soft marshland. The marsh grass covering this land is largely tall bulrushes. The bends of the river are usually bordered by steep banks, none of which are higher than 15 or 20 feet.

The fast land area bordering the marshes and the steep banks at the bends of the river are covered with a mixture of evergreen and deciduous trees. In many cases there are cultivated fields behind the trees but for the most part the fields are completely hidden from a view from the river.

LANDMARKS:

There are no objects that are prominent enough to be classed as landmarks. The various objects in Suffolk are hidden from view by trees. The various small buildings along the banks of the river are visible only at short range but are useful in helping the navigator to keep track of the bends of the river. The outlines of the buildings are shown on the topographic sheet and no positions have been scaled or listed on form 567.

GEOGRAPHIC NAMES:

No new geographic names were found for features on this sheet. Wilroys and Wilsons Landings, and Norfleets Wharf have deteriorated or have been demolished to the extent that they are now of little practical value.

CONTROL AND SURVEY METHODS:

The survey was controlled by triangulation executed in 1934 and triangulation of the U. S. Engineer Department. By graphic control, positions were established on the Elliot Hotel and on Buzzard Island. A traverse was run from station Suffolk to Buzzards Island. Only three meters error was found in this traverse and no adjustment of it was made.

LANDMARKS:

There are no objects that are prominent enough to be
classified as landmarks. The various objects in boldface are
hidden from view by trees. The various small buildings
along the banks of the river are visible only at short range
but are useful in helping the navigator to keep track of the
banks of the river. The outlines of the buildings are shown
on the topographic sheet and no positions have been secured
or listed on form 507.

GEOGRAPHIC NAMES:

No new geographic names were found for features on
this sheet. Wilroy and Wilson Landings, and Monticote
which have deteriorated or have been demolished to the ex-
tent that they are now of little practical value.

CONTROL AND SURVEY METHODS:

The survey was controlled by triangulation executed
in 1934 and triangulation of the U. S. Engineer Department.
By graphic control, positions were established on the sheet

Party from ship Lydonia re-ran the traverse
in Nov. 1936 - and established position of SP
as -

$36^{\circ}-44' - 484.7 m$

$76^{\circ}-34' - 1439.3 m$

Position as shown on T 6421a is

$36^{\circ}-44' - 488.7 m$

$76^{\circ}-34' - 1438.7 m$

C. K. H.

The survey of the area to the west of the bridge on Main Street of Suffolk was controlled by graphic control and an open traverse.

The location of U.S.E. station N B Q was determined by triangulation and the positions of N B R, N B S, N B T, N B U, N B V and N B W were computed from values of angles taken from the triangulation of the U.S. Engineers. * These additional points were used for control of the area between N B P and Buzzards Island. * *classified as topographic points (Fourth order control) 88P*
The topography was executed for the purpose of delineating

the shore line of the river and the topographic features of the adjacent area, locating U.S. Engineer stations, landmarks, and locating survey control points not located by triangulation. Standard planetable methods were used. Positions between triangulation stations were located by traverse methods and checked by graphic control.

The bridge at Suffolk, Va. across the Nansemond River was being replaced at the time the survey was being made. The positions of the end abutments are shown on the sheet. Accompanying this report is a diagram showing the dimensions and clearances of the new bridge which should have been in place in the Spring of 1935.

← In running the traverse from triangulation station Suffolk to Buzzards Island, the Primary Traverse Station 5P (U.S. Geological Survey, 1918) was cut in. The planetable position was found to differ from the former position by + ^{37.5 EPE} 35.7 meters in latitude and by + ^{12.0 EPE} 11.3 meters in longitude. The U.S. Coast Survey had no check on the U.S. Geological Survey position of this station.

The topographer believes that the published position is in error. *A plot of photographs in vicinity of 5P discloses no errors in topography in the area - Therefore the above statement regarding error in published position is believed to be true - C.K.G.*

This station was included among the recoverable topographic stations and is described on form No. 524.

CHANGES IN SHORELINE

No important changes in the shore line are noticeable.

MARSHES

As noted before the marshes are composed of the tall bulrushes and low marsh grass. The tall marsh grass bordering the river forms a definite shore in as far as navigation is concerned. However, the marsh land is soft and permeated with water. At high tide the water comes within several inches of the surface of the marsh and in some places covers the marshland. The low marsh grass grows on ground a little higher and firmer than the land covered with high marsh grass.

In accordance with correspondence of November 13, 1934, the shoreline except where it was bordered by definite fast land such as steep banks, was left in pencil. The fast land area usually covered by woods was inked with a fine line where actual telemeter distances were taken. Where, due to the position of the planetable, no telemeter distance could be taken an estimated distance was taken and the line was dotted in, in pencil.

AIDS TO NAVIGATION

No aids to Navigation fall on this sheet.

Respectfully submitted,

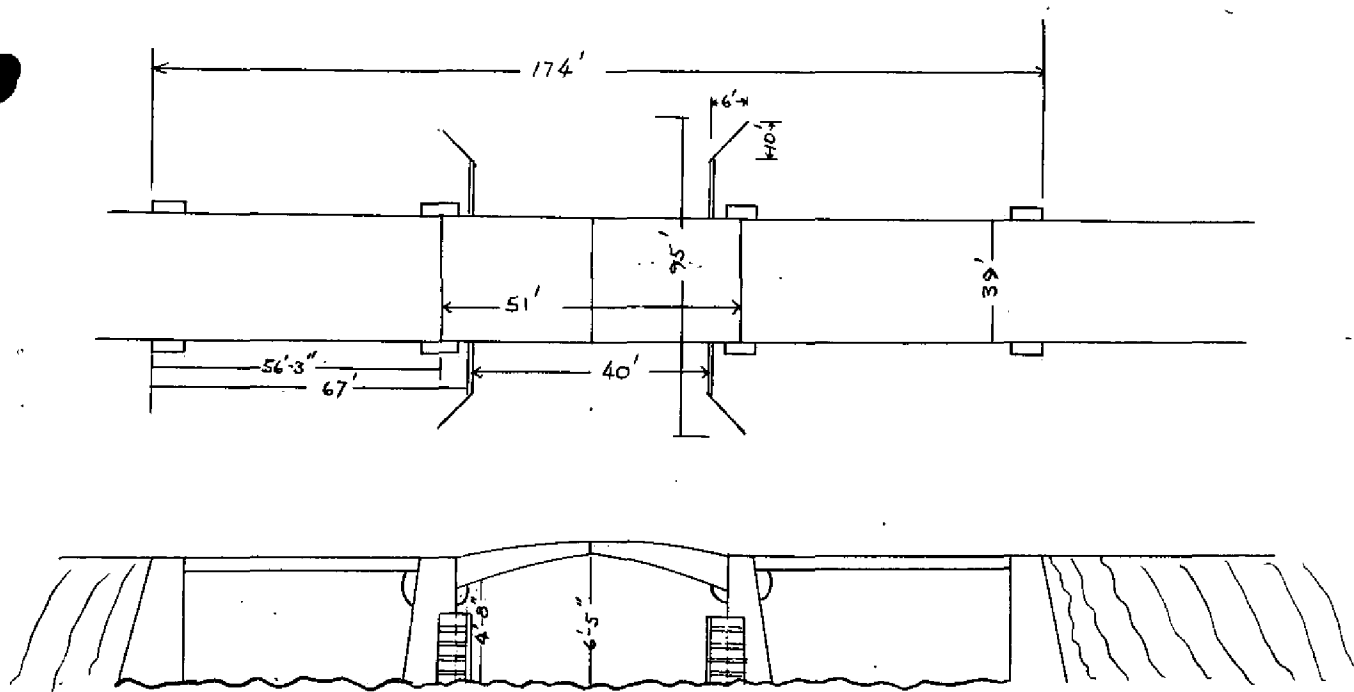
R.H. Carstens

R. H. Carstens,
Deck Officer

Approved:

J. C. Bose
J. C. Bose, Lieut., C&GS.,
Chief of Party

SUFFOLK BRIDGE



DATA ON SUFFOLK BRIDGE:

Type --- bascule..

Total length --- 174 feet.

Length of draw --- 51 feet.

Clearance between fenders --- 40 feet.

Clearance above M. H. W. at center of draw --- 6 feet 5 inches.

Clearance above M. H. W. at side of draw ----- 4 feet 8 inches.

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

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

AND REFER TO NO.

WASHINGTON

20-RS
1990 (6)

November 13, 1934.

To: Lieutenant J. C. Bose,
Coast and Geodetic Survey,
General Delivery,
Suffolk, Virginia.

From: The Director,
U. S. Coast and Geodetic Survey.

Subject: Indication of marsh line on topographic sheets,
Nansemond River.

Referring to the question raised during a recent inspection of your party by the Chief of the Division of Hydrography and Topography regarding the showing on your topographic sheets of the marsh line and fast land line, you will show the fast land line as the ordinary shore line. You will show the marsh line by a solid pencilled line with the outer edge of the regular marsh symbol making a neat junction with the pencilled line, which should be left on the sheet after inking. A final decision will be made in this office later upon receipt of the topographic sheets as to the method of showing the outer marsh line in chart construction.

You will please call attention to this matter in the descriptive reports on the sheets.

(Signed) R. S. Patton
Director.

Remarks


Decisions

1		
2	omit: see Desc. Rept.	
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4	" " " "	
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8	"Trotmans" on sheet, under chart 529	<u>Trotman Web</u>
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12	"Hullidags" on U.S.G.S 9444.	
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GEOGRAPHIC NAMES

Survey No. 6421 a

GEOGRAPHIC NAMES		Survey No. 6421 a									
Name on Survey	On Chart No. 529										
	A	B	C	D	E	F	G	H	K		
Nansemond River ✓	*		✓							1	
-Wilroys Ldg. }										2	
-Wilsons Ldg. }										3	
-Norfleets Whf. }										4	
Burnett's Mill Creek ✓										5	
Buzzard Island ✓	*									6	
Shingle Creek ✓	*		✓							7	
Suffolk ✓	*		✓							8	
Trotman whf.										9	
Western Branch	*		✓							10	
Dumpling I	*		✓					✓		11	
Holliday Pt.	*		✓					✓		12	
Sleepy Hdk Pt	*							✓		13	
Ferry Pt	*		✓							14	
Glebe Pt	*		✓							15	
Reids Ferry	*		✓							16	
										17	
Cedar Creek			*							18	
										19	
										20	
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										25	
										26	
										27	

Names underlined in red approved by  on 4/14/36

M 234

Names and figures in red approved
by *(Signature)* on 4/14/36

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
DESCRIPTIVE REPORT } No. H
~~PHOTOSTAT OF~~ } No. T 6421 a

{ received March 20, 1936
{ registered April 9, 1936
{ verified
{ reviewed
{ approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE		Initial	Attention called to
20			
22			
24			
25			
26			
30			
40			
V 62		W.H.S.	Last Paragraph page 3 - P.R.
63			
V 82	Capt Ellis	E.P.E.	Last # page 3 P.R.
83			
88			
90			
V 82	A.L. Shalowitz		"Marshes", page 4 P.R. - see also Director's letter of Nov. 13, 1934 - attached.

RETURN TO

82	
----	--

G. K. Green April 10, '36

✓

REVIEW OF TOPOGRAPHIC SURVEY No. 6421a

Title (Par. 56) *Nansemond River - Western Branch to Suffolk, Va.*Chief of Party *J.C. Base* Surveyed by *R.H. Carstens* Inked by *R.H. Carstens*Ship *Launch Welker* Instructions dated *Jan. 23-26, 1934* Surveyed in *October, 1934*

1. The survey and preparation for it conform to the requirements of the Topographic Manual. (Par. 7, 8, 9, 13, 16.) ✓
2. The character and scope of the survey satisfy the instructions. ✓
3. The control and closures of traverses were adequate. (Par. 12, 29.)
Only 1 closure mentioned in D.R.
4. ~~The amount of vertical control that the Manual specifies for contours-formlines was accomplished.~~ (Par. 18, 19, 20, 21, 22, 23.)
5. ~~The delineation of contours-formlines is satisfactory.~~ (Par. 49, 50.)
6. There is sufficient control on maps from other sources that were transmitted by the field party to enable their application to the charts. (Par. 28.) *Sketch showing new Suffolk Bridge submitted and inserted in Descriptive Report*
7. High water line on marshy and mangrove coast is clear and adequate for chart compilation. (Par. 16a, 43, 44.) ✓
8. ~~The representation of low water lines, reefs, coral reefs and rocks, and legends pertaining to them is satisfactory.~~ (Par. 36, 37, 38, 39, 40, 41.)
9. ~~Reefs and other important details shown on previous surveys and on the chart were verified.~~ (Par. 25, 26, 27.)
See Reverse Side
10. The span, draw and clearance of bridges are shown. (Par. 16c.) ✓
11. ~~Locations and elevations of summits are given.~~ (Par. 19, 51.)
12. ~~The tree line was shown on mountains.~~ (Par. 16g.)

NOTE: Strike out paragraphs, words or phrases not applicable and modify those requiring it. Paragraph numbers refer to those in the Topographic Manual. Use reverse side for extending remarks.

Paragraph 9

T1352-a-b (1874)

This is an "a" and "b" sheets of the same survey and will be considered as one. Even though there has been a lapse of nearly 60 years between this survey and the present survey 6421-a they are generally in fair agreement. The present survey is more in detail as to marshes, than was T1352. The main path of the Nansemand River is virtually the same. The control on the present survey is far better than on T1352-a-b. Several islands in the marsh have remained practically the same. The marsh itself is changing and the marsh line itself is much a matter of opinion as to its location. This is the only prior survey of this area by this bureau.

T6421-a supersedes T1352 a-b in part.

As chart 78 is on so much smaller a scale than the present survey, no important changes in detail are noticeable.

13. The descriptive report covers all details listed in the Manual, in so far as they apply to this survey. (Par. 64, 65, 66, 67.) ✓
14. ~~The descriptive report also contains additional information required in aero-topography relative to type of photographs, method of compilation and type of ground control.~~
15. The descriptions of recoverable stations and references to shore line were accomplished on Form 524. (Par. 29, 30, 57, 67 except scaling of DMs and DPs, 68.) *23 Cards submitted*
16. A list of landmarks for charts was furnished on Form 567 and plotting checked. (Par. 16d, e, 60.) *None Submitted*
17. The magnetic meridian was shown ✓ and declination was checked. (Par. 17, 52.) *Declination checks value shown on chart
No evidence of having checked declinaoire*
18. The geographic datum of the sheet is *N.A. 1927 (Adjusted)* and the reference station is correctly noted. (Par. 34.) ✓
19. Junctions with contemporary surveys are adequate. ✓
Joins T 6421b on the North
20. Geographic names are shown on the sheet and are covered by the Descriptive report. (Par. 64, 66k.) ✓
21. The quality of the drafting is ^{Fair} good. (Par. 31, 32, 33, 35, 36, 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 50.)
22. No additional surveying is recommended. ✓
23. The Chief of Party inspected and approved the sheet and the descriptive report after review by ✓
24. Remarks:

Reviewed in office by *Chas. R. Bush Jr.* July 6, 1936.

Examined and approved:

C. H. Green
Chief, Section of Field Records

L. O. Colbert
Chief, Division of Charts

Frederic L. Peacock
Chief, Section of Field Work

G. A. de
Chief, Division of Hyd. and Top.

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

AND REFER TO NO. 82-DRM

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

April 22, 1936.

Assistant Chief,
Division of Geodesy.

Subject: Error in Primary Traverse Station No. 5 P (U.S.G.S.)
(Va.), 1918. Special Publication No. 101, page 27.

Reference: Last paragraph, page 3, Descriptive Report T 6421a
(attached).

This station was re-located by plane-table traverse by R. H. Carstens (J. C. Bose, Chief of Party) on topographic survey No. 6421a in 1934.

The scaled values on the survey, Lat. $36^{\circ}44'488.8$ m., Long. $76^{\circ}34'1439.2$ m. (N.A.1927), differ from the published values by -37.5 meters in latitude and -10.0 meters in longitude. The survey was done on an aluminum mounted sheet and the control was excellent. The topographic location is believed to be correct within the limits of our improved topographic methods on aluminum control sheets.

The matter is referred to your Division for whatever action is considered necessary.

863
GTZ° 73616
GBZ° 73615

C. H. Green
Chief, Field Records Section.

Memorandum regarding T. 64212

Namemond R., Western Province to Suffolk, Va.

Chief of Party J. C. Boze

Surveyed in October, 1934 by R. H. Garstens.

Projection. Parallel $36^{\circ}47'$ is 5 meters too far north. The corrected location of the line has been shown in red. All details in this locality should be adjusted to the red line when charting or comparing with other surveys.

Datum. The sheet is on North American (1927) datum.

Control. The descriptive report states that a traverse from Δ Suffolk to Buzzard Island revealed a difference of -37.5 meters in latitude and -12.0 meters in longitude of Primary Traverse Station 5 P (Geological Survey), 1918 from the values published in Special Publication No. 101.

This statement led to an investigation by the Office of the Control noted by this sheet.

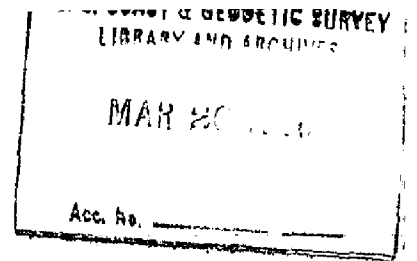
The Division of Geodesy has investigated the published values of station 5 P and finds no reason to question the published values of the station.

Stations Blue, Jack and Junction are included in a primary traverse in 1932. The Division of Geodesy reports

That this Traverse has defects which make it unavailable for inclusion in the Triangulation of the Survey and that they have never furnished Geographic positions for the three stations noted. These stations were shown on the sheet as Triangulation stations, but the source of the data from which they were plotted is not known. Gregory considers them of doubtful accuracy and the symbols have been changed to the symbol for topographic station.

The Office is informed that the Traverse from Δ Suffolk ended in a 3-point fix on Buzzard I. The objects used for the fix are not known and, as they may have been one or more of the stations Black, Jack or Junction, the accuracy of the Traverse is dubious.

E. P. Gull



NANSEMOND RIVER, VIRGINIA.
Computations of U.S. Engineers Stations.

The computations in this folder were made to determine additional control points for topographic sheet A. The angle at \triangle NBP (U.S.E.) between NBQ and Burnetts (C. & G. S., 1934) was measured with a 7 inch Berger theodolite. By means of this angle a connection was made between the triangulation of the U. S. Engineers' and that executed by H. A. Seran on the Nansemond River, 1934. The rest of the Engineers' stations were then computed from observations made by the U. S. Engineers, taken from a sketch which was sent to the office by Comdr. H. A. Seran along with the field records of his own party. While the degree of accuracy of the U. S. Engineers is not known by the field party, it is undoubtedly greater than that of a planetable traverse would have been.

These additional points should be classed as topographic control points (Fourth order control). It shown ~~on~~ triangulation sheet by triangulation symbol, replace by topographic station symbol. This does not apply to points incorporated into C. & G. S. schemes by direct measurement. JHP

COMPUTATION OF TRIANGLES

State: Virginia

11-9121

NO.	STATION	OBSERVED ANGLE	CORR'N	SPHER'L ANGLE	SPHER'L EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
2-3							
1	NBQ						
2	Burnetts						
3	NBP	127-31-18.7					
1-3							
1-2							
This angle was measured by theodolite by J.C. Bose. All angles below were taken from U.S. Engineers.							
2-3							2.848 195 ✓
1	NBR	84-44-13					0.001 835 ✓
2	NBQ	57-16-05					9.924 904 ✓
3	NBP	37-59-42					9.789 294 ✓
1-3		60				595.57	2.774 934 ✓
1-2						435.84	2.639 324 ✓
2-3							2.639 324 ✓
1	NBS	61-36-05					0.055 685 ✓
2	NBQ	33-04-39					9.737 012 ✓
3	NBR	85-19-16					9.998 550 ✓
1-3		60				270.41	2.432 021 ✓
1-2						493.81	2.693 559 ✓
2-3							2.693 559 ✓
1	NBT	55-33-36					0.083 694 ✓
2	NBQ	35-17-10					9.761 672 ✓
3	NBS	89-09-14					9.999 953 ✓
1-3						345.88	2.538 925 ✓
1-2						598.69	2.777 206 ✓

Do not write in this margin

COMPUTATION OF TRIANGLES

State: VIRGINIA

11-9121

NO.	STATION	OBSERVED ANGLE	CORR'N	SPHER'L ANGLE	SPHER'L EXCESS	PLANE ANGLE AND DISTANCE	LOGARITHM
2-3							2.538 925 ✓
1	NBU	88-37-24					0.000 125 ✓
2	NBT	27-03-03					9.657 802 ✓
3	NBS	64-19-33					9.954 856 ✓
1-3		00				157.34 ✓	2.196 852 ✓
1-2						311.82 ✓	2.493 906 ✓
2-3							2.493 906 ✓
1	NBV	31-14-17					0.285 172 ✓
2	NBT	31-54-59					9.723 194 ✓
3	NBU	116-50-44					9.950 475 ✓
1-3		00				317.89 ✓	2.502 272 ✓
1-2						536.48 ✓	2.729 553 ✓
2-3							2.502 272 ✓
1	NBW	113-49-05					0.038 658 ✓
2	NBV	31-29-21					9.717 951 ✓
3	NBU	34-41-34					9.755 246 ✓
1-3		0				181.50 ✓	2.258 881 ✓
1-2						197.78 ✓	2.296 176 ✓
2-3							
1							
2							
3							
1-3							
1-2							

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POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

FIRST ANGLE OF TRIANGLE													
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POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

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POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

α	2	NBT	to 3	NBS	297	37	20.8	α	3	NBS	to 2	NBT	117	37	28.2										
$2^d \angle$			&		+ 27	03	03.0	$3^d \angle$			&		- 64	19	33.0										
α	2	NBT	to 1	NBU	324	40	23.8	α	3	NBS	to 1	NBU	53	17	55.2										
$\Delta \alpha$					+		04.4	$\Delta \alpha$					-		03.0										
					180	00	00.0						180	00	00.0										
α'	1	NBU	to 2	NBT	144	40	28.2	α'	1	NBU	to 3	NBS	233	17	52.2										
° ' " FIRST ANGLE OF TRIANGLE																									
					88	37	24																		
ϕ	36	45	35.75	2	NBT	76	34	40.85	ϕ	36	45	30.55	3	NBS	76	34	28.49								
$\Delta \phi$			08.25			-		07.27	$\Delta \phi$	-		03.05			$\Delta \lambda$	+	05.09								
ϕ'	36	45	27.50	1	NBU	76	34	33.58	ϕ'	36	45	27.50	1	NBU	76	34	53.58								
° ' " Values in seconds																									
s	2.493906	(1001.8)			36	45	31.6	s	2.196852	Values in seconds			$\frac{1}{2}(\phi+\phi')$	36	45	29.0									
$\cos \alpha$	9.911620	847.7			Logarithms			$\cos \alpha$	9.776442	Logarithms			s	2.196852	Values in seconds										
B	8.511095	1st term 8.253			B	8.511095	Logarithms			1st term	3.051	Logarithms			$\sin \alpha$	9.904045									
h	0.916621				h	0.916621	Logarithms						A'	2.509200											
s^2	4.988				s^2	4.988	Logarithms						$\sec \phi'$	0.096273											
$\sin^2 \alpha$	9.262				$\sin^2 \alpha$	9.262	Logarithms						$\Delta \lambda$	0.706370											
C	1.278				C	1.278	Logarithms						$\sin \frac{1}{2}(\phi+\phi')$	9.777019											
	5.528					5.528	Logarithms			2d term	+				$-\Delta \alpha$	0.483389									
h^2					h^2		Logarithms									+3.044									
D	2.374				D	2.374	Logarithms			3d term	+														
															3d term	+			- $\Delta \phi$	3.051					

POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

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POSITION COMPUTATION, THIRD-ORDER TRIANGULATION

° ' "																	
α	2	NBV	to 3	NBV	207	49	40.6	α	3	NBU	to 2	NBV	27	49	44.2		
$2^d \angle$			&		+ 31	29	21.0	$3^d \angle$			&		- 34	41	34.0		
α	2	NBV	to 1	NBW	239	19	01.6	α	3	NBU	to 1	NBW	353	08	10.2		
$\Delta \alpha$					+		04.1	$\Delta \alpha$					+		00.5		
					180	00	00.0						180	00	00.0		
α'	1	NBW	to 2	NBV	59	19	05.7	α'	1	NBW	to 3	NBU	173	08	10.7		
° ' " FIRST ANGLE OF TRIANGLE																	
ϕ	36	45	18.38	2	NBV	76	34	39.52	ϕ	36	45	27.50	3	NBU	76	34	33.58
$\Delta \phi$	+		03.27			-		06.86	$\Delta \phi$	-		05.85			-		00.87
ϕ'	36	45	21.65	1	NBW	76	34	32.70	ϕ'	36	45	21.65	1	NBW	76	34	32.71
Values in seconds																	
s	2 296 176	(1182.2)		$\frac{1}{2}(\phi+\phi')$	36	45	20.0	s	2 258 881	Values in seconds		$\frac{1}{2}(\phi+\phi')$	36	45	24.6		
$\cos \alpha$	9.707814	667.3		Logarithms				$\cos \alpha$	9.996876	Logarithms		s	2 258 881	Values in seconds			
B	8.511095	-3.274		s	2 296 176	(677.2)		B	8.511095	5.846		$\sin \alpha$	9.077405				
η	0.515085			$\sin \alpha$	9.934501	811.1		h	0.766852			A'	8.509200				
s^2				A'	8.509200	-6.857		s^2				$\sec \phi'$	0.096264				
$\sin^2 \alpha$				$\sec \phi'$	0.096264			$\sin^2 \alpha$				$\Delta \lambda$	9.941750	-0.874			
C				$\Delta \lambda$	0.83614			C				$\sin \frac{1}{2}(\phi+\phi')$	9.777006				
				$\sin \frac{1}{2}(\phi+\phi')$	9.776993	-4.10		h^2				$-\Delta \alpha$	9.718756	-0.52			
h^2				$-\Delta \alpha$	0.613134			D									
D																	
				1st term	+			2d term	+			3d term	+				
				-3.274				-4.10				-4.10					
				$-\Delta \phi$													

6421b

U. S. COAST & GEODETIC SURVEY
LIBRARY AND ARCHIVES

MAR 20 1936

Acc. No. _____

Form 504
Rev. Dec. 1933
DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
R. S. PATTON, DIRECTOR

DESCRIPTIVE REPORT

Topographic

~~Hydrographic~~

Sheet No. B

State Virginia

LOCALITY

Nansemond River, Suffolk, Va.

Sleepy Hole Pt. to Western Branch

1934

CHIEF OF PARTY

J. C. Bose

U. S. GOVERNMENT PRINTING OFFICE: 1934

6421b

T✓

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

U. S. COAST & GEODETIC SURVEY
LIBRARY AND ARCHIVES

MAR 20 1936

REG. NO.

Acc. No.

TOPOGRAPHIC TITLE SHEET

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

letter

Field ~~No.~~ B

REGISTER NO.

6421 b

State Virginia

General locality Hampton Roads

Locality Nansemond River Sleepy Hole Pt. to Western Branch

Scale 1:10,000 Date of survey November, 1934

Vessel Launch WELKER

Chief of party J. C. Bose

Surveyed by R. H. Carstens

Inked by R. H. Carstens

Heights in feet above _____ to ground to tops of trees

Contour, Approximate contour, Form line interval _____ feet

Instructions dated January 23 and January 26, 1934

Remarks: _____

DESCRIPTIVE REPORT

TO ACCOMPANY TOPOGRAPHIC SHEET B

Launch WELKER

J. C. Bose, Chief of Party

Nansemond River, Suffolk, Va.

Scale -- 1:10,000

Project H. T. 173

The Descriptive Report covering Topographic sheet B
is herewith submitted.

INSTRUCTIONS:

The topography on sheet B was executed as part of Project
H. T. 173, under instructions dated January 23, 1934 and supplementa-
ry instructions dated January 26, 1934.

GENERAL APPEARANCE OF SHORELINE:

That portion of the Nansemond River included on sheet B
is fairly wide but narrows down to less than 100 meters on the
southern end. The shores on the most part are bordered by marshes.
This is especially characteristic of the southern half of the sheet
where the tall marsh grass extends for a considerable distance back
of the shore line. In the north half of the sheet the marsh grass
is as a rule much shorter and extends only a short distance to fast
land.

North of Glebe Pt. on the east shore and north of Holliday
Pt. the low tide bares an area covered with short marsh grass which
in some cases makes the determination of the high water line rather
difficult. At extreme low tide large areas of mud flats are bared
in the wider portions of the river. These however, are covered with
shoal water at ordinary ranges of tide.

The fast land as a rule is tree covered and rises to a height usually less than 15 or 20 feet.

LANDMARKS:

Old land marks on this sheet which have been destroyed and should be removed from chart 529 are: (1) building at Trotmans Wharf and (2) building 1/2 mile south of Reids Ferry.

The elevated steel water tank at Sleepy Hole (Δ Sleepy Hole Tank, 1934), while not visible offshore, is worth charting on Chart No. 529.

There are no other objects that can properly be called landmarks, unless it be considered desirable to show the various houses.

GEOGRAPHIC NAMES:

No new geographic names were found for features on this sheet. The wharf at Trotmans Wharf has been demolished and now only the old piles remain to mark the location.

CONTROL AND SURVEY METHODS:

The survey was controlled by triangulation established in 1934.

Only one traverse from station FORT to station WATER was run. This traverse controlled the survey of Western Branch. The length of the traverse was 2.2 miles and the closing error was 9 meters. The traverse was adjusted on the sheet by shifting the plane table positions a proportionate part of the closing error in direct ratio to the distance of the plane table position from the starting point of the traverse.

Standard plane table methods were used in executing this survey. Plane table fixes were determined by telemeter distances from triangulation stations, resection, intersection of cuts and by the three point problem method. ✓

The shore line of the river and the topographic features adjacent thereto were delineated, and the positions of U. S. Engineers stations signals for hydrography landmarks and aids to navigation were determined. ✓

MARSHES:

The water's edge on the south of the sheet is bordered by high marsh grass which forms a definite shore line for navigation. On the north half of the sheet the river is bordered with shorter marsh grass which is partially submerged by water at high tide. ✓

Where such is the case, the high water line was determined by the color appearance and type of marsh grass. The outer edge of the thin short marsh grass was determined either by wading out to it or by the use of a small boat; this line was considered as the ordinary low water line.

In accordance with correspondence of November 13, 1934 the shore line, except where it was bordered by fast land as steep banks, was left in pencil. The fast land area where it was located by telemeter distances was inked in as a fine line. Where the position of the fast land area was estimated, a dotted pencil line was used to determine it. The low water line as determined by outer edge of the short marsh grass was left in pencil as a dotted line. The limits of the mud flats exposed at extreme low water were left in pencil as a dotted line.

* No dotted pencil lines on sheet. Must mean short-dashed lines.

BR

The outer limits of the marsh land to the north of station WILROY on the east bank of the river, and the marsh land to the west of station SACK on the west bank were not surveyed because of the great distance from the shore line and because of the inaccessibility of good plane-table set ups.

CHANGES IN SHORE LINE:

No great changes in shore line is apparent on this sheet. At a point east of the entrance to Western Branch and behind the river wall which extends some distance upstream on the east shore, the river appears to be filling in. Here little islands of marsh grass surrounded by water except at low tide are gradually forming a new shore line.

Respectfully submitted,

R. H. Carstens

R. H. Carstens, Deck Officer

Approved:

J. C. Bose

J. C. Bose, Lieut. C&GS.,
Chief of Party

5

DATA ON KINGS HIGHWAY BRIDGE

Type --- turn-table truss approached by girder bridge construction.

Total length of bridge --- 3,738 feet.

Length of turn-table span --- 200 feet.

Clearance on north side of turn-table --- 80 feet.

Clearance on south side of turn-table --- 81 feet.

Clearance above M. H. W. --- 9 feet.

DATA ON REIDS FERRY BRIDGE

Type --- turn-table truss.

Total length of bridge --- 280 feet.

Length of turn-table span --- 128 feet.

Clearance between fenders on south side of turn-table --- 39 feet.

No navigatable channel on north side of turn-table.

Clearance above M. H. W. --- 7 feet.

Remarks

Decisions

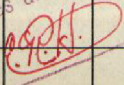
1		
2		
3		
4	Hollidays Pt. on USGS	Hollidays Pt. * USGS. (June, 1940)
5		
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GEOGRAPHIC NAMES

Survey No. 6421 b

GEOGRAPHIC NAMES											
Survey No. 6421 b											
Name on Survey	<div>On Chart No. 529</div> <div>On previous survey No.</div> <div>On U. S. quadrangle Maps</div> <div>From local information</div> <div>On local Maps</div> <div>P. O. Guide or Map</div> <div>Rand McNally Atlas</div> <div>U. S. Light List</div>										
	A	B	C	D	E	F	G	H	K		
<u>Nansemond River</u> ✓	*		✓							1	
<u>Ferry Pt.</u> ✓	*		—							2	
<u>Sleepy Hole Pt.</u> ✓	*							—		3	
<u>Holliday Pt.</u> ✓	*							—		4	
<u>Glebe Pt.</u> ✓	*		—							5	
<u>Shackley Island</u> ✓	*		*							6	
<u>Cedar Creek</u> ✓			*							7	
<u>Dumpling I.</u> ?										8	
										9	
										10	
										11	
										12	
										13	
										14	
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										26	
										27	

Names underlined in red approved

by  on 4/14/36

M 234

Names underlined in red approved
by W. H. D. on 4/14/36

MEMORANDUM

IMMEDIATE ATTENTION

SURVEY
DESCRIPTIVE REPORT
~~PHOTOSTAT OF~~

No. H
No. T 6421 b

{ received March 20, 1936
registered April 9, 1936
verified
reviewed
approved

This is forwarded in order that your attention may be directed to the matters as indicated below. Please initial in column 3 as an acknowledgement that your attention has been thus directed. The complete original records are available if desired. If you cannot give this your immediate attention, please initial, note, and forward to the next section marked, calling for the records at your convenience.

ROUTE		Initial	Attention called to
20			
22			
24			
25			
26			
30			
40			
62			
63			
82			
✓ 83			"Landmarks" pages 2 and 6
88			
90			

RETURN TO

82	
----	--

G. K. Green April 10 - '36

REVIEW OF TOPOGRAPHIC SURVEY No. 64216 (Field No. "B")

Title (Par. 56) *Sleepy Hole Pt. to Western Branch, Nancemond River, Virginia.*Chief of Party *J. C. Bose* Surveyed by *R. H. Carstens* Inked by *R. H. Carstens*Ship *Oceanographer* Instructions dated *Jan. 23, 1934* Surveyed in *Nov. 1934.*

1. The survey and preparation for it conform to the requirements of the Topographic Manual. (Par. 7, 8, 9, 13, 16.) ✓
2. The character and scope of the survey satisfy the instructions. ✓
3. The control and closures of traverses were adequate. (Par. 12, 29.) ✓
4. ~~The amount of vertical control that the Manual specifies for contours-formlines was accomplished. (Par. 18, 19, 20, 21, 22, 23.)~~
5. ~~The delineation of contours-formlines is satisfactory. (Par. 49, 50.)~~
6. ~~There is sufficient control on maps from other sources that were transmitted by the field party to enable their application to the charts. (Par. 28.)~~
7. High water line on marshy and mangrove coast is clear and adequate for chart compilation. (Par. 16a, 43, 44.) ? ✓ } See a.s.s.
8. The representation of low water lines, reefs, coral reefs and rocks, and legends pertaining to them is satisfactory. (Par. 36, 37, 38, 39, 40, 41.) ? ✓ } +
9. Rocks and other important details shown on previous surveys and on the chart were verified. (Par. 25, 26, 27.) ✓
10. The span, draw and clearance of bridges are shown. (Par. 16c.) ✓
11. ~~Locations and elevations of summits are given. (Par. 19, 51.)~~
12. ~~The tree line was shown on mountains. (Par. 16g.)~~

NOTE: Strike out paragraphs, words or phrases not applicable and modify those requiring it. Paragraph numbers refer to those in the Topographic Manual. Use reverse side for extending remarks.

13. The descriptive report covers all details listed in the Manual, in so far as they apply to this survey. (Par. 64, 65, 66, 67.) ✓
No list of plane table positions submitted
14. ~~The descriptive report also contains additional information required in aero-topography relative to type of photographs, method of compilation and type of ground control.~~
15. The descriptions of recoverable stations and references to shore line were accomplished on Form 524. (Par. 29, 30, 57, 67 except scaling of DMS and DPs, 68.) ✓
16. A list of landmarks for charts was furnished on Form 567 and plotting checked. (Par. 18d, e, 60.) ✓
17. The magnetic meridian was shown and declination was checked. (Par. 17, 52.) *No evidence in the D.R. that the declination was checked.* ✓
18. The geographic datum of the sheet is *N.A. 1927 Adjusted* and the reference station is correctly noted. (Par. 34.) ✓
19. Junctions with contemporary surveys are adequate. ✓
20. Geographic names are shown on the sheet and are covered by the Descriptive report. (Par. 64, 66k.) ✓
Cedar Creek was not shown
21. The quality of the drafting is good. (Par. 31, 32, 33, 35, 36, 37, 38, 39, 40, 41, 42, 45, 46, 47, 48, 49, 50.) ✓
22. No additional surveying is recommended. ✓
23. The Chief of Party inspected and approved the sheet and the descriptive report, ~~after review by~~ ✓
24. Remarks:

Reviewed in office by *G. Risegari. April 28, 1936.*

Examined and approved:

C. H. Green
Chief, Section of Field Records

L. O. Lobert
Chief, Division of Charts

Fred. L. Peacock
Chief, Section of Field Work

G. H. de
Chief, Division of Hyd. and Top.